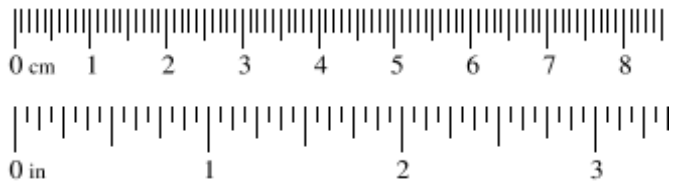
APPENDIX 5.4 BIG-1

BIOLOGICAL RESOURCES TECHNICAL REPORT

*PART 4

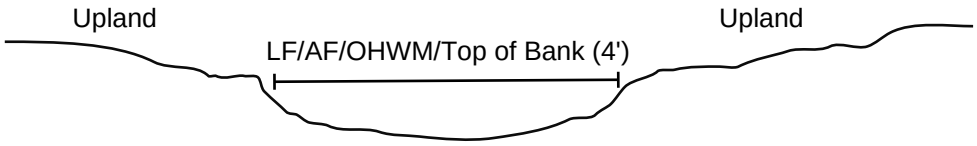
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 6 **Date:** 04/13/2022 **Time:** 0810

Cross section drawing:



OHWM

GPS point: 34.865122044,-117.13308065

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide OHWM defined by change in vegetation cover and change in average sediment texture. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 6 **Date:** 04/13/2022 **Time:** 0810

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: very coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide AF. Drift present as dead plant material deposited on Atriplex scrub adjacent to channel. Very coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: fine sand

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Atriplex sp. Fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 7
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 0823
Town: Barstow **State:** CA
Photo begin file#: 10 **Photo end file#:** 10

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.86456294, -117.13547279

Potential anthropogenic influences on the channel system:
Off-road vehicle use and potential influence by adjacent homes. Upstream log obstruction likely placed by adjacent residents.

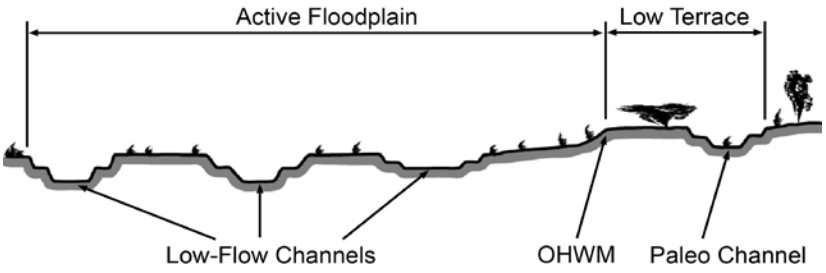
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

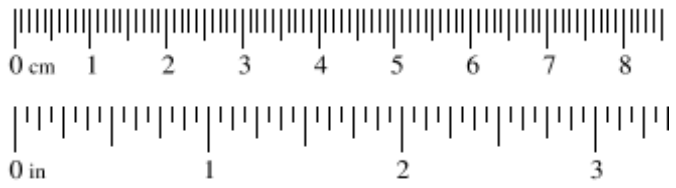


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

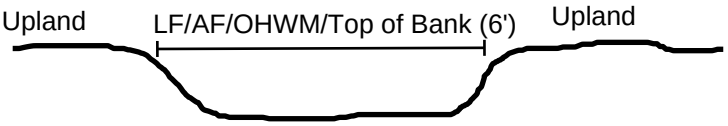
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 7 **Date:** 04/13/2022 **Time:** 0823

Cross section drawing:



OHWM

GPS point: 34.86456294, -117.13547279

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 7 **Date:** 04/13/2022 **Time:** 0823

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide AF with clear break in slope; Drift/debris present as dead plant material. Very coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 17 % Tree: 0 % Shrub: 15 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by creosote bush/Atriplex scrub. Fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 8
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1326
Town: Barstow **State:** CA
Photo begin file#: 11 **Photo end file#:** 11

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.86171543, -117.14261952

Potential anthropogenic influences on the channel system:
Residential dirt roads and housing may be contributing to localized flows that do not appear to connect downstream.

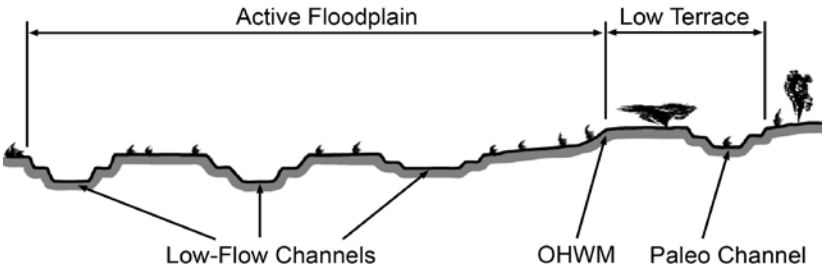
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
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   a) Record the floodplain unit and GPS position.
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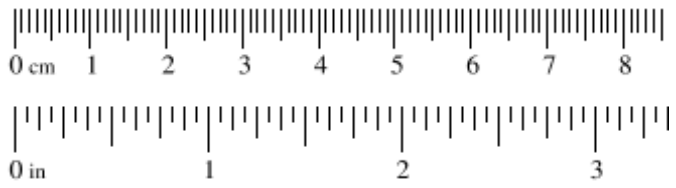
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

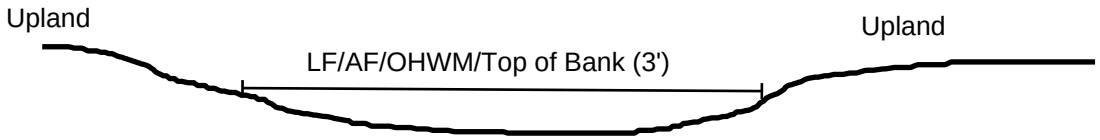
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: BNSF Big Barstow **Cross section ID:** ODP 8 **Date:** 04/13/2022 **Time:** 1326

Cross section drawing:



OHWM

GPS point: 34.86171543, -117.14261952

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide OHWM defined by a very shallow and gradual break in slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 8 **Date:** 04/13/2022 **Time:** 1326

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide AF with very shallow and gradual break in slope. Drift/debris present as dead plant. Very coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Ambrosia dumosa and Larrea tridentata. Coarse sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 9
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1331
Town: Barstow **State:** CA
Photo begin file#: 12 **Photo end file#:** 12

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.86304344,-117.140500865

Potential anthropogenic influences on the channel system:
Area received runoff from adjacent residential homes and dirt roads.

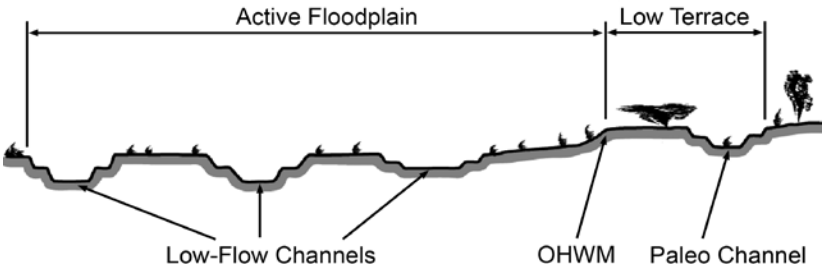
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

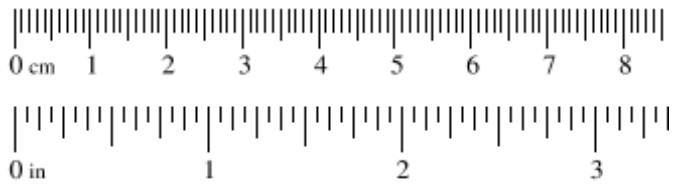


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

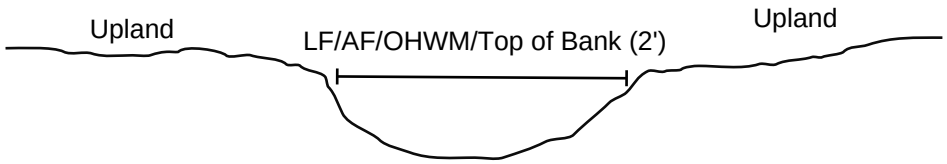
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 9 **Date:** 04/13/2022 **Time:** 1331

Cross section drawing:



OHWM

GPS point: 34.86304344,-117.140500865

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 9 **Date:** 04/13/2022 **Time:** 1331

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide AF. Drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 10 % Tree: 0 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Ambrosia dumosa and Larrea tridentata. Find sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 10
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1315
Town: Barstow **State:** CA
Photo begin file#: 13 **Photo end file#:** 13

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.85849318,-117.148919321

Potential anthropogenic influences on the channel system:
Area shows evidence of heavy off-road vehicle use and yard trash dumped in wash and throughout area.

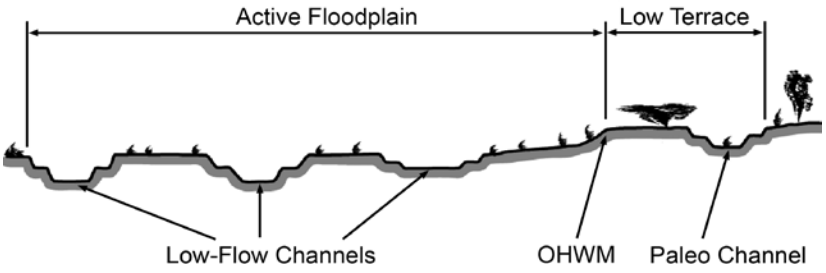
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

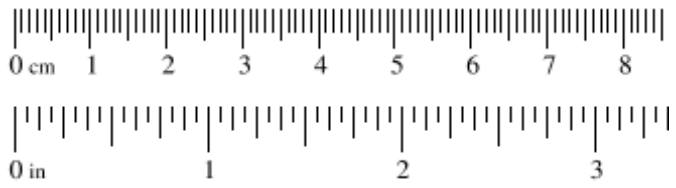


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

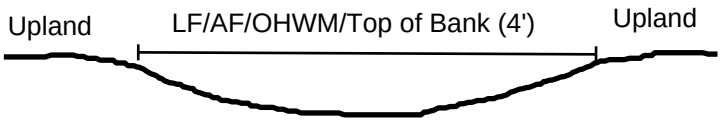
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 10 **Date:** 04/13/2022 **Time:** 1315

Cross section drawing:



OHWM

GPS point: 34.85849318,-117.148919321

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide OHWM defined by a shallow/gradual break in slope, change in vegetation cover, and change in average sediment texture. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 10 **Date:** 04/13/2022 **Time:** 1315

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide AF with slight break in slope. Drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: fine sand

Total veg cover: 10 % Tree: 0 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Ambrosia dumosa and Larrea tridentata scrub. Fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: BNSF Big Barstow
Project Number: N/A
Stream: ODP 11
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/22 **Time:** 1309
Town: Barstow **State:** CA
Photo begin file#: 14 **Photo end file#:** 14

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.857778251,-117.15123949

Potential anthropogenic influences on the channel system:
Heavy off-road vehicle use, dirt roads, and trash/debris throughout the entire area.

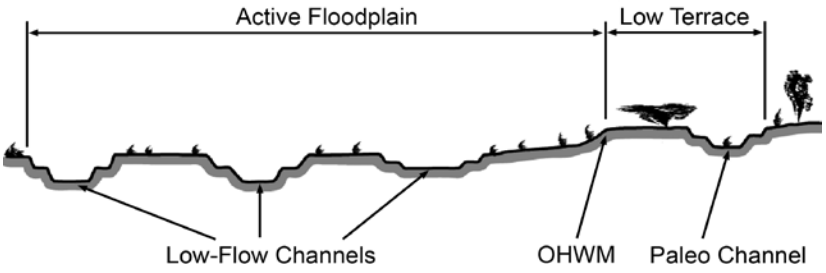
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

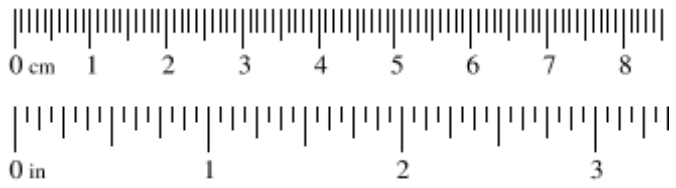


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

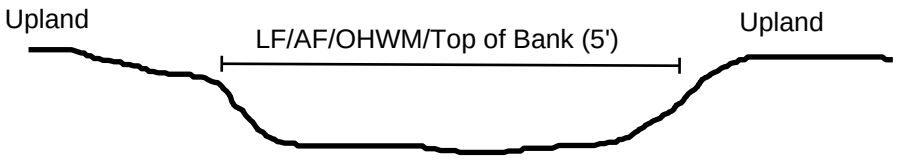
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 11 **Date:** 04/13/2022 **Time:** 1309

Cross section drawing:



OHWM

GPS point: 34.857778251,-117.15123949

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 5-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Feature has decreased definition in upstream and downstream portions and remains defined in the mid section. Feature appears erosional adjacent to road. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 11 **Date:** 04/13/22 **Time:** 1309

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 5-foot wide AF. Drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: fine sand

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Ambrosia dumosa and Larrea tridentata scrub. Fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 12
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1452
Town: Barstow **State:** CA
Photo begin file#: 16 **Photo end file#:** 16

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.857778251,-117.15123949

Potential anthropogenic influences on the channel system:
Area receives runoff from adjacent dirt road and railroad tracks.

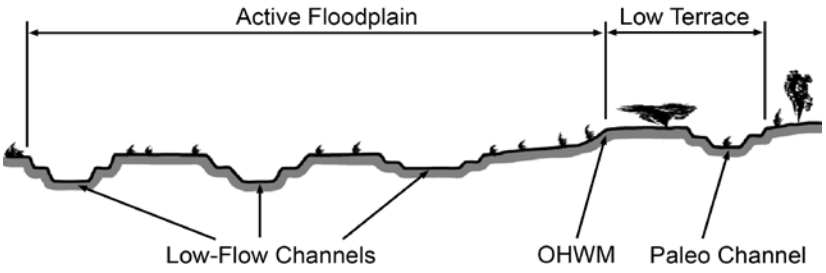
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

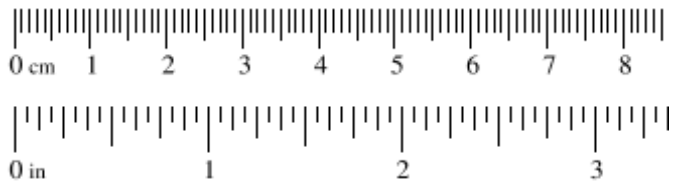


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

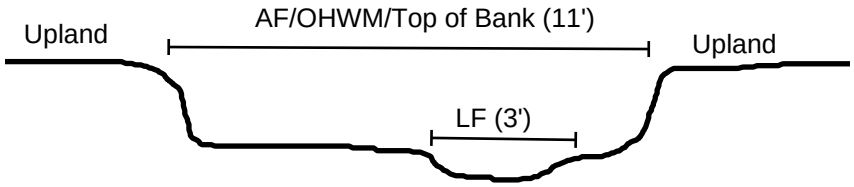
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 12 **Date:** 04/12/2022 **Time:** 1452

Cross section drawing:



OHWM

GPS point: 34.85631287,-117.15451914

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 11-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide low-flow channel (LF); very shallow and faint in some portions of the feature. Visible bed and bank. Granule sediment texture throughout.

Project ID: Big Barstow **Cross section ID:** ODP 12 **Date:** 04/12/2022 **Time:** 1452

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 2 % Tree: 0 % Shrub: 0 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Mid (herbaceous, shrubs, saplings)
- ☑ Early (herbaceous & seedlings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 11-foot wide AF, incised with an abrupt shift from upland to AF. Drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Early (herbaceous & seedlings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Atriplex canescens/Atriplex polycarpa scrub. Coarse sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 13
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1440
Town: Barstow **State:** CA
Photo begin file#: 17 **Photo end file#:** 17

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.853941018,-117.15730066

Potential anthropogenic influences on the channel system:
Area subject to heavy upstream off-road vehicle use and receives runoff from adjacent residential neighborhood.

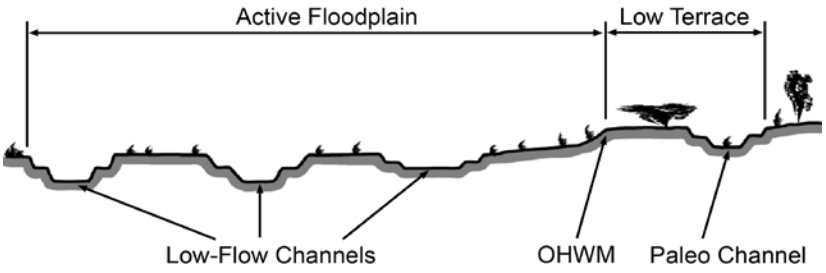
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

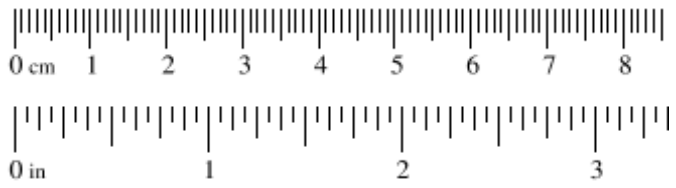


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

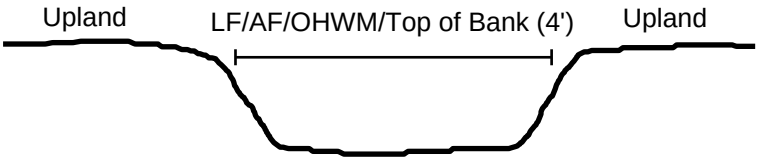
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 13 **Date:** 04/12/2022 **Time:** 1440

Cross section drawing:



OHWM

GPS point: 34.853941018,-117.15730066

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide OHWM defined by a break in bank slope, change in vegetation cover, and change in average sediment texture. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 13 **Date:** 4/12/2022 **Time:** 1440

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide AF. Shallow channel with drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: very fine sand

Total veg cover: 10 % Tree: 0 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Atriplex polycarpa and Ambrosia dumosa scrub. Very fine sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 14
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1418
Town: Barstow **State:** CA
Photo begin file#: 18 **Photo end file#:** 18

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.84826389,-117.165801470

Potential anthropogenic influences on the channel system:
Area receives runoff from upstream residential neighborhood and associated dirt roads.

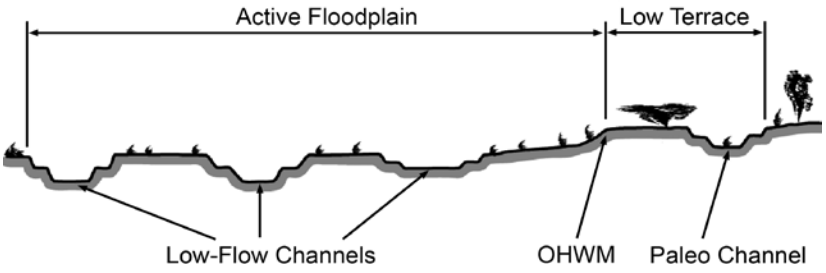
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

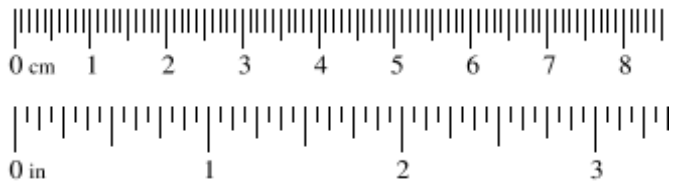


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

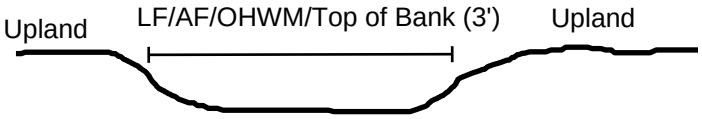
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	Gravel
2.56	64	Cobble	Gravel
0.157	4	Pebble	Gravel
0.079	2.00	Granule	Gravel
0.039	1.00	Very coarse sand	Sand
0.020	0.50	Coarse sand	Sand
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	Sand
1/8 0.0025	0.0625	Very fine sand	Sand
1/16 0.0012	0.031	Coarse silt	Silt
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	Silt
1/128 0.00015	0.0039	Very fine silt	Silt
		Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 14 **Date:** 04/12/2022 **Time:** 1418

Cross section drawing:



OHWM

GPS point: 34.84826389,-117.165801470

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide OHWM defined by a break in bank slope, change in vegetation cover, and change in average sediment texture. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 14 **Date:** 04/12/2022 **Time:** 1418

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide AF. Shallow channel with drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: very fine sand

Total veg cover: 5 % Tree: 0 % Shrub: 5 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Larrea tridentata and Ambrosia dumosa scrub. Very fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 15
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1304
Town: Barstow **State:** CA
Photo begin file#: 19 **Photo end file#:** 19

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.84366014,-117.167787774

Potential anthropogenic influences on the channel system:
Area receives runoff from upstream residential neighborhood and associated dirt roads.

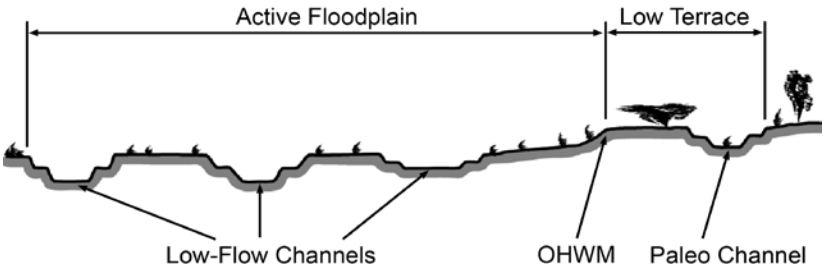
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

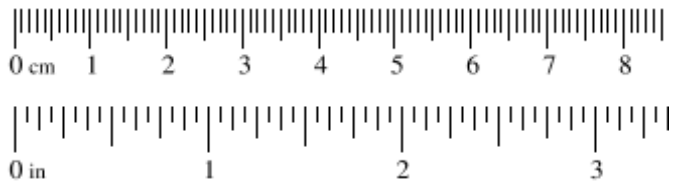


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

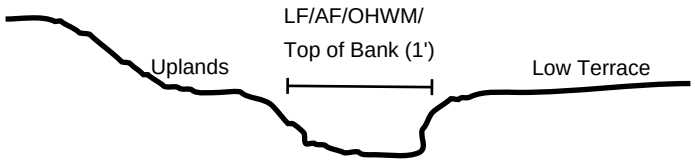
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 15 **Date:** 04/12/2022 **Time:** 1304

Cross section drawing:



OHWM

GPS point: 34.84366014,-117.167787774

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 15 **Date:** 04/12/2022 **Time:** 1304

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☑ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide AF exhibiting ripples. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 10 % Tree: 0 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Uplands present at west bank; low terrace present at east bank. Vegetation dominated by Larrea tridentata scrub. Multiple, vegetated low terrace areas exist between the seven OHWMs within the low topographic area. Granule sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 16
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1021
Town: Barstow **State:** CA
Photo begin file#: 20 **Photo end file#:** 20

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.83413979,-117.182567893

Potential anthropogenic influences on the channel system:
Residential irrigation appears to be contributing to flow. Additionally, trash and debris is present within and along banks of the feature.

Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
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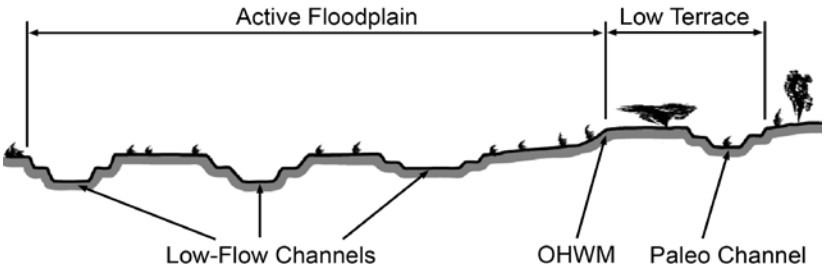
Hydrogeomorphic Floodplain Units



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
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   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
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   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
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		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
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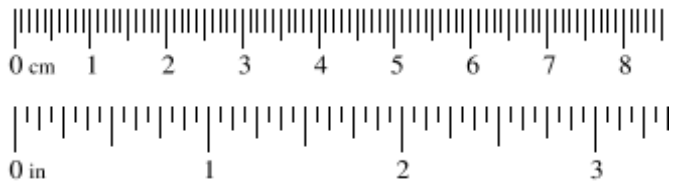
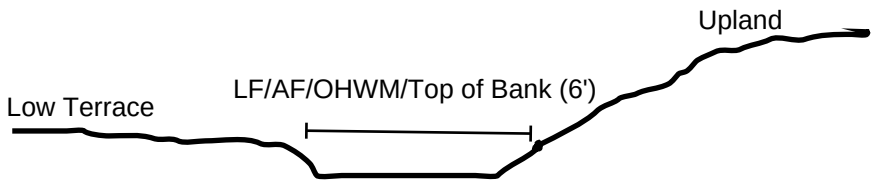
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 16 **Date:** 04/12/2022 **Time:** 1021

Cross section drawing:



OHWM

GPS point: 34.83413979,-117.182567893

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 16 **Date:** 04/12/2022 **Time:** 1021

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide AF. Drift/debris present as dead plant material. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 10 % Tree: 0 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Uplands present at west bank; low terrace present at east bank. Vegetation dominated by Larrea tridentata, Atriplex polycarpa, and Ambrosia dumosa. Granule sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 17
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1138
Town: Barstow **State:** CA
Photo begin file#: 21 **Photo end file#:** 21

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.82964338,-117.183496811

Potential anthropogenic influences on the channel system:
Wash appears to be utilized as a road for off-road vehicles. Flows are diverted into large culvert under railroad tracks.

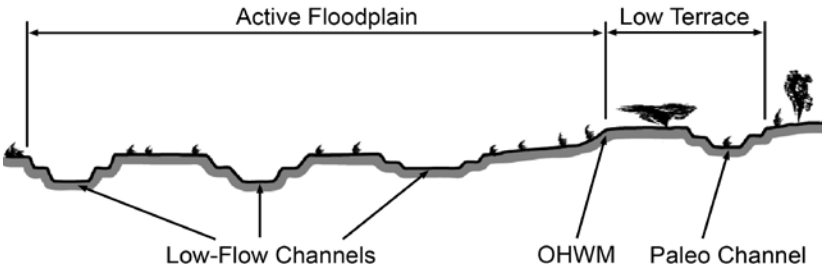
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

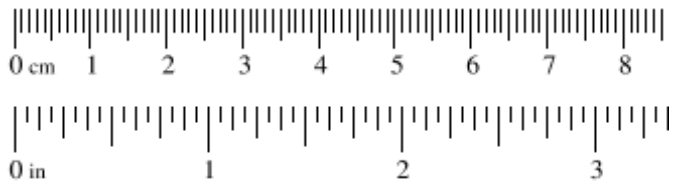


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

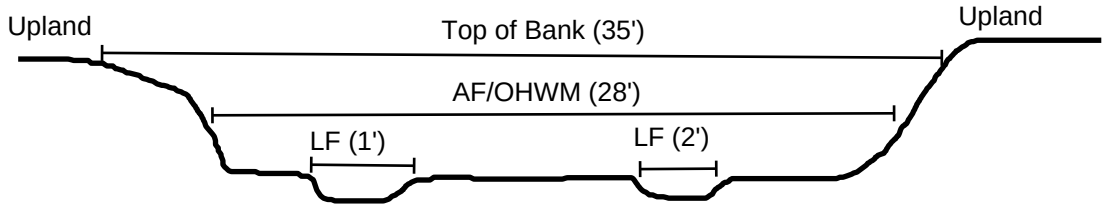
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 17 **Date:** 04/13/2022 **Time:** 1138

Cross section drawing:



OHWM

GPS point: 34.82964338,-117.183496811

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Large wash/road with approximately 28-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☑ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: finer sediment texture
- ☐ Other: _____
- ☐ Other: _____

Comments:

Two low-flow channels (LF) measuring approximately 1 foot and 2 feet wide; exhibiting ripples. Coarse sand sediment texture throughout.

Project ID: Big Barstow **Cross section ID:** ODP 17 **Date:** 04/13/2022 **Time:** 1138

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 4 % Tree: 0 % Shrub: 0 % Herb: 4 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☑ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 28-foot wide active floodplain (AF) that appears to function as a road. Drift/debris present as dead plant material. Vegetation dominated by Schismus sp. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: pebble

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Larrea tridentata, Atriplex polycarpa, and Senna armata. Pebble sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 18
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1057
Town: Barstow **State:** CA
Photo begin file#: 23 **Photo end file#:** 23

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.808776842,-117.201606214

Potential anthropogenic influences on the channel system:
Dirt road and small dirt berm are severing potential downstream connection.

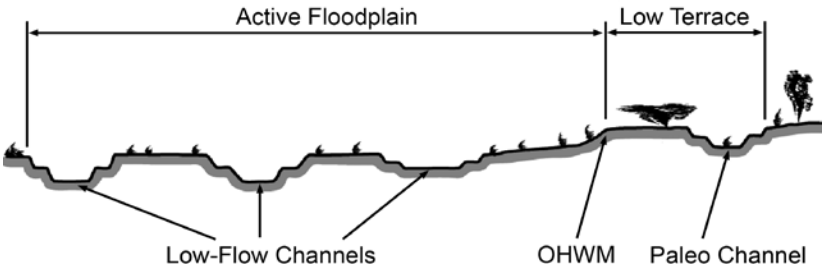
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Area receives flows from higher desert ground. Originally delineated on 12/12/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

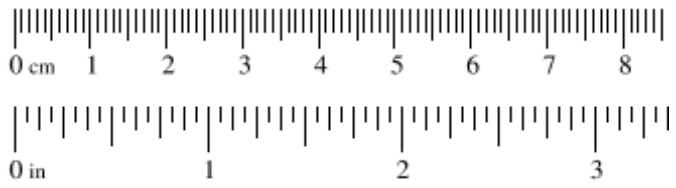


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

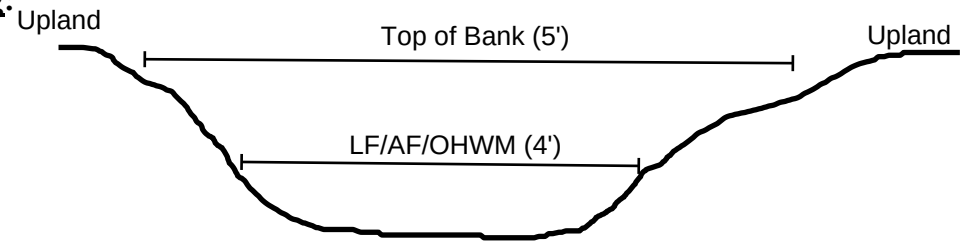
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 18 **Date:** 04/13/2022 **Time:** 1057

Cross section drawing:



OHWM

GPS point: 34.808776842,-117.201606214

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 18 **Date:** 04/13/2022 **Time:** 1057

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☑ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide OHWM. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: pebble

Total veg cover: 20 % Tree: 0 % Shrub: 20 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Atriplex polycarpa scrub. Pebble sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 19
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1257
Town: Barstow **State:** CA
Photo begin file#: 24 **Photo end file#:** 24

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.84361111, -117.16861111

Potential anthropogenic influences on the channel system:
Area receives runoff from upstream residential neighborhood and associated dirt roads.

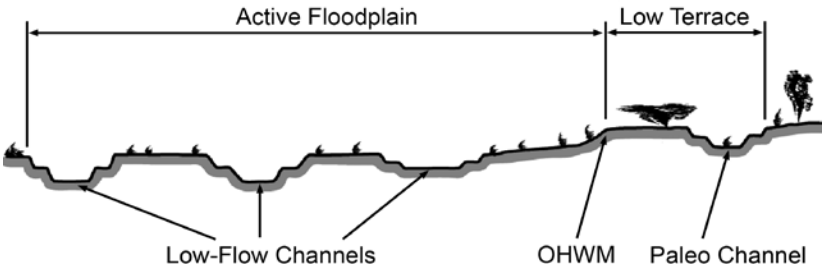
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

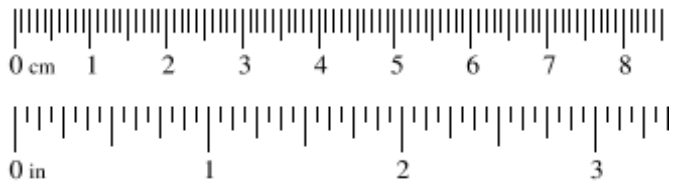


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

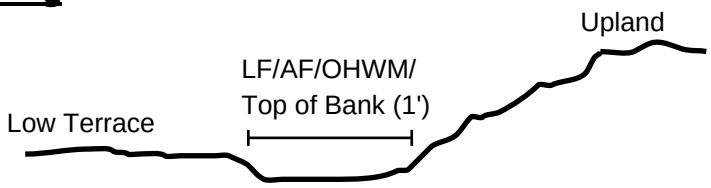
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 19 **Date:** 04/12/2022 **Time:** 1257

Cross section drawing:



OHWM

GPS point: 34.84361111, -117.16861111

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide OHWM defined by a change in average sediment texture, change in vegetation cover, and a break in bank slope. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 19 **Date:** 04/12/2022 **Time:** 1257

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☑ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide AF exhibiting sandy wash characteristics and ripples. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: pebble

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Uplands present at south bank; low terrace present at southeast bank. Vegetation dominated by Larrea tridentata scrub. Multiple, vegetated low terrace areas exist between the seven OHWMs within the low topographic area. Pebble sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 20
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1123
Town: Barstow **State:** CA
Photo begin file#: 25 **Photo end file#:** 25

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.81944638, -117.18971987

Potential anthropogenic influences on the channel system:
Area receives runoff from dirt road and railroad; trash/debris present.

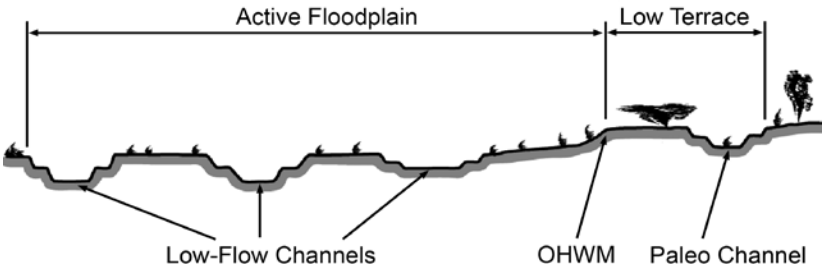
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Swale-like feature between dirt road and railroad. Originally delineated on 12/12/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

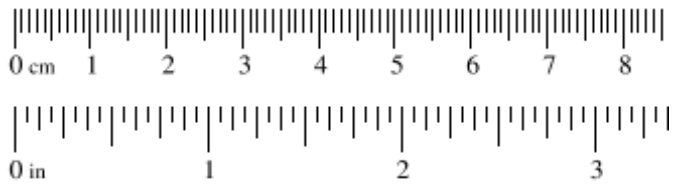


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

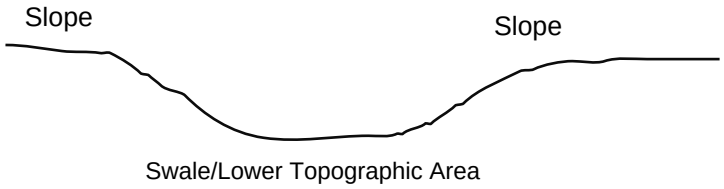
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 20 **Date:** 04/13/2022 **Time:** 1123

Cross section drawing:



OHWM

GPS point: 34.81944638, -117.18971987

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☐ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Lower topographic area (i.e., swale-like feature) that does not appear to sustain sufficient drainage flows to create the presence of a bed and bank and/or break in bank slope. Average sediment texture and vegetation species did not appear to differ from lower topographic area to adjacent slopes. A change in vegetation cover was observed between the lower topographic area and adjacent slopes (lower topographic area is generally unvegetated); however, no other OHWM indicators were present.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: Big Barstow **Cross section ID:** ODP 20 **Date:** 04/13/2022 **Time:** 1123

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 21
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 4/12/2022
Town: Barstow
Photo begin file#: 27

Time: 1335
State: CA
Photo end file#: 27

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.840211, -117.169904

Potential anthropogenic influences on the channel system:
Area receives runoff form adjacent dirt road and National Trails Highway.

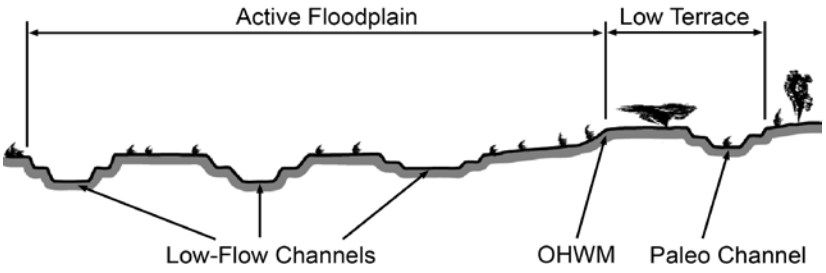
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 8/20/2019, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

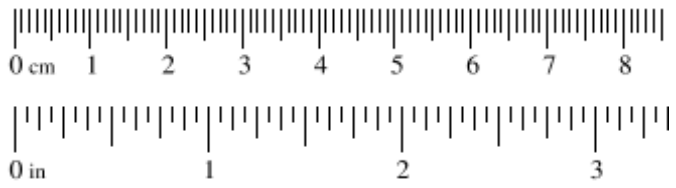


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

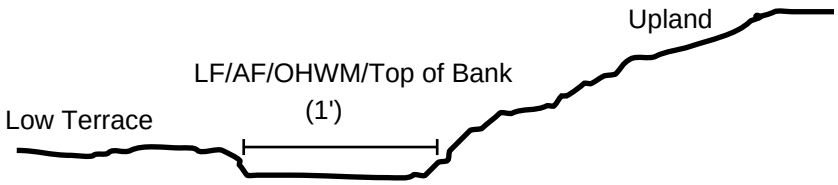
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 21 **Date:** 04/12/2022 **Time:** 1335

Cross section drawing:



OHWM

GPS point: 34.840211, -117.169904

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide OHWM adjacent to two similar features in an area of low topography. OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 21 **Date:** 04/12/2022 **Time:** 1335

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide AF with a 1-inch break in slope. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 15 % Tree: 0 % Shrub: 8 % Herb: 7 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Upland present at west bank; low terrace present at east bank. Upland vegetation dominated by Ambrosia dumosa, Larrea tridenta, Ephedra sp., Schismus barbatus, and Atriplex canescens. Low terrace vegetation consists of the above species as well as Erodium sp. Granule sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 22
Investigator(s): Sarah Krejca, Natasha Foti

Date: 12/01/2021 **Time:** 1115
Town: Barstow **State:** CA
Photo begin file#: 28 **Photo end file#:** 28

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.847611, -117.152992

Potential anthropogenic influences on the channel system:
Wash appears to be utilized as a road for off-road vehicles. Area also receives runoff from National Trails Highway to the south/southeast.

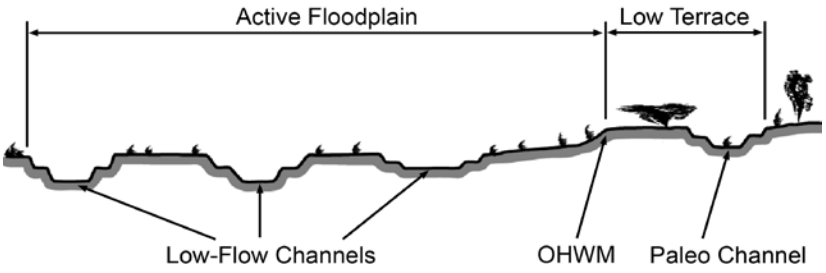
Brief site description:
Immediate surrounding area generally undeveloped except for National Trails Highway directly southeast.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

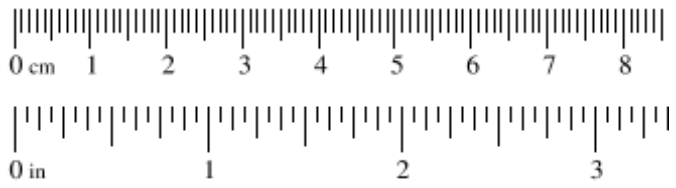


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

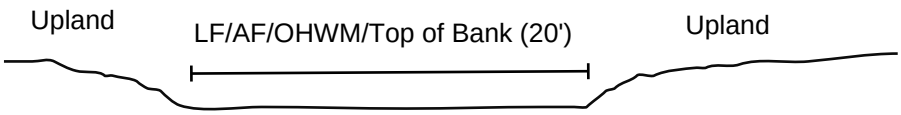
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 22 **Date:** 12/01/2021 **Time:** 1115

Cross section drawing:



OHWM

GPS point: 34.847611, -117.152992

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 20-foot wide OHWM defined by an approximately 1-inch break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 22 **Date:** 12/01/2021 **Time:** 1115

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 20-foot wide AF with an approximately 1-inch break in bank slope. Very coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 20 % Tree: 0 % Shrub: 17 % Herb: 3 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by creosote bush (Larrea tridentata), ephedra (Ephedra sp.), and unknown dried/dead grass. Granule sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 23
Investigator(s): Sarah Krejca, Natasha Foti

Date: 12/01/2021
Town: Barstow
Photo begin file#: 29

Time: 1215
State: CA
Photo end file#: 29

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.858029, -117.140586

Potential anthropogenic influences on the channel system:
Wash receives runoff from dirt road at upstream extent.

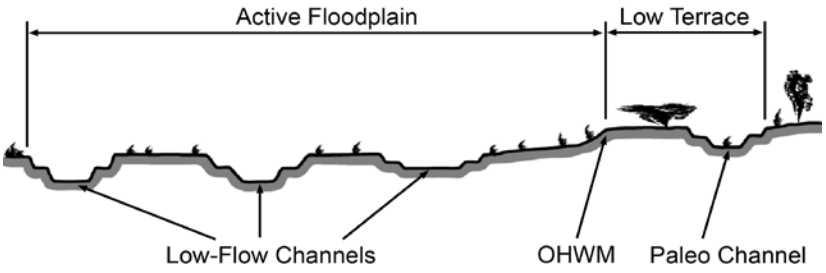
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Immediate surrounding area generally flat and undeveloped except for dirt roads at upstream extent and just downstream.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

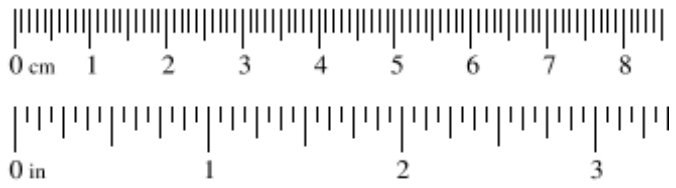


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

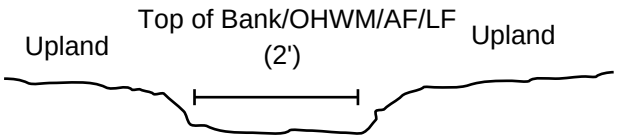
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 23 **Date:** 12/01/2021 **Time:** 1215

Cross section drawing:



OHWM

GPS point: 34.858029, -117.140586

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide OHWM defined by an approximately 2-inch break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 23 **Date:** 12/01/2021 **Time:** 1215

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide AF with an approximately 2-inch break in bank slope. Medium sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very fine sand

Total veg cover: 15 % Tree: 0 % Shrub: 10 % Herb: 5 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by creosote bush (Larrea tridentata), allscale (Atriplex sp.), and unknown dried/dead grass. Very fine sand sediment texture with pebbles throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 24
Investigator(s): Sarah Krejca, Kelsey Woldt, Alec Goodman

Date: 03/16/2022
Town: Barstow
Photo begin file#: 30

Time: 1210
State: CA
Photo end file#: 30

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.852444, -117.182596

Potential anthropogenic influences on the channel system:
Area receives upstream road runoff from dirt roads and National Trails Highway.

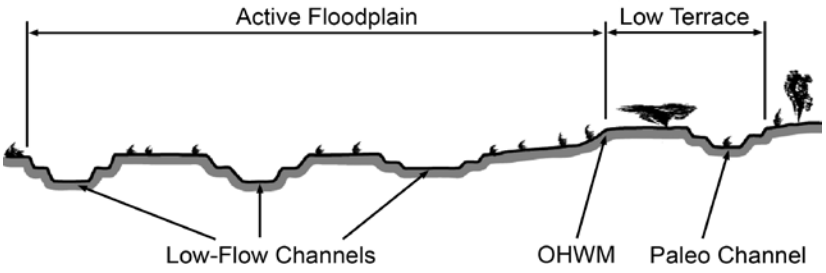
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Immediate surrounding area generally undeveloped except for dirt roads

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

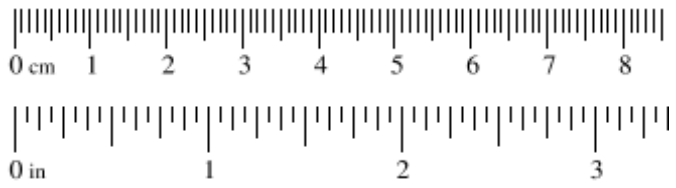


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

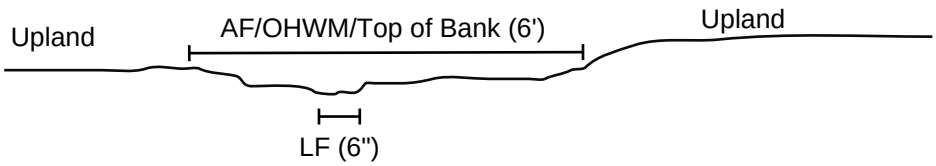
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 24 **Date:** 03/16/2022 **Time:** 1210

Cross section drawing:



OHWM

GPS point: 34.852444, -117.182596

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide OHWM defined by an approximate 1-inch break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: finer sediment
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-inch wide low-flow channel (LF) defined by a slight break in bank slope and change in average sediment texture from LF to active floodplain (AF). LF is more pronounced/visible in certain areas. Coarse sand sediment texture throughout.

Project ID: Big Barstow **Cross section ID:** ODP 24 **Date:** 03/16/2022 **Time:** 1210

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: very coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide AF with an approximately 1-inch break in bank slope. Drift deposits present as dead plant material. Very coarse sand sediment texture with some granules.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 15 % Tree: 0 % Shrub: 13 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by creosote bush (Larrea tridentata), ephedra (Ephedra sp.), desert senna (Senna armata), and white bursage (Ambrosia dumosa). Fine sand sediment texture with some pebbles and granules.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 25
Investigator(s): Ryan Layden

Date: 03/16/2022
Town: Barstow
Photo begin file#: 32

Time: 1250
State: CA
Photo end file#: 32

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.862508, -117.131741

Potential anthropogenic influences on the channel system:
Area receives road runoff from dirt roads; off-road vehicle use is apparent in the surrounding area.

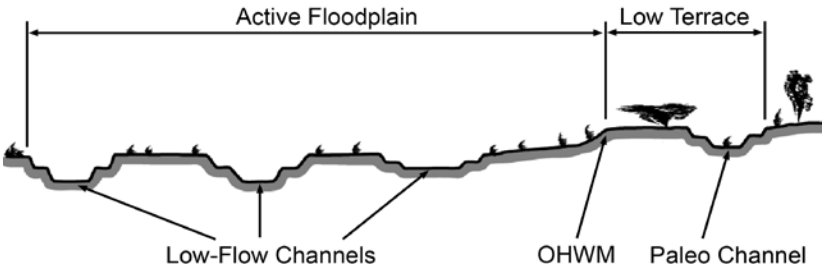
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Immediate surrounding area is generally undeveloped.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

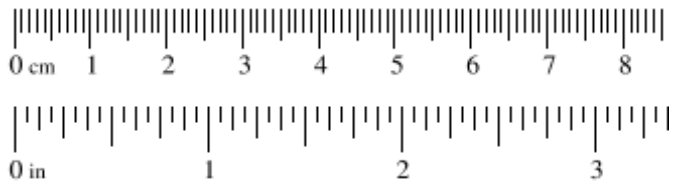


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

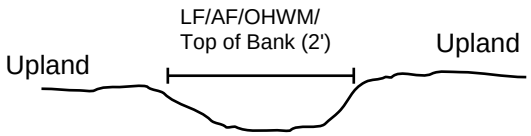
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 25 **Date:** 03/16/2022 **Time:** 1250

Cross section drawing:



OHWM

GPS point: 34.862508, -117.131741

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide OHWM defined by a visible break in slope, change in sediment texture, and change in vegetation cover. Narrow channel that receives road runoff upstream and supplies a larger feature downstream. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 25 **Date:** 03/16/2022 **Time:** 1250

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 2 % Tree: 0 % Shrub: 0 % Herb: 2 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide AF with a clear break in bank slope. Vegetation composed of allscale scrub. Medium sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 17 % Tree: 0 % Shrub: 15 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation composed of allscale scrub. Coarse sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 26
Investigator(s): Kelsey Woldt, Ryan Layden

Date: 03/24/2022 **Time:** 0800
Town: Barstow **State:** CA
Photo begin file#: 33 **Photo end file#:** 33

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.874111, -117.153853

Potential anthropogenic influences on the channel system:
Area receives possible upstream runoff/flows from surrounding development. Bermed area/road occurs along portions of northern extent of the river. Evidence of off-road vehicular use (tire tracks).

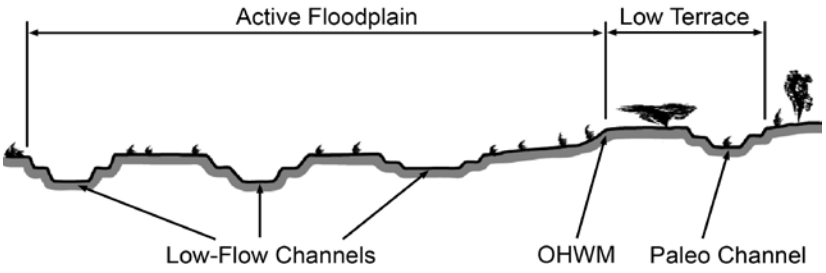
Brief site description:
Within Mojave River adjacent to active desert dune habitat; immediate surrounding area generally undeveloped.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
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   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
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		Cobble	Gravel
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0.039	1.00	Coarse sand	
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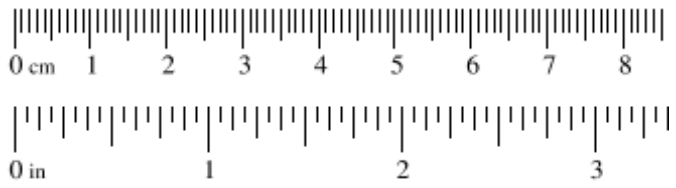
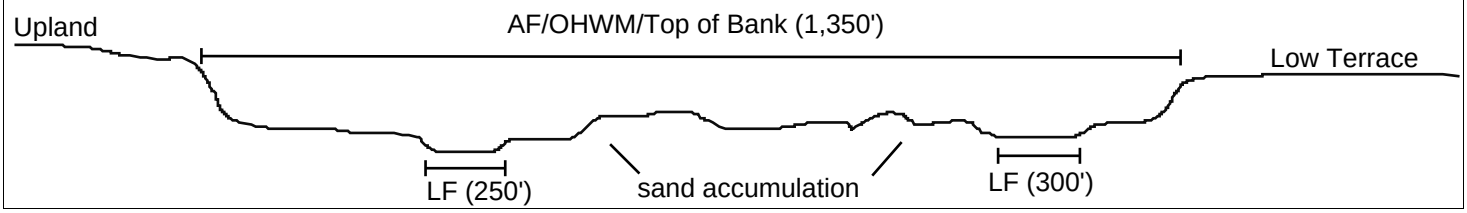
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 26 **Date:** 03/24/2022 **Time:** 0800

Cross section drawing:



OHWM

GPS point: 34.874111, -117.153853

Indicators:

- ☐ Change in average sediment texture
- ☑ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1,350-foot wide OHWM defined by a gradual break in slope and change in vegetation species. OHWM indicators along this extent of the Mojave River were sporadic/irregular, as such, the OHWM was determined using field data, a review of historic aerial imagery, and 10-year floodplain mapping. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography. Note that the entire delineated extent of the OHWM does not occur within the review area.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: 34.875578, -117.157011

Characteristics of the floodplain unit:

Average sediment texture: Very coarse sand

Total veg cover: 10 % Tree: 0 % Shrub: 8 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Two low-flow channels (LF) measuring approximately 250 feet and 300 feet wide. Vegetation dominated by California broomsage (Lepidospartum squamatum). Rock patterns indicative of flow and drift/debris present as woody tree fragments. Very coarse sand sediment texture with pebbles and granules, some finer sand at 1-inch deep.

Project ID: Big Barstow **Cross section ID:** ODP 26 **Date:** 03/24/2022 **Time:** 0800

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 12 % Tree: 0 % Shrub: 2 % Herb: 10 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1,350-foot wide active floodplain (AF). Vegetation dominated by California broomsage (Lepidospartum squamatum) and desert panicgrass (Panicum urvilleanum). Drift/debris present as large tree branches and trunks not located at the base of and/or associated with California broomsage. Coarse sand sediment texture throughout with multiple areas of higher elevation throughout AF with changes in sediment (finer sand in higher topographic zones) caused by accumulation of wind-blown sands. Indicators along this extent of the Mojave River were sporadic/irregular, as such, the extent of the AF was determined using field data, a review of historic aerial imagery, and 10-year floodplain mapping.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: 34.874042, -117.153691

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 12 % Tree: 0 % Shrub: 2 % Herb: 10 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low terrace present at eastern bank (within review area); no true low terrace (i.e., uplands) present at western bank (outside of review area). Vegetation dominated by tumbleweed (Salsola australis), honey mesquite (Prosopis glandulosa), and desert panicgrass (Panicum urvilleanum). Coarse sand sediment texture with few pebbles throughout low terrace. Slight change in elevation from AF to low terrace; bank defined by large linear dunes.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 27
Investigator(s): Kelsey Woldt, Ryan Layden

Date: 03/24/2022 **Time:** 1207
Town: Barstow **State:** CA
Photo begin file#: 35 **Photo end file#:** 35

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.840347, -117.179832

Potential anthropogenic influences on the channel system:
Area receives runoff/sheet flow from adjacent dirt road and large 12-foot cement culvert approximately 100-feet to the south that directs flows under the railroad tracks.

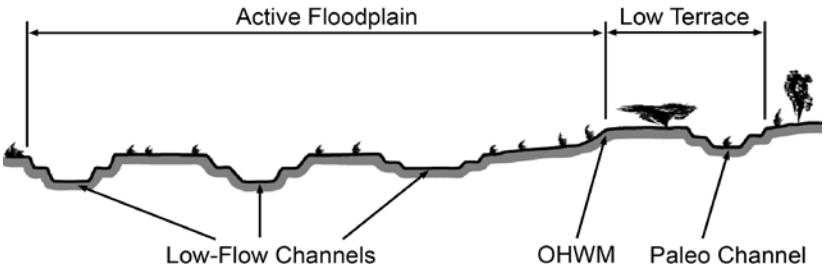
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Immediate surrounding area includes railroad tracks, dirt road, undeveloped land, and residential.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

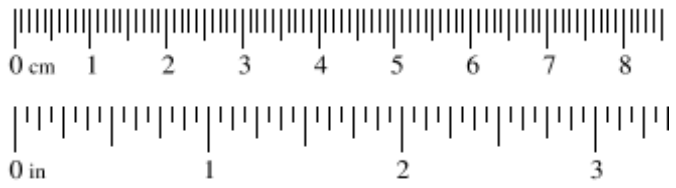


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

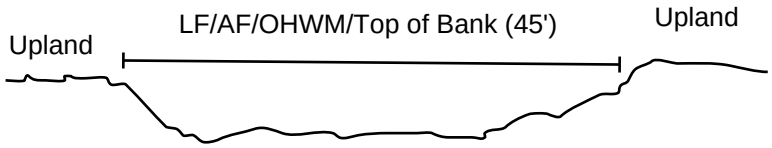
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 27 **Date:** 03/24/2022 **Time:** 1207

Cross section drawing:



OHWM

GPS point: 34.840347, -117.179832

Indicators:

- ☐ Change in average sediment texture
- ☑ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 45-foot wide OHWM defined by a break in bank slope, change in vegetation species, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF)

Project ID: Big Barstow **Cross section ID:** ODP 27 **Date:** 03/24/2022 **Time:** 1207

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very fine sand

Total veg cover: 8 % Tree: 0 % Shrub: 6 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☑ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 45-foot wide AF supplied by upstream sheet flow from railroad culvert. Drift/debris present as detritus. Mudcracks and drift patterns (i.e., grasses lying northwest in direction of flow) present. Vegetation dominated by Atriplex polycarpa and Schismus barbatus. Very fine sand sediment texture with few granules.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very fine sand

Total veg cover: 35 % Tree: 0 % Shrub: 20 % Herb: 15 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Drift/debris present as dead plant material. Vegetation dominated by Suaeda nigra, Atriplex polycarpa, and Schismus barbatus. Very fine sand sediment texture with few granules.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 28
Investigator(s): Sarah Krejca, Shanti Santulli

Date: 10/20/2021 **Time:** 1325
Town: Barstow **State:** CA
Photo begin file#: 37 **Photo end file#:** 38

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.852444, -117.182596

Potential anthropogenic influences on the channel system:
Area receives possible upstream runoff/flows from surrounding development. Bermed area/road occurs along northern extent of the river.

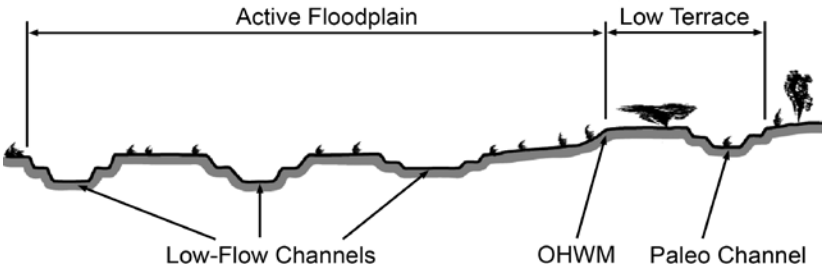
Brief site description:
Within Mojave River adjacent to active desert dune habitat; immediate surrounding area generally undeveloped.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

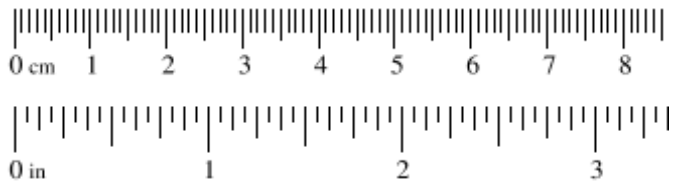


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

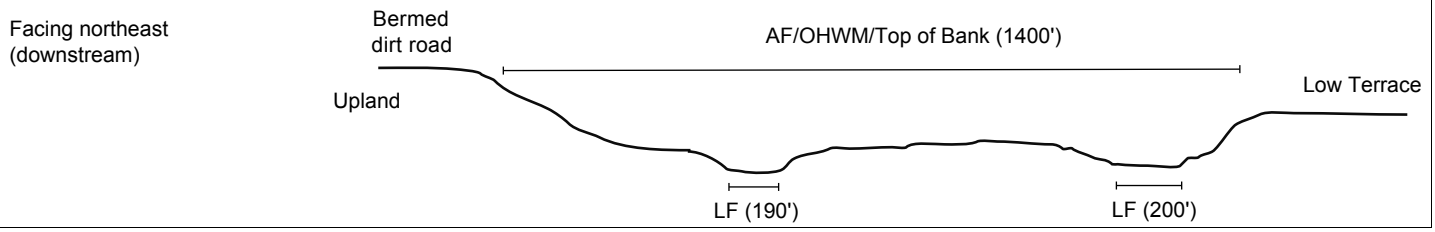
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 28 **Date:** 10/20/2021 **Time:** 1325

Cross section drawing:



OHWM

GPS point: 34.852444, -117.182596

Indicators:

- ☑ Change in average sediment texture
- ☑ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1,400-foot wide OHWM defined by a break in bank slope, change in average sediment texture, change in vegetation species, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography. Note that the entire delineated extent of the OHWM does not occur within the review area.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: 34.852637, -117.182880

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 5 % Tree: 0 % Shrub: 5 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☑ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: Finer sediment
- ☐ Other: _____
- ☐ Other: _____

Comments:

Two low-flow (LF) channels measuring approximately 190 feet and 200 feet wide. Vegetation dominated by cheesebush (Ambrosia salsola). Some areas of ripples likely attributed to past flows rather than wind. Medium sand sediment texture throughout.

Project ID: Big Barstow **Cross section ID:** ODP 28 **Date:** 10/20/2021 **Time:** 1325

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1,400-foot wide active floodplain (AF). Vegetation dominated by cheesebush (Ambrosia salsola) and honey mesquite (Prosopis glandulosa). Drift/debris present as dead branches not located at the base of and/or not associated with cheesebush or honey mesquite. Coarse sand sediment texture with pebbles.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: 34.852257, -117.182333

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 40 % Tree: 0 % Shrub: 10 % Herb: 30 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low terrace present at southeast bank (within review area); no true low terrace (i.e., uplands) present at northwest bank (outside of review area). More uniform sediment texture throughout layers within low terrace. Vegetation dominated by desert panicgrass (Panicum urvilleanum), cheesebush (Ambrosia salsola), and honey mesquite (Prosopis glandulosa). Surface relief defines uplands/low terrace. Fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 29
Investigator(s): Kelsey Woldt, Ryan Layden

Date: 06/20/2022 **Time:** 1200
Town: Barstow **State:** CA
Photo begin file#: 39 **Photo end file#:** 39

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.791535, -117.240448

Potential anthropogenic influences on the channel system:
Cement bank on northwest side of feature; channel used as road based on presence of tire tracks.

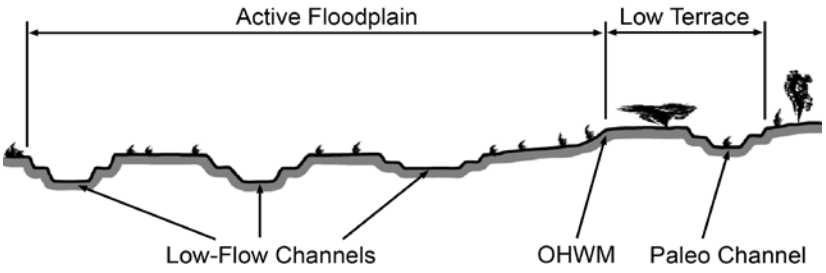
Brief site description:
Within Wild Wash, which also serves as a road.S ite occurs along existing railroad line; disturbed conditions prevalent.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

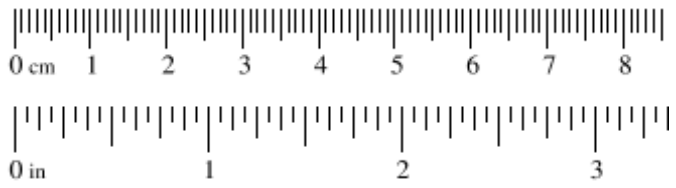


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

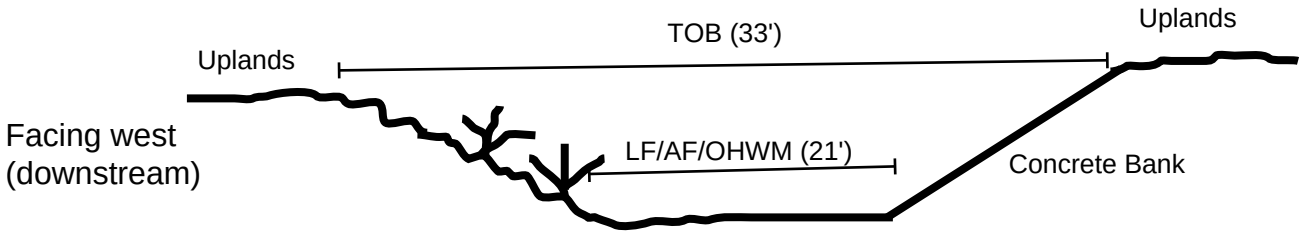
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 29 **Date:** 06/20/2022 **Time:** 1200

Cross section drawing:



OHWM

GPS point: 34.791535, -117.240448

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 21-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF)

Project ID: Big Barstow **Cross section ID:** ODP 29 **Date:** 06/20/2022 **Time:** 1200

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 21-foot wide AF with a defined break in bank slope. Granule sediment texture with some pebbles.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine silt

Total veg cover: 34 % Tree: 0 % Shrub: 30 % Herb: 4 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

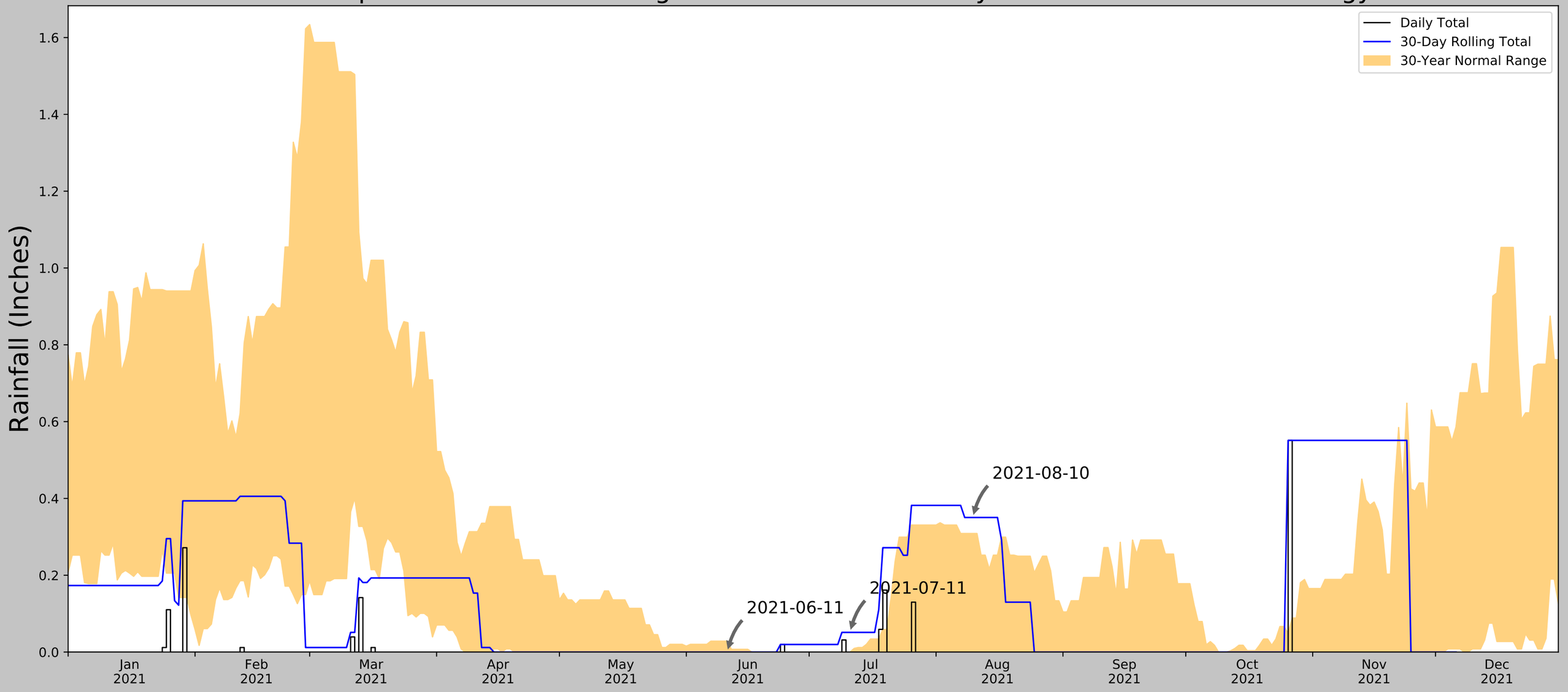
Comments:

No true low terrace present; continues from AF to upland. Northern bank/upland is composed of concrete; southern bank/upland is vegetated and dominated by Atriplex polycarpa and Larrea tridentata. Surface relief defines uplands on southern bank. Fine silt sediment texture with some granules.

APPENDIX F

ANTECEDENT PRECIPITATION TOOL OUTPUT

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.845561, -117.162790
Observation Date	2021-08-10
Elevation (ft)	2297.43
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

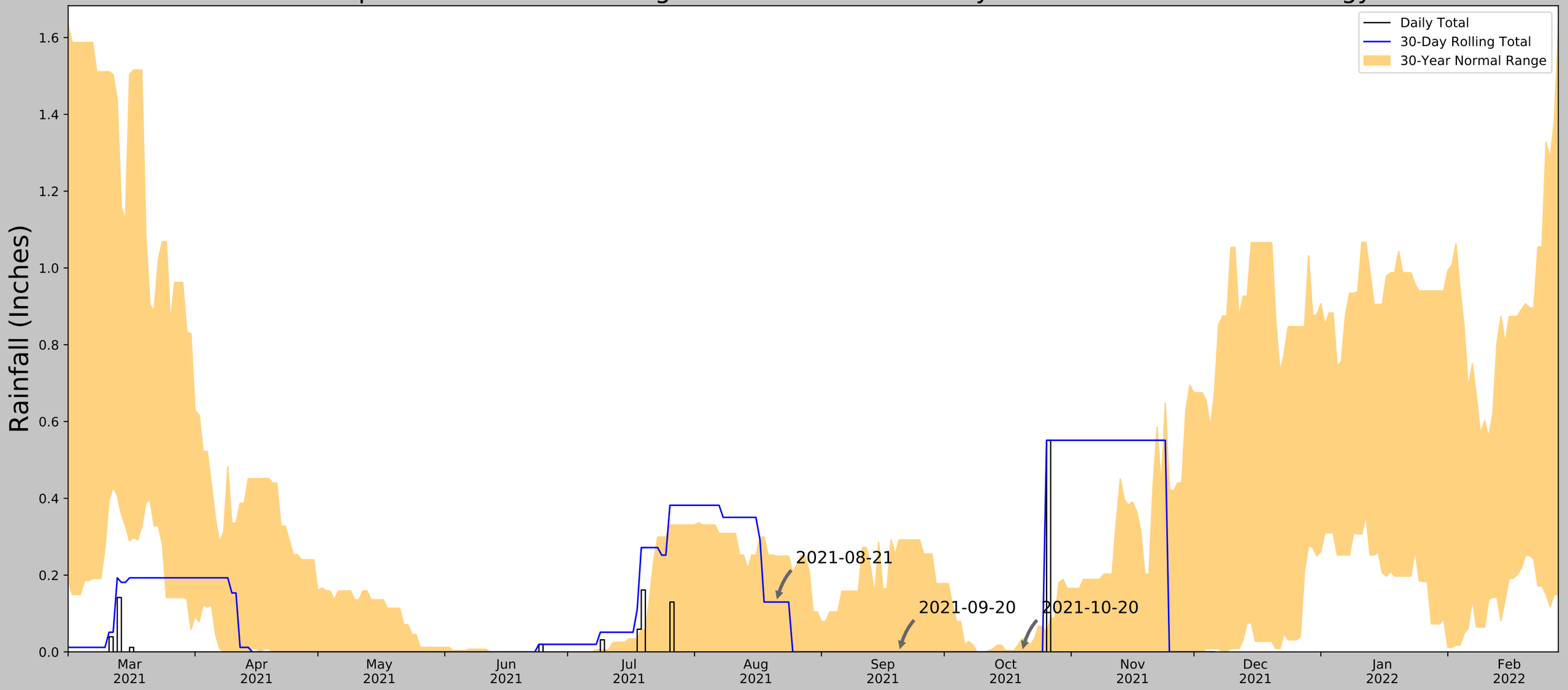
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-08-10	0.0	0.308661	0.350394	Wet	3	3	9
2021-07-11	0.0	0.0	0.051181	Wet	3	2	6
2021-06-11	0.0	0.028346	0.0	Normal	2	1	2
Result							Wetter than Normal - 17

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	8.628	77.286	4.549	11044	90
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	2	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	306	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.845561, -117.162790
Observation Date	2021-10-20
Elevation (ft)	2297.43
Drought Index (PDSI)	Severe drought
WebWIMP H_2O Balance	Dry Season

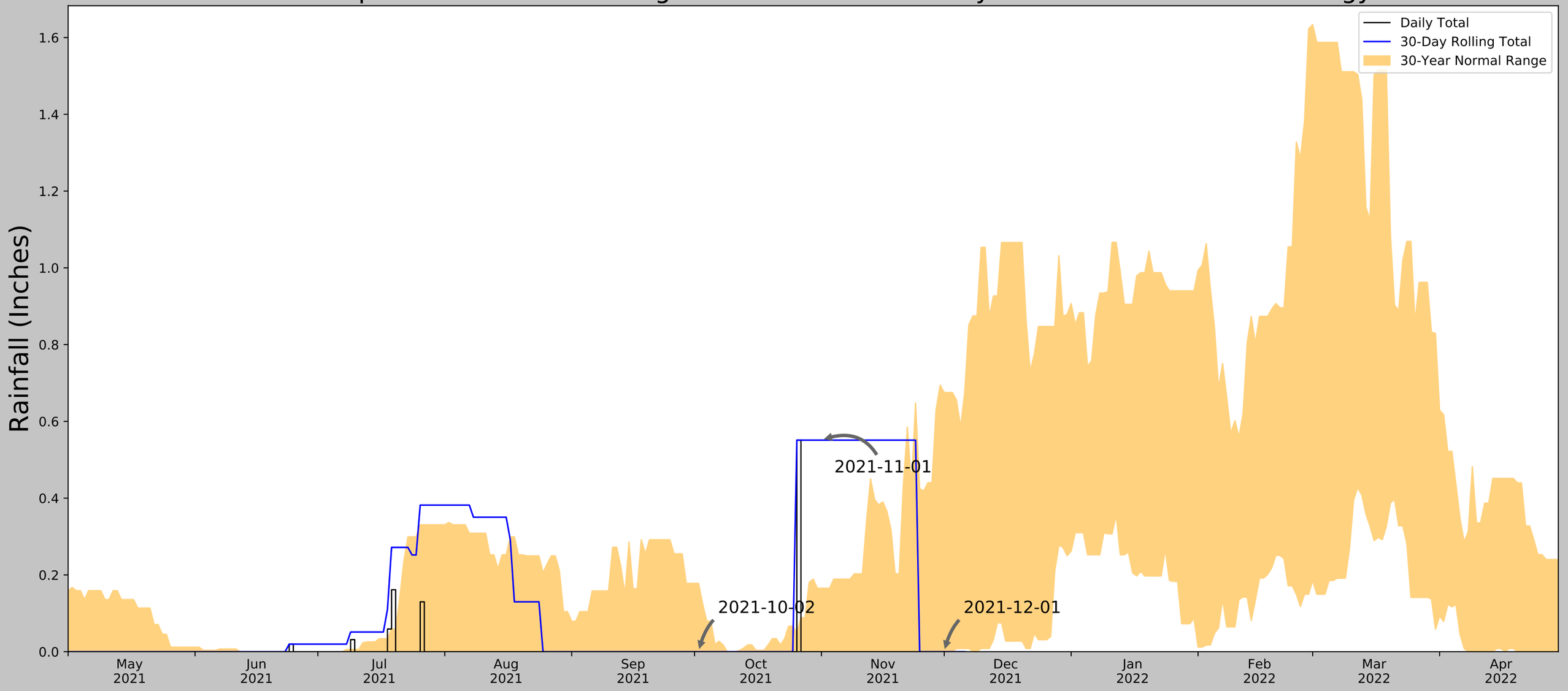
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-10-20	0.0	0.033858	0.0	Normal	2	3	6
2021-09-20	0.0	0.291732	0.0	Normal	2	2	4
2021-08-21	0.0	0.249606	0.129921	Normal	2	1	2
Result							Normal Conditions - 12

Figure and tables made by the **Antecedent Precipitation Tool** Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	8.628	77.286	4.549	11098	90
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	247	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.845561, -117.162790
Observation Date	2021-12-01
Elevation (ft)	2297.43
Drought Index (PDSI)	Severe drought (2021-11)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-12-01	0.0	0.675197	0.0	Normal	2	3	6
2021-11-01	0.0	0.165354	0.551181	Wet	3	2	6
2021-10-02	0.0	0.177953	0.0	Normal	2	1	2
Result							Normal Conditions - 14

Figure and tables made by the
Antecedent Precipitation Tool
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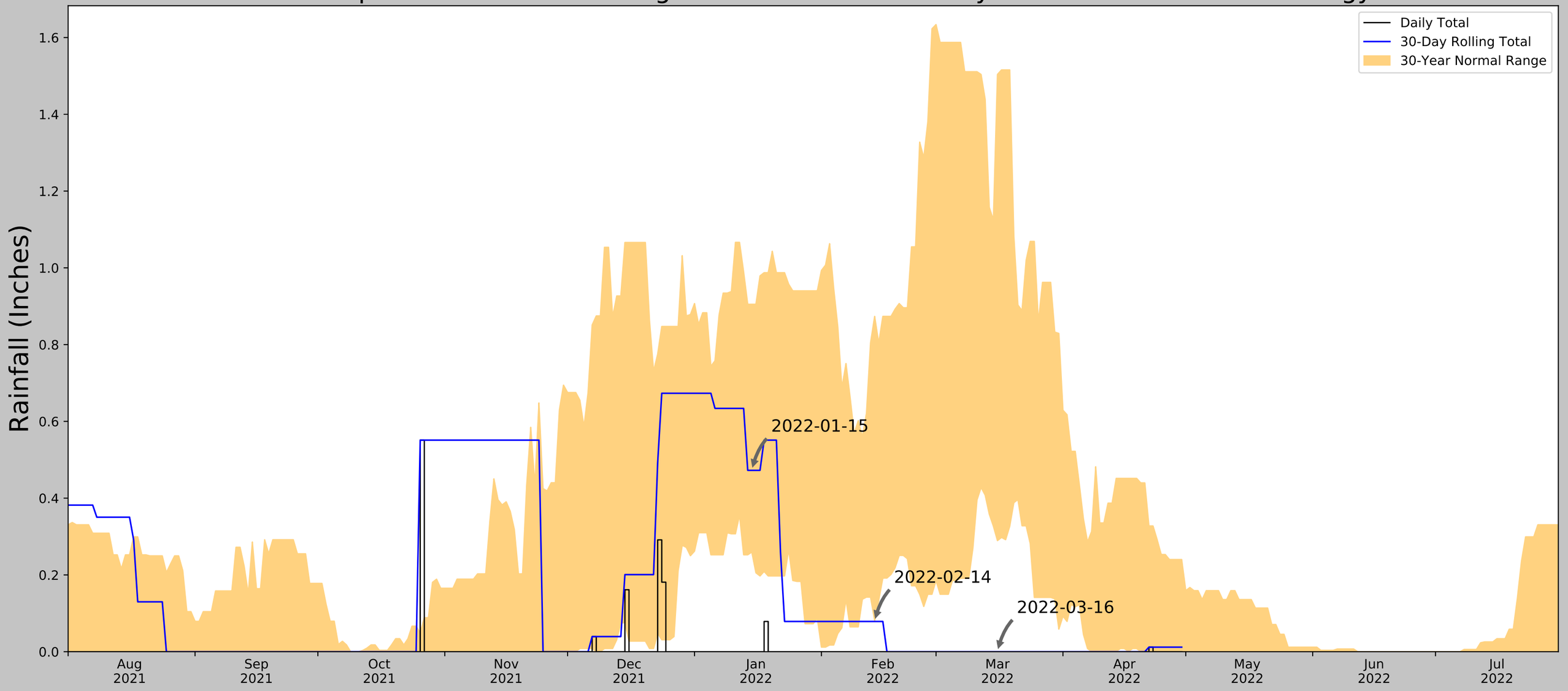
Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	8.628	77.286	4.549	11098	90
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	247	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-03-16
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

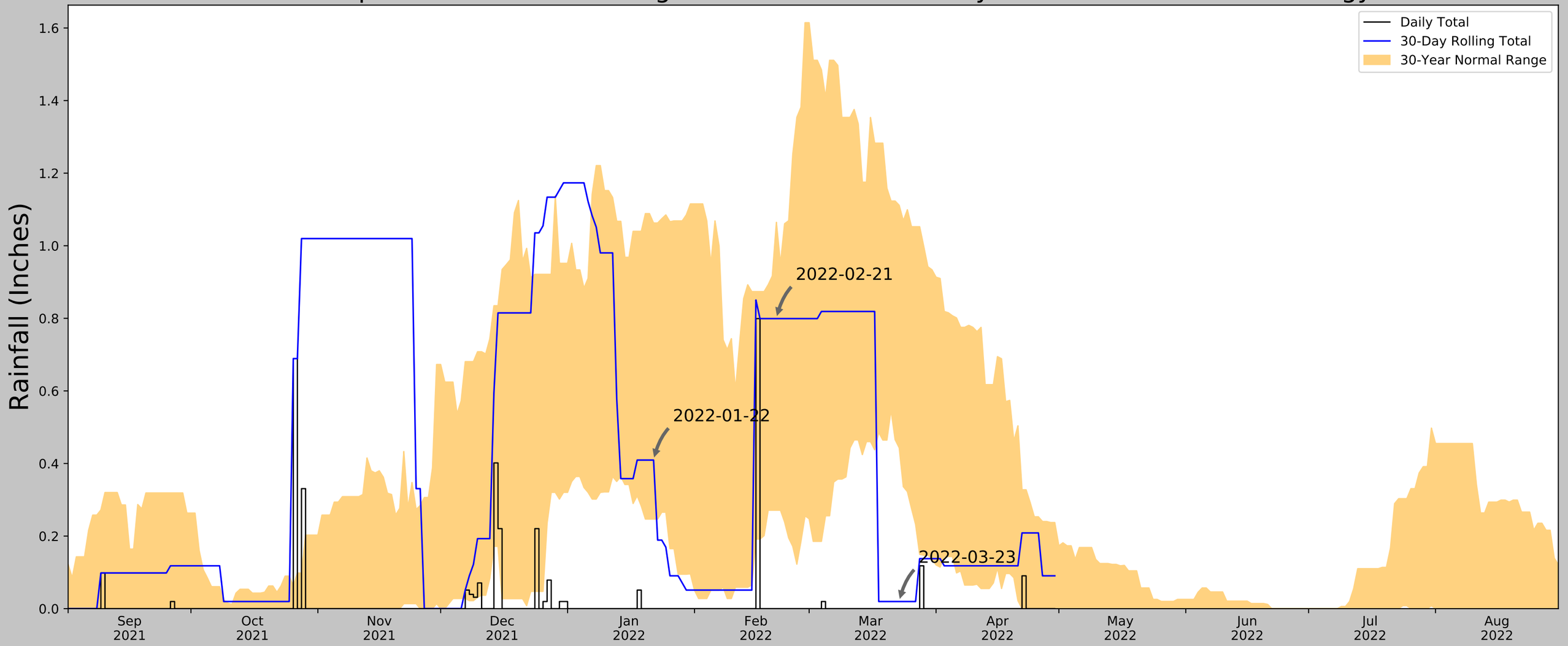
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-03-16	0.28937	1.503937	0.0	Dry	1	3	3
2022-02-14	0.081496	0.873622	0.07874	Dry	1	2	2
2022-01-15	0.259449	0.905118	0.472441	Normal	2	1	2
Result							Drier than Normal - 7

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	11098	89
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	247	1

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-03-23
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-03-23	0.443307	1.111417	0.019685	Dry	1	3	3
2022-02-21	0.27126	1.064567	0.799213	Normal	2	2	4
2022-01-22	0.24685	1.062598	0.409449	Normal	2	1	2
Result							Drier than Normal - 9

Figure and tables made by the
Antecedent Precipitation Tool
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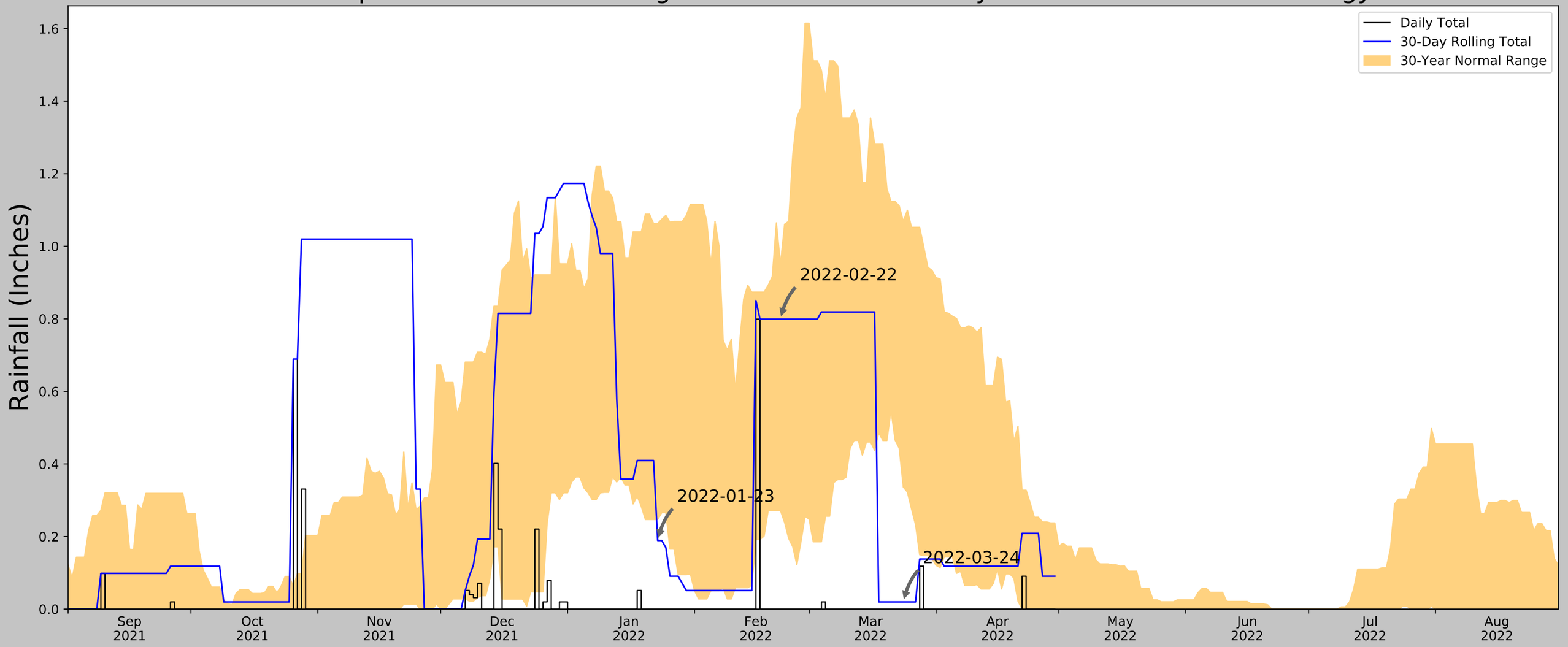
Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
APPLE VALLEY 2.6 SSW	34.4957, -117.2353	2880.906	25.685	649.916	28.251	1447	0
BARSTOW 0.8 SSE	34.8667, -117.0592	2608.924	5.124	377.934	4.242	155	4
ADELANTO 3.1 S	34.5253, -117.4331	3084.974	28.229	853.984	36.81	79	1
BARSTOW 3.0 W	34.88, -117.118	2229.003	2.22	1.987	1.003	2	0
APPLE VALLEY 2.6 SE	34.5043, -117.1808	2940.945	24.687	709.955	28.636	1301	3
APPLE VALLEY 1.9 N	34.556, -117.2111	2935.039	21.341	704.049	24.629	34	0
VICTORVILLE 2.6 SSW	34.4901, -117.3518	3110.892	28.07	879.902	37.33	401	0
APPLE VALLEY 4.1 ENE	34.5588, -117.1516	3119.095	20.857	888.105	27.909	273	50
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	8.636	61.042	4.413	90	9
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	7333	23
VICTORVILLE	34.5292, -117.2928	2879.921	24.31	648.931	26.715	238	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-03-24
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

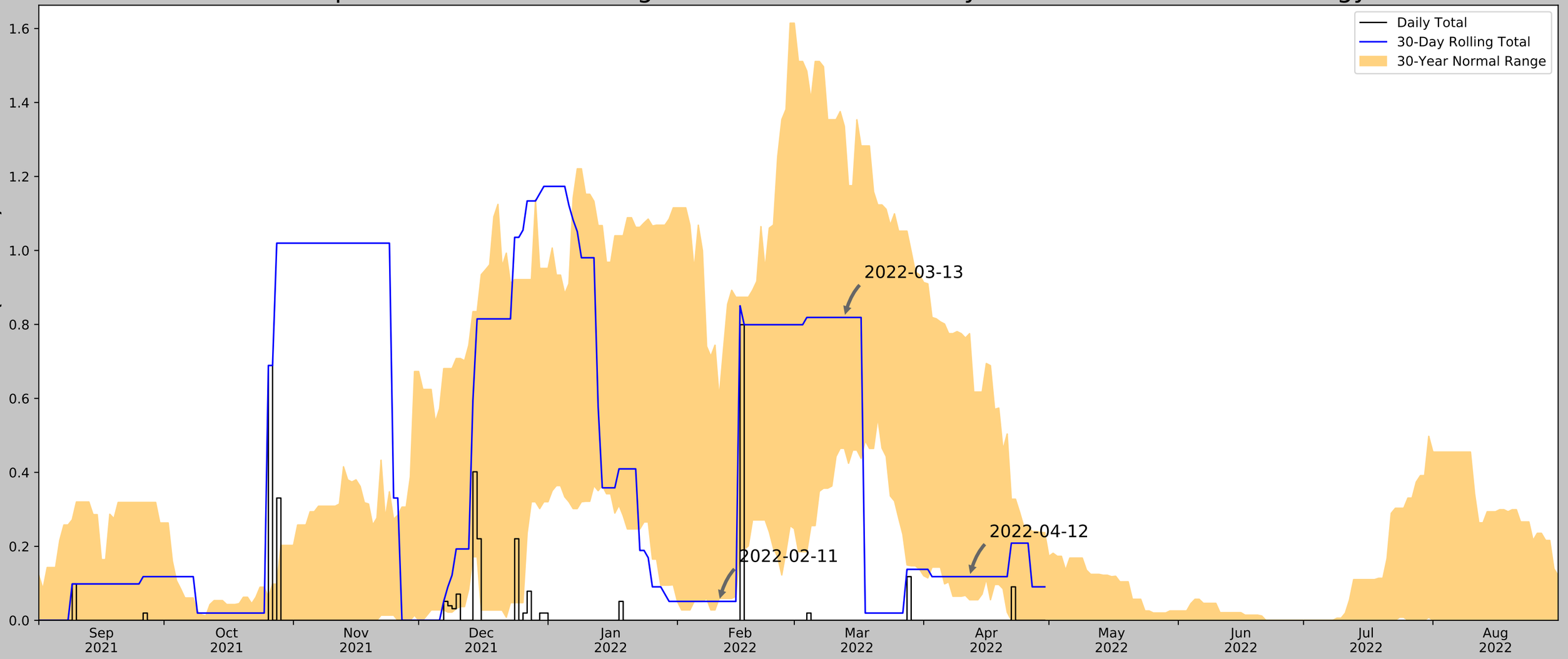
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-03-24	0.33622	1.068898	0.019685	Dry	1	3	3
2022-02-22	0.27126	0.950394	0.799213	Normal	2	2	4
2022-01-23	0.24685	1.062598	0.188976	Dry	1	1	1
Result							Drier than Normal - 8

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
APPLE VALLEY 2.6 SSW	34.4957, -117.2353	2880.906	25.685	649.916	28.251	1447	0
BARSTOW 0.8 SSE	34.8667, -117.0592	2608.924	5.124	377.934	4.242	155	3
ADELANTO 3.1 S	34.5253, -117.4331	3084.974	28.229	853.984	36.81	79	1
BARSTOW 3.0 W	34.88, -117.118	2229.003	2.22	1.987	1.003	2	0
APPLE VALLEY 2.6 SE	34.5043, -117.1808	2940.945	24.687	709.955	28.636	1301	3
APPLE VALLEY 1.9 N	34.556, -117.2111	2935.039	21.341	704.049	24.629	34	0
VICTORVILLE 2.6 SSW	34.4901, -117.3518	3110.892	28.07	879.902	37.33	401	0
APPLE VALLEY 4.1 ENE	34.5588, -117.1516	3119.095	20.857	888.105	27.909	273	51
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	8.636	61.042	4.413	90	9
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	7333	23
VICTORVILLE	34.5292, -117.2928	2879.921	24.31	648.931	26.715	238	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-04-12
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought (2022-03)
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-04-12	0.055512	0.775197	0.11811	Normal	2	3	6
2022-03-13	0.464961	1.335827	0.818898	Normal	2	2	4
2022-02-11	0.059055	0.601969	0.051181	Dry	1	1	1
Result							Normal Conditions - 11

Figure and tables made by the
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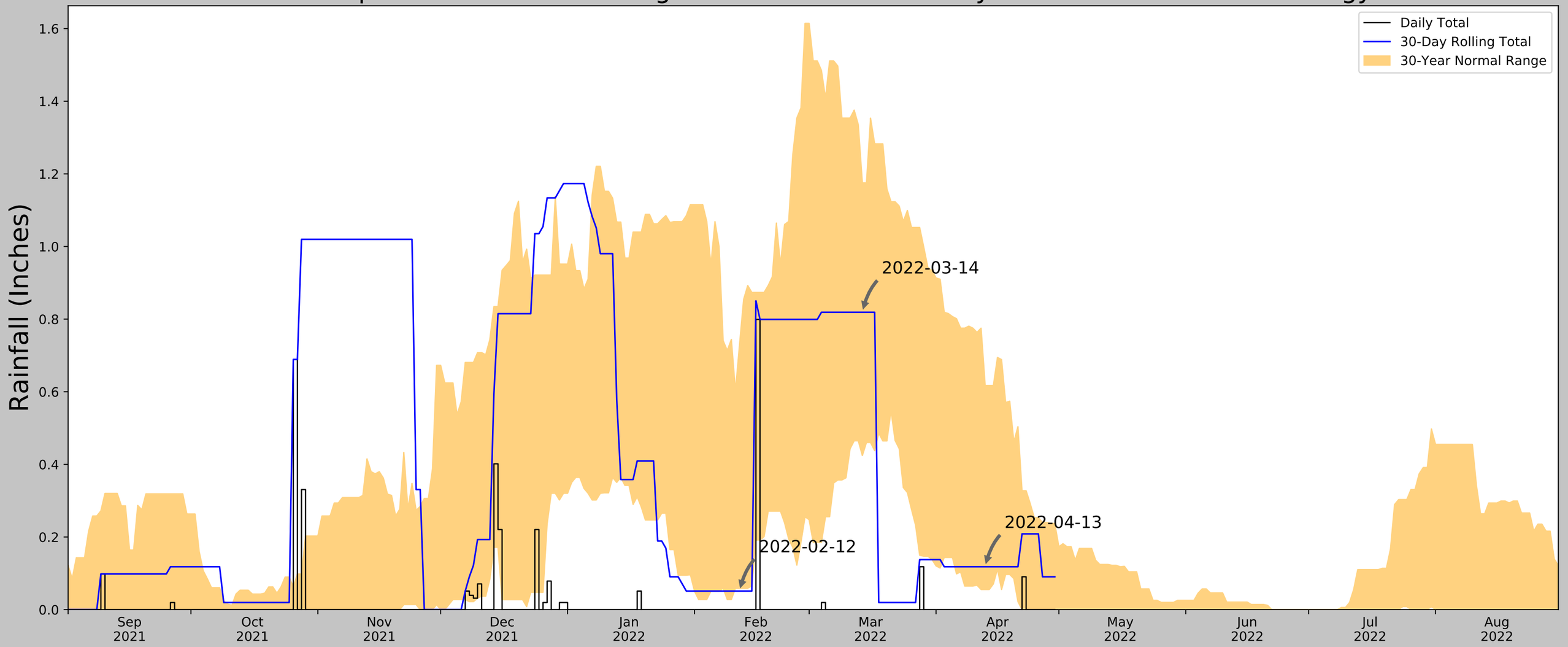
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
APPLE VALLEY 2.6 SSW	34.4957, -117.2353	2880.906	25.685	649.916	28.251	1447	0
BARSTOW 0.8 SSE	34.8667, -117.0592	2608.924	5.124	377.934	4.242	155	1
ADELANTO 3.1 S	34.5253, -117.4331	3084.974	28.229	853.984	36.81	79	1
BARSTOW 3.0 W	34.88, -117.118	2229.003	2.22	1.987	1.003	2	0
APPLE VALLEY 2.6 SE	34.5043, -117.1808	2940.945	24.687	709.955	28.636	1301	3
APPLE VALLEY 1.9 N	34.556, -117.2111	2935.039	21.341	704.049	24.629	34	0
VICTORVILLE 2.6 SSW	34.4901, -117.3518	3110.892	28.07	879.902	37.33	401	0
APPLE VALLEY 4.1 ENE	34.5588, -117.1516	3119.095	20.857	888.105	27.909	273	58
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	8.636	61.042	4.413	90	7
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	7333	20
VICTORVILLE	34.5292, -117.2928	2879.921	24.31	648.931	26.715	238	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-04-13
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought (2022-03)
WebWIMP H_2O Balance	Dry Season

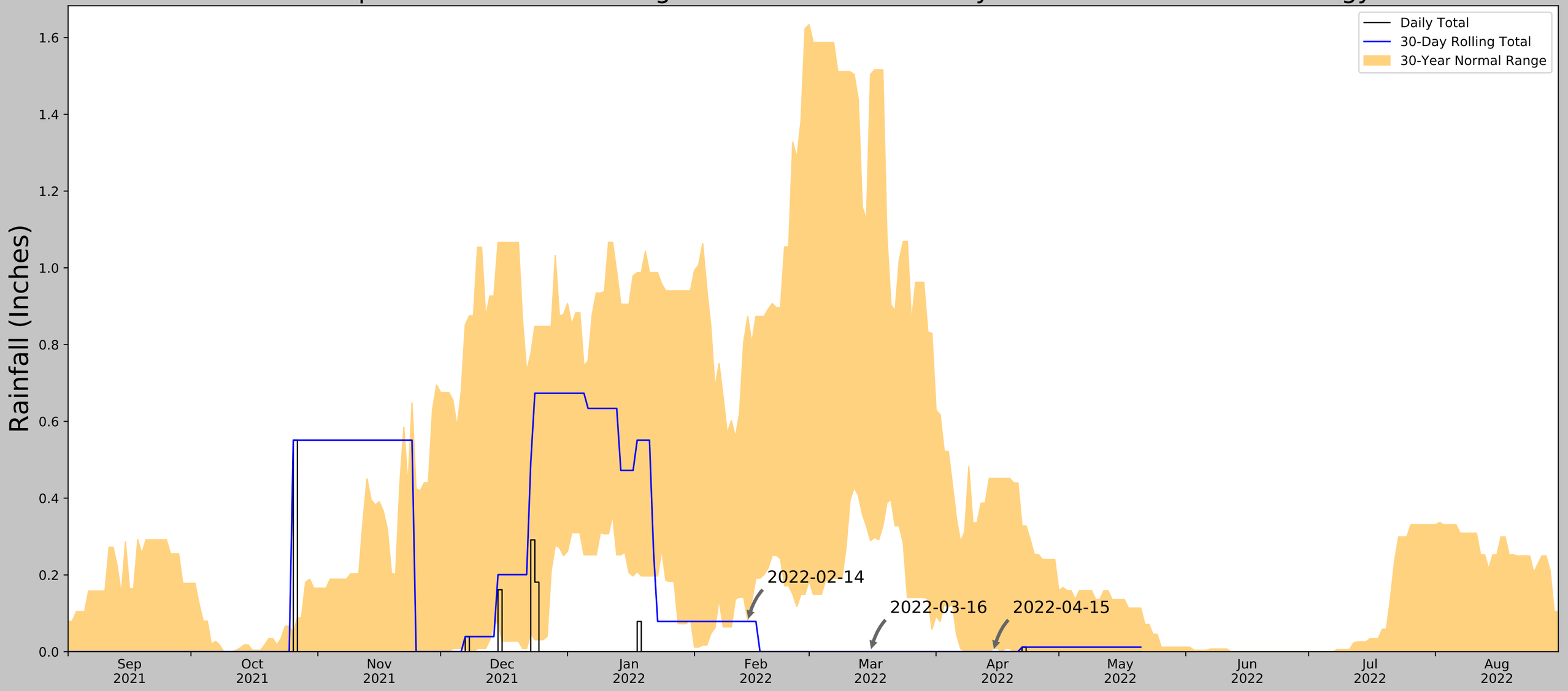
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-04-13	0.055512	0.617323	0.11811	Normal	2	3	6
2022-03-14	0.424409	1.175197	0.818898	Normal	2	2	4
2022-02-12	0.059055	0.729921	0.051181	Dry	1	1	1
Result							Normal Conditions - 11

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
APPLE VALLEY 2.6 SSW	34.4957, -117.2353	2880.906	25.685	649.916	28.251	1447	0
BARSTOW 0.8 SSE	34.8667, -117.0592	2608.924	5.124	377.934	4.242	155	1
ADELANTO 3.1 S	34.5253, -117.4331	3084.974	28.229	853.984	36.81	79	1
BARSTOW 3.0 W	34.88, -117.118	2229.003	2.22	1.987	1.003	2	0
APPLE VALLEY 2.6 SE	34.5043, -117.1808	2940.945	24.687	709.955	28.636	1301	3
APPLE VALLEY 1.9 N	34.556, -117.2111	2935.039	21.341	704.049	24.629	34	0
VICTORVILLE 2.6 SSW	34.4901, -117.3518	3110.892	28.07	879.902	37.33	401	0
APPLE VALLEY 4.1 ENE	34.5588, -117.1516	3119.095	20.857	888.105	27.909	273	59
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	8.636	61.042	4.413	90	7
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	7333	19
VICTORVILLE	34.5292, -117.2928	2879.921	24.31	648.931	26.715	238	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-04-15
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

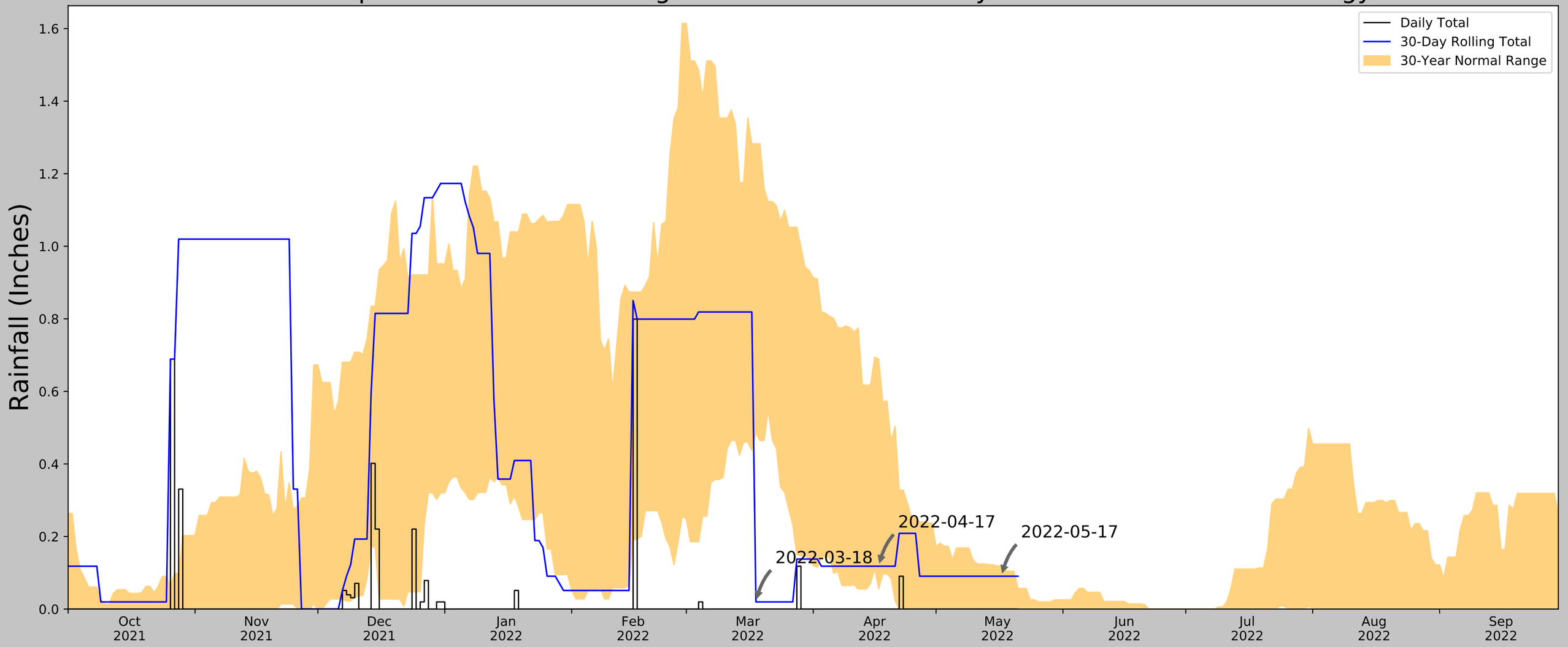
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-04-15	0.008268	0.451575	0.0	Dry	1	3	3
2022-03-16	0.28937	1.503937	0.0	Dry	1	2	2
2022-02-14	0.081496	0.873622	0.07874	Dry	1	1	1
Result							Drier than Normal - 6

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	11098	89
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	247	1

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-05-17
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought (2022-04)
WebWIMP H_2O Balance	Dry Season

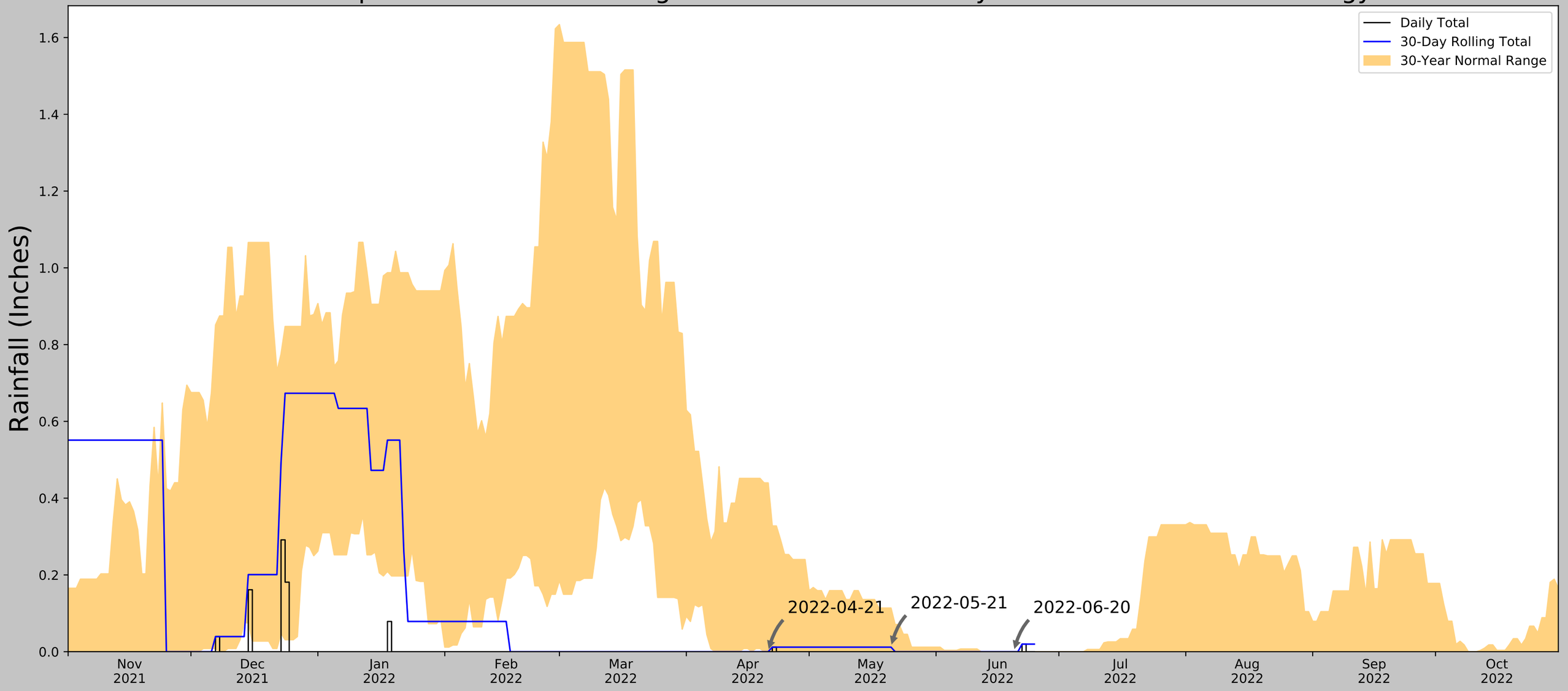
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-05-17	0.0	0.119291	0.090551	Normal	2	3	6
2022-04-17	0.055512	0.688583	0.11811	Normal	2	2	4
2022-03-18	0.485827	1.282677	0.019685	Dry	1	1	1
Result							Normal Conditions - 11

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
APPLE VALLEY 2.6 SSW	34.4957, -117.2353	2880.906	25.685	649.916	28.251	1447	0
BARSTOW 0.8 SSE	34.8667, -117.0592	2608.924	5.124	377.934	4.242	155	1
ADELANTO 3.1 S	34.5253, -117.4331	3084.974	28.229	853.984	36.81	79	1
BARSTOW 3.0 W	34.88, -117.118	2229.003	2.22	1.987	1.003	2	0
APPLE VALLEY 2.6 SE	34.5043, -117.1808	2940.945	24.687	709.955	28.636	1301	2
VICTORVILLE 2.6 SSW	34.4901, -117.3518	3110.892	28.07	879.902	37.33	401	0
APPLE VALLEY 1.9 N	34.556, -117.2111	2935.039	21.341	704.049	24.629	34	0
APPLE VALLEY 4.1 ENE	34.5588, -117.1516	3119.095	20.857	888.105	27.909	273	55
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	8.636	61.042	4.413	90	6
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	7333	25
VICTORVILLE	34.5292, -117.2928	2879.921	24.31	648.931	26.715	238	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-06-20
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought (2022-05)
WebWIMP H_2O Balance	Dry Season

Figure and tables made by the **Antecedent Precipitation Tool** Version 1.0

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30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-06-20	0.0	0.0	0.0	Normal	2	3	6
2022-05-21	0.0	0.11378	0.011811	Normal	2	2	4
2022-04-21	0.0	0.439764	0.0	Normal	2	1	2
Result							Normal Conditions - 12

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	11098	90
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	247	0

APPENDIX G

SITE PHOTOGRAPHS

Appendix G

Site Photographs[1]

Big Barstow Aquatic Resources Delineation – August 10, 2021; October 20, 2021; December 1, 2021; March 16, 23, 24, 2022; April 12, 13, 15, 2022; May 17, 2022; June 20, 2022



Photo 1. Downstream view of Ordinary High Water Mark (OHWM) Datasheet Point (ODP) 1 within Non-Wetland Waters (NWW-) 97, facing north, within disturbed habitat. ODP 1 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.879568, -117.105532). April 13, 2022.



Photo 2. View of Wetland Data Form Point (WDP) 1 (white arrow) within NWW-96, facing south, within tamarisk thickets. WDP 1 did not meet any of the three wetland parameters (34.878453, -117.108756). April 13, 2022.



Photo 3. Upstream view of ODP 2 within NWW-95, facing south, within disturbed habitat. ODP 2 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.877416, -117.111049). April 13, 2022.



Photo 4. Downstream view of ODP 3 within NWW-94, facing north, within disturbed habitat. ODP 3 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.873981, -117.117320). April 13, 2022.

[1] See corresponding Figure 5 series for photo point locations. See Aquatic Resources Delineation Report Sections 6 through 8 for a discussion of each feature. Photos of culvert crossings within the review area are available upon request.



Photo 5. View of WDP 2 (white arrow) within NWW-94, facing south, within disturbed habitat. WDP 2 met the wetland hydrology parameter; however, WDP 2 did not meet the hydrophytic vegetation or hydric soil parameters (34.873798, -117.117380). April 13, 2022.



Photo 6. Downstream view of ODP 4 within NWW-92, facing northwest, within unvegetated channel. ODP 4 exhibited a break in bank slope and change in average sediment texture (34.868920, -117.128573). April 13, 2022.



Photo 7. View of WDP 3 (white arrow) within NWW-89, facing north, within allscale scrub. WDP 3 did not meet any of the three wetland parameters (34.863976, -117.131649). April 13, 2022.



Photo 8. View of ODP 5 within NWW-89, facing south, within allscale scrub. ODP 5 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.864056, -117.131616). April 13, 2022.



Photo 9. Upstream view of ODP 6 within NWW-89, facing east, within allscale scrub. ODP 6 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.865275, -117.133289). April 13, 2022.



Photo 10. Upstream view of ODP 7 within NWW-89, facing south, within allscale scrub. ODP 7 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.864610, -117.135505). April 13, 2022.



Photo 11. Upstream view of ODP 8 within NWW-90, facing east, within allscale scrub. ODP 8 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.861717, -117.142712). April 13, 2022.



Photo 12. Downstream view of ODP 9 within NWW-91, facing northwest, within allscale scrub. ODP 9 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.862985, -117.140461). April 13, 2022.



Photo 13. Downstream view of ODP 10 within NWW-87, facing west, within allscale scrub. ODP 10 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.858535, -117.148911). April 13, 2022.



Photo 14. Downstream view of ODP 11 within NWW-85, facing west, within allscale scrub. ODP 11 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.85783, -117.151636). April 13, 2022.



Photo 15. View of WDP 5 (white arrow), facing west, within tamarisk thickets. WDP 5 did not meet any of the three wetland parameters (34.858121, -117.152981). April 13, 2022.



Photo 16. Downstream view of ODP 12 within NWW-82, facing northeast, within disturbed allscale scrub. ODP 12 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.856230, -117.154700). April 12, 2022.



Photo 17. Downstream view of ODP 13 within NWW-80, facing north, within allscale scrub. ODP 13 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.853895, -117.157272). April 12, 2022.



Photo 18. Downstream view of ODP 14 within NWW-73, facing north, within allscale scrub. ODP 14 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.848316, -117.165825). April 12, 2022.



Photo 19. Upstream view of ODP 15 within NWW-70, facing south, within allscale scrub. ODP 15 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.843796, -117.167803). April 12, 2022.



Photo 20. Upstream view of ODP 16 near WDP 4 within NWW-45, facing east, within allscale scrub. ODP 16 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover. WDP 4 met the wetland hydrology parameter; however, WDP 4 did not meet the hydrophytic vegetation or hydric soil parameters (34.834131, -117.182665). April 12, 2022.



Photo 21. Downstream view of ODP 17 within NWW-44, facing northwest, within unvegetated channel. ODP 17 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.829592, -117.183445). April 13, 2022.



Photo 22. View of WDP 6 (white arrow), facing west, within disturbed allscale scrub. WDP 6 did not meet any of the three wetland parameters (34.823361, -117.187915). April 13, 2022.



Photo 23. Upstream view of ODP 18 within NWW-36, facing southeast, within allscale scrub. ODP 18 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.808714, -117.201562). April 13, 2022.



Photo 24. Upstream view of ODP 19 within NWW-69, facing south, within allscale scrub. ODP 19 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.843462, -117.168631). April 12, 2022.



Photo 25. View of ODP 20 within Swale (S-) 1, facing south, within disturbed habitat. ODP 20 exhibited a change in vegetation cover; however, no other OHWM indicators were observed (34.819464, -117.189726). April 13, 2022.



Photo 26. View of WDP 7 (white arrow), facing east, within tamarisk thickets. WDP 7 met the wetland hydrology parameter; however, WDP 7 did not meet the hydrophytic vegetation or hydric soil parameters (34.814805, -117.195132). April 13, 2022.



Photo 27. Downstream view of ODP 21 within NWW-68, facing west, within creosote bush scrub. ODP 21 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.840159, -117.169936). April 12, 2022.



Photo 28. Upstream view of ODP 22 within NWW-80, facing east, within creosote bush scrub. ODP 22 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.847573, -117.153050). December 1, 2021.



Photo 29. Upstream view of ODP 23 within NWW-89, facing west, within creosote bush scrub. ODP 23 exhibited a break in slope, change in average sediment texture, and change in vegetation cover (34.858002, -117.140602). December 1, 2021.



Photo 30. Upstream view of ODP 24 within NWW-76, facing south, within creosote bush scrub. ODP 24 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.848365, -117.159487). March 16, 2022.



Photo 31. View of WDP 8 (white arrow), facing south, within tamarisk thickets. WDP 8 met the hydrophytic vegetation parameter; however, WDP 8 did not meet the wetland hydrology or hydric soil parameters (34.802127, -117.215285). April 13, 2022.



Photo 32. Downstream view of ODP 25 within NWW-89, facing north, within allscale scrub. ODP 25 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.862511, -117.131726). March 16, 2022.



Photo 33. Downstream view of ODP 26 within NWW-109 (Mojave River), facing north, within active desert dunes. ODP 26 exhibited a break in bank slope and change in vegetation species (34.875604, -117.156870). March 24, 2022.



Photo 34. View of WDP 9, facing north, within tamarisk thickets. WDP 9 met the hydrophytic vegetation parameter; however, it did not meet the wetland hydrology or hydric soil parameters (34.837722, -117.184100). April 12, 2022.



Photo 35. Upstream view of ODP 27 within NWW-60, facing west, within creosote bush scrub. ODP 27 exhibited a break in bank slope and change in vegetation species and cover (34.840443, -117.179781). March 24, 2022.



Photo 36. View of WDP 10 within NWW-60, facing north, within creosote bush scrub. WDP 10 met the wetland hydrology parameter; however, WDP 10 did not meet the hydrophytic vegetation or hydric soil parameters (34.840073, -117.179764). March 24, 2022.



Photo 37. Upstream view of ODP 28 within NWW-109 (Mojave River), facing southwest, within active desert dunes. ODP 28 exhibited a break in bank slope, change in average sediment texture, and change in vegetation species and cover (34.852795, -117.183066). October 20, 2021.



Photo 38. Downstream view of ODP 28, facing northeast, within NWW-109 (Mojave River) (34.852790, -117.183067). October 20, 2021.



Photo 39. Upstream view of ODP 29 within NWW-20, facing east, within disturbed habitat. ODP 29 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.791510, -117.240752). June 20, 2022.



Photo 40. View of WDP 11, facing north, within allscale scrub. WDP 11 met the wetland hydrology parameter; however, WDP 11 did not meet the hydrophytic vegetation or hydric soil parameters (34.883779, -117.094422). June 20, 2022.



Photo 41. View of watercouse associated with NWW-49, facing north, within allscale scrub (34.837243, -117.181167). April 12, 2022



Photo 42. View of watercouse associated with NWW-59, facing west, within allscale scrub (34.839333, -117.178218). April 13, 2022



Photo 43. View of secondary channel (white dashed line), facing west, within active desert dunes habitat. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; however, this area qualified as CDFW streambed associated with the Mojave River (34.870457, -117.152712). March 24, 2022



Photo 44. View of evidence of ponding (mud cracks), facing north, within active desert dunes habitat. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; however, this area qualified as CDFW streambed associated with the Mojave River (34.860885, -117.158040). October 20, 2021



Photo 45. View of active desert dunes habitat north of the agriculture fields, facing west. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; however, this area qualified as CDFW streambed associated with the Mojave River (34.858790, -117.171585). October 20, 2021



Photo 46. View of active desert dunes habitat, facing north. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; this area also did not qualify as CDFW streambed associated with the Mojave River (34.858790, -117.171585). October 20, 2021



Photo 47. View of active desert dunes habitat, facing north. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; this area also did not qualify as CDFW streambed associated with the Mojave River (34.878000, -117.130945). August 10, 2021



Photo 48. View of active desert dunes habitat, facing north. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; this area also did not qualify as CDFW streambed associated with the Mojave River (34.878558, -117.133787). August 10, 2021

APPENDIX H

AQUATIC RESOURCE SUMMARY TABLES

Table H-1. Aquatic Resource Summary: Corps/RWQCB

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-1	R6	4 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.772787, -117.284653	0.02	123
NWW-2	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.772847, -117.284610	0.01	121
NWW-3	R6	6 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773221, -117.283817	0.02	132
NWW-4	R6	3 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773653, -117.283036	0.01	113
NWW-5	R6	3 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773734, -117.282869	0.01	109
NWW-6	R6	3 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.774652, -117.281701	0.01	126
NWW-7	R6	3 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.776674, -117.278786	0.01	119
NWW-8	R6	3 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.776786, -117.278705	0.01	96
NWW-9	R6	10 – 10	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as road runoff from dirt road north of and parallel to railroad tracks.	34.778794, -117.277384	0.03	107
NWW-10	R6	1 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.778399, -117.276743	<0.01	52
NWW-11	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub; originates south of review area.	34.778377, -117.276478	0.02	223

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-12	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778670, -117.276121	0.01	127
NWW-13	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778712, -117.276024	0.01	113
NWW-14	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778886, -117.275827	0.01	133
NWW-15	R6	3 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub; originates south of review area.	34.778978, -117.275585	0.01	184
NWW-16	R6	14 – 24	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.784276, -117.262668	0.07	214
NWW-17	R6	24 – 24	CAST, CVC, BBS[4]	WH[5]	Yes/No	Disturbed Habitat[6]	Primarily unvegetated, single-thread feature within allscale scrub.	34.784361, -117.262104	0.05	81
NWW-18	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.786948, -117.252605	0.01	104
NWW-19	R6	3 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.787318, -117.251761	0.01	114
NWW-20	R6	21 – 48	CAST, CVC, BBS; See ODP 29	WH[5]	Yes/No	Disturbed Habitat[6]	Primarily unvegetated, single-thread feature within disturbed habitat; originates south of review area. (See Photo 39 on Figures 5A – 5B and Appendix G.)	34.791189, -117.241868	0.65	852
NWW-21	R6	3 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub that originates as runoff from National Trails Hwy/Main St.	34.795810, -117.228450	0.03	428
NWW-22	R6	2 – 7	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates downstream of NWW-21.	34.796559, -117.227801	0.02	176

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-23	R6	3 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.795776, -117.228162	0.02	221
NWW-24	R6	3 – 12	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.797160, -117.227759	0.11	801
NWW-25	R6	3 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.796981, -117.225815	0.07	727
NWW-26	R6	3 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.797595, -117.225008	0.07	522
NWW-27	R6	2 – 13	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, partially braided feature within allscale scrub; originates as runoff from National Trails Hwy/Main St and/or features south of National Trails Hwy (NWW-103 and NWW-104).	34.798258, -117.223204	0.18	1,155
NWW-28	R6	3 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub south of National Trails Hwy.	34.797819, -117.222127	0.01	109
NWW-29	R6	1 – 1	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub.	34.798766, -117.222983	<0.01	96
NWW-30	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.798508, -117.221906	0.03	311
NWW-31	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, small, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.798583, -117.221247	0.01	145

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-32	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub south of National Trails Hwy.	34.798456, -117.220065	<0.01	32
NWW-33	R6	3 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.799322, -117.219846	0.02	171
NWW-34	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.800955, -117.215818	0.03	572
NWW-35	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.807290, -117.203290	0.01	66
NWW-36	R6	4 – 4	CAST, CVC, BBS; See ODP 18	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area. (See Photo 23 on Figures 5A– 5B and Appendix G.)	34.808738, -117.201555	0.01	183
NWW-37	R6	6 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.809189, -117.201054	0.01	150
NWW-38	R6	5 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.809316, -117.200892	0.01	141
NWW-39	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.809671, -117.200471	<0.01	182
NWW-40	R6	6 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.810099, -117.199975	0.01	155
NWW-41	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.810323, -117.199718	0.01	172
NWW-42	R6	8 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.811425, -117.198424	0.02	175

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-43	R6	12 – 12	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; indicators of flow not present before dirt road.	34.826693, -117.188511	0.13	475
NWW-44	R6	2 – 80	CAST, CVC, BBS; See ODP 17	WH[5]	Yes/No	Unvegetated Channel	Large, primarily unvegetated feature fed by culvert along Hinkley Road and road runoff from National Trails Hwy and/or features south of National Trails Hwy (NWW-105 and NWW-106).; located within unvegetated channel and allscale scrub; feature runs along berm (earthen-lined and partially concrete); feature enlarges near railroad crossing. (See Photo 21 on Figures 5A– 5B and Appendix G.)	34.829248, -117.186429	3.13	5,956
NWW-45	R6	2 – 6	CAST, CVC, BBS; See ODP 16	WH; see WDP 4	Yes/No	Allscale Scrub[6]; See WDP 4	Primarily unvegetated braided feature within allscale scrub; feature initiates at and is sourced by a residential lot. (See Photo 20 on Figures 5A– 5B and Appendix G.)	34.834684, -117.182237	0.21	2,468
NWW-46	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated braided feature within allscale scrub between hillslopes.	34.835168, -117.181479	0.06	1,172
NWW-47	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from two dirt roads leading from National Trails Hwy.	34.833706, -117.176283	0.04	580
NWW-48	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.836991, -117.181122	0.03	481
NWW-49	R6	2 – 10	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, large braided and interwoven feature with multiple tributaries within allscale scrub between hillslopes.	34.836110, -117.179064	0.73	7,138
NWW-50	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.837239, -117.179203	0.02	461

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-51	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.837464, -117.178078	0.04	842
NWW-52	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.837867, -117.177679	0.04	562
NWW-53	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.837648, -117.177101	0.07	1,131
NWW-54	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.835210, -117.172619	0.02	354
NWW-55	R6	2 – 10	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.835454, -117.171863	0.02	170
NWW-56	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.835773, -117.172617	0.02	252
NWW-57	R6	2 – 7	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.836014, -117.172631	0.02	264
NWW-58	R6	2 – 14	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub.	34.838348, -117.176084	0.50	4,358
NWW-59	R6	1- 13	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Large, primarily unvegetated, fan feature with multiple braids and heavily interwoven throughout; upstream portion of the feature runs through various hillslopes and fans downstream; within allscale scrub and creosote bush scrub; portions originate as runoff from National Trails Hwy and/or feature south of National Trails Hwy (NWW-107).	34.838248, -117.174160	0.75	8,262
NWW-60	R6	6 – 51	CVS, CVC, BBS; See ODP 27	WH; See WDP 10	Yes/No	Creosote Bush Scrub	Vegetated feature north of railroad tracks within creosote bush scrub; receives sheet flows from dirt road north of and parallel to railroad tracks. (See Photos 35 and 36 on Figures 5A– 5B and Appendix G.)	34.840401, -117.179750	0.17	188

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-61	R6	1 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from National Trails Hwy/Main St.	34.837031, -117.169791	0.05	910
NWW-62	R6	2 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated feature within allscale scrub between hillslopes; multiple tributaries.	34.840397, -117.175307	0.14	1,696
NWW-63	R6	2 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated feature within allscale scrub between hillslopes; multiple tributaries.	34.840934, -117.174275	0.20	2,174
NWW-64	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.841711, -117.174418	0.04	538
NWW-65	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub within hillslopes.	34.842293, -117.173643	0.02	482
NWW-66	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, double-thread feature within allscale scrub within hillslopes.	34.843147, -117.172457	0.08	1,260
NWW-67	R6	1 – 12	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated feature with multiple tributaries upstream within creosote bush scrub.	34.841131, -117.171984	0.22	2,373
NWW-68	R6	1 – 12	CAST, CVC, BBS; See ODP 21	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, braided feature within creosote bush scrub; originates as runoff from National Trails Hwy/Main St. (See Photo 27 on Figures 5A– 5B and Appendix G.)	34.839992, -117.170094	0.34	5,708
NWW-69	R6	2 – 8	CAST, CVC, BBS; See ODP 19	WH[5]	Yes/No	Allscale Scrub[6]	Large, primarily unvegetated, braided and interwoven feature within allscale scrub and creosote bush scrub between hillslopes. (See Photo 24 on Figures 5A– 5B and Appendix G.)	34.842933, -117.168625	0.68	6,858

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-70	R6	1 – 20	CAST, CVC, BBS; See ODP 15	WH[5]	Yes/No	Creosote Bush Scrub[6]	Large, primarily unvegetated, braided and interwoven feature with multiple mainstems fed by various tributaries; located within allscale scrub and creosote bush scrub between hillslopes; originates as runoff from unnamed dirt roads leading from National Trails Hwy. (See Photo 19 on Figures 5A– 5B and Appendix G.)	34.842209, -117.166408	2.09	18,554
NWW-71	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.844554, -117.165718	0.10	1,128
NWW-72	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.845370, -117.166236	0.04	427
NWW-73	R6	2 – 12	CAST, CVC, BBS; See ODP 14	WH[5]	Yes/No	Allscale Scrub[6]	Large, primarily unvegetated, interwoven feature with multiple mainstems fed by various tributaries within allscale scrub and creosote bush scrub; originates as runoff from unnamed dirt roads leading from National Trails Hwy. (See Photo 18 on Figures 5A– 5B and Appendix G.)	34.844453, -117.163545	1.24	13,348
NWW-74	R6	2 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from unnamed dirt road.	34.846950, -117.162756	0.17	1,582
NWW-75	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub.	34.845550, -117.159978	0.04	487
NWW-76	R6	2 – 13	CAST, CVC, BBS; See ODP 24	WH[5]	Yes/No	Allscale Scrub[6]	Large, primarily unvegetated, braided feature with multiple tributaries within allscale scrub; originates as runoff from unnamed dirt road leading from National Trails Hwy. (See Photo 30 on Figures 5A– 5B and Appendix G.)	34.848019, -117.159133	0.86	8,649

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-77	R6	2 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated feature with one tributary within allscale scrub in between hillslopes; originates as runoff from unnamed dirt road leading from National Trails Hwy.	34.847129, -117.156396	0.16	1,677
NWW-78	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.848845, -117.157242	0.01	278
NWW-79	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, braided feature within allscale scrub; originates as runoff from unnamed dirt road.	34.850248, -117.158057	0.13	1,874
NWW-80	R6	1 – 20	CAST, CVC, BBS; See ODP 13 and 22	WH[5]	Yes/No	Creosote Bush Scrub[6]	Large, primarily unvegetated, braided and interwoven feature with multiple mainstems fed by various tributaries within creosote bush scrub; originates as runoff from National Trails Hwy/Main St and/or feature south of National Trails Hwy (NWW-108); portions of feature display disturbance by off-road vehicle usage. (See Photos 17 and 28 on Figures 5A– 5B and Appendix G.)	34.850680, -117.154564	2.02	15,877
NWW-81	R6	2 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub.	34.853340, -117.156269	0.12	1,229
NWW-82	R6	1 – 15	CAST, CVC, BBS; See ODP 12	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, braided feature within allscale scrub and creosote bush scrub; heavily eroded where feature runs parallel to railroad tracks. (See Photo 16 on Figures 5A– 5B and Appendix G.)	34.854433, -117.152784	0.64	8,328
NWW-83	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.856239, -117.153167	0.01	250
NWW-84	R6	1 – 1	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub.	34.854958, -117.146066	0.02	909

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-85	R6	1 – 5	CAST, CVC, BBS; See ODP 11	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated feature with multiple tributaries within allscale scrub; originates as runoff from unnamed dirt road. (See Photo 11 on Figures 5A– 5B and Appendix G.)	34.857281, -117.149898	0.31	3,921
NWW-86	R6	3 – 3	CAST, CVC, BBS[5]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unnamed dirt road.	34.856698, -117.147965	0.02	218
NWW-87	R6	2 – 4	CAST, CVC, BBS; See ODP 10	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, double-thread feature within creosote bush scrub; originates as runoff from unnamed dirt road. (See Photo 13 on Figures 5A– 5B and Appendix G.)	34.857936, -117.147949	0.13	2,162
NWW-88	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from unnamed dirt road.	34.858906, -117.148308	0.04	403
NWW-89	R6	1 – 18	CAST, CVC, BBS; see ODP 5, 6, 7, 23, 25	None; See WDP 3	Yes/No	Allscale Scrub[6]	Large, primarily unvegetated feature within allscale scrub, creosote bush scrub, and disturbed habitat that consists of two large mainstems with several tributaries; eastern main stem originates south of National Trails Hwy/Main St before traveling through a culvert, western main stem originates as runoff from Mockingbird Rd (dirt road); disturbed by off-road vehicle use and obstructions (tree logs) likely placed by adjacent residential lot residents; heavily eroded downstream near manipulated and heavily used dirt roads adjacent to the railroad tracks. (See Photos 7 – 10, 29, and 32 on Figures 5A– 5B and Appendix G.)	34.863711, -117.134655	1.39	12,490

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-90	R6	2 – 6	CAST, CVC, BBS; See ODP 8	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from unnamed dirt road. (See Photo 11 on Figures 5A– 5B and Appendix G.)	34.860552, -117.142795	0.08	995
NWW-91	R6	2 – 2	CAST, CVC, BBS; See ODP 9	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, small, single-thread feature within allscale scrub near residential lots; originates as runoff from upstream residential lot and Dundee St. (See Photo 12 on Figures 5A– 5B and Appendix G.)	34.863147, -117.140564	0.01	150
NWW-92	R6	8 – 40	CAST, BBS; See ODP 4	WH[5]	Yes/No	Unvegetated Channel	Primarily unvegetated, large, trapezoidal feature (San Bernardino County Flood Control District Channel) within heavily manipulated, unvegetated channel; evidence of off-road vehicle use; originates south of Main St/National Trails Hwy. (See Photo 6 on Figures 5A– 5B and Appendix G.)	34.874455, -117.131291	1.32	4,629
NWW-93	R6	3 – 20	CAST, CVC, BBS[4]	WH[5]	Yes/No	Disturbed Habitat[6]	Rip-rap feature within developed and fenced area; originates at culvert outlet near intersection of National Trails Hwy and Lenwood Rd; downstream extent is large, rip-rap, circular, unvegetated drainage area containing a culvert inlet.	34.873485, -117.118709	0.06	409
NWW-94	R6	6 – 6	CAST, CVC, BBS; See ODP 3	WH; See WDP 2	Yes/No	Disturbed Habitat[6]	Primarily unvegetated feature within disturbed habitat; feature initiates from large stormwater concrete channelized structure. (See Photos 4 and 5 on Figures 5A– 5B and Appendix G.)	34.874055, -117.117372	0.06	401
NWW-95	R6	2 – 5	CAST, CVC, BBS; See ODP 2	WH[5]	Yes/No	Disturbed Habitat[6]	Primarily unvegetated, single-thread feature within disturbed habitat that outlets from culvert along National Trails Hwy; manipulation on the eastern slopes. (See Photo 3 on Figures 5A– 5B and Appendix G.)	34.877087, -117.110926	0.03	307

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-96	R6	5 – 5	CAST, CVC, BBS[4]	None; See WDP 1	Yes/No; See WDP 1	Disturbed Habitat	Primarily heavily vegetated, disturbed, single-thread feature within disturbed habitat and tamarisk thickets; originates as road runoff from National Trails Hwy. (See Photo 2 on Figures 5A– 5B and Appendix G.)	34.878268, -117.108708	0.05	439
NWW-97	R6	3 – 3	CAST, CVC, BBS; See ODP 1	WH[5]	Yes/No	Disturbed Habitat[6]	Primarily unvegetated, single-thread feature generally within disturbed habitat; feature drains through private commercial lots and outputs across a culvert crossing. (See Photo 1 on Figures 5A– 5B and Appendix G.)	34.879422, -117.105552	0.03	506
NWW-98	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub – Disturbed[6]	Small, unvegetated single-thread feature within allscale scrub – disturbed habitat that originates as runoff from dirt road parallel to the north side of railroad tracks.	34.880017, -117.105950	0.01	124
NWW-99	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Disturbed Habitat	Vegetated, single-thread feature within disturbed habitat that originates at culvert north of Main St/National Trails Hwy.	34.880936, -117.101226	0.03	353
NWW-100	R6	2 – 13	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated feature within allscale scrub with several tributaries that travels through several culverts; originates as runoff from and at a culvert north of Main St/National Trails Hwy.	34.882602, -117.095407	0.34	2,524
NWW-101	R6	3 – 28	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated feature within allscale scrub with multiple tributaries that travels through several culverts; originates as runoff from and at a culvert north of Main St/National Trails Hwy.	34.883416, -117.092671	0.29	1,003
NWW-102	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated feature within allscale scrub that originates as runoff from Main St/National Trails Hwy.	34.883038, -117.091930	0.01	99

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-103	R6	4 – 15	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy and converge with NWW-27.	34.797426, -117.223080	0.01	43
NWW-104	R6	4 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy and converge with NWW-27.	34.797510, -117.222886	0.01	70
NWW-105	R6	8 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy and converge with NWW-44.	34.828712, -117.182373	0.01	29
NWW-106	R6	12 – 12	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy and converge with NWW-44.	34.828907, -117.182084	0.01	36
NWW-107	R6	3 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub that may continue over Main St/National Trails Hwy converge with NWW-59.	34.835555, -117.169501	<0.01	51
NWW-108	R6	16 – 16	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub – Disturbed[6]	Primarily unvegetated, single-thread feature within creosote bush scrub – disturbed that may continue over Main St/National Trails Hwy and converge with NWW-80.	34.847053, -117.151904	0.01	36
NWW-109 (Mojave River)	R4	500 – 1400	CAST, CVS, CVC, BBS; See ODP 26 and 28	WH[5]	Yes/No	Active Desert Dunes	Sparsely vegetated, dry, sandy wash that comprises the on-site extent of the Mojave River; generally flows southwest to northeast before continuing off site. (See Photos 33, 37, and 38 on Figures 5A – 5B and Appendix G.)	34.863277, -117.170128	104.30	4,818
								Total	125.58	177,864

[1] OHWM Indicators: CAST = Change in average sediment texture; CVS = Change in vegetation species; CVC = Change in vegetation cover; BBS = Break in bank slope

[2] Wetland Indicators: WH = Wetland Hydrology
[3] See Figure 6 for all vegetation communities present within/around each aquatic resource.
[4] Based on a representative ODP taken within an aquatic resource with similar conditions.
[5] Based on a representative WDP taken within an aquatic resource with similar conditions.
[6] Unvegetated within mapped vegetation community; however, no vegetation technically present within the OHWM.
[7] Acreages and linear feet totals were summed using raw numbers provided during GIS analysis (available upon request) and thus, the sum of the total rounded numbers may not directly add up in this table.

Table H-2. Aquatic Resource Summary: CDFW

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-1	Unvegetated Streambed[3]	Allscale Scrub[4]	6 – 12	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.772787, -117.284653	0.02	123
NWW-2	Unvegetated Streambed[3]	Allscale Scrub[4]	6 – 6	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.772847, -117.284610	0.02	121
NWW-3	Unvegetated Streambed[3]	Allscale Scrub[4]	6 – 6	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773221, -117.283817	0.02	132
NWW-4	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 8	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773653, -117.283036	0.02	113
NWW-5	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 8	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773734, -117.282869	0.01	109
NWW-6	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 8	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.774652, -117.281701	0.02	126
NWW-7	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 5	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.776674, -117.278786	0.01	119
NWW-8	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.776786, -117.278705	0.01	96
NWW-9	Unvegetated Streambed[3]	Allscale Scrub[4]	35 – 35	Primarily unvegetated, single-thread feature within allscale scrub; originates as road runoff from dirt road north of and parallel to railroad tracks.	34.778794, -117.277384	0.10	107
NWW-10	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.778399, -117.276743	<0.01	52
NWW-11	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 4	Small, primarily unvegetated, double-thread feature within allscale scrub; originates south of review area.	34.778377, -117.276478	0.02	223
NWW-12	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778670, -117.276121	0.01	127
NWW-13	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 6	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778712, -117.276024	0.01	113

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-14	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778886, -117.275827	0.01	133
NWW-15	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 4	Small, primarily unvegetated, double-thread feature within allscale scrub; originates south of review area.	34.778978, -117.275585	0.01	184
NWW-16	Unvegetated Streambed[3]	Allscale Scrub[4]	16 – 24	Primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.784276, -117.262668	0.08	214
NWW-17	Unvegetated Streambed[3]	Allscale Scrub[4]	27 – 27	Primarily unvegetated, single-thread feature within allscale scrub.	34.784361, -117.262104	0.06	81
NWW-18	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.786948, -117.252605	0.01	104
NWW-19	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 5	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.787318, -117.251761	0.01	114
NWW-20	Unvegetated Streambed[3]	Disturbed Habitat[4]	33 – 96	Primarily unvegetated, single-thread feature within disturbed habitat; originates south of review area. (See Photo 39 on Figure 5C and Appendix G.)	34.791189, -117.241868	1.32	852
NWW-21	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 15	Primarily unvegetated, single-thread feature within allscale scrub that originates as runoff from National Trails Hwy/Main St.	34.795810, -117.228450	0.09	428
NWW-22	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 7	Primarily unvegetated, single-thread feature within allscale scrub; originates downstream of NWW-21.	34.796559, -117.227801	0.02	176
NWW-23	Unvegetated Streambed[3]	Allscale Scrub[4]	8 – 16	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.795776, -117.228162	0.07	221
NWW-24	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 20	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.797160, -117.227759	0.22	801
NWW-25	Unvegetated Streambed[3]	Allscale Scrub[4]	5 – 15	Primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.796981, -117.225815	0.16	727

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-26	Unvegetated Streambed[3]	Allscale Scrub[4]	5 – 15	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.797595, -117.225008	0.16	522
NWW-27	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 20	Primarily unvegetated, partially braided feature within allscale scrub; originates as runoff from National Trails Hwy/Main St and/or features south of National Trails Hwy (NWW-103 and NWW-104); watercourse mapped throughout.	34.798258, -117.223204	0.26	1,155
	Watercourse[5]	Allscale Scrub	N/A			2.58	–
NWW-28	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 5	Small, primarily unvegetated, double-thread feature within allscale scrub south of National Trails Hwy; watercourse mapped throughout	34.797819, -117.222127	0.01	109
	Watercourse[5]	Allscale Scrub	N/A			0.16	–
NWW-29	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Primarily unvegetated, single-thread feature within allscale scrub; occurs within watercourse mapped as associated with NWW-27.	34.798766, -117.222983	<0.01	96
NWW-30	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 12	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.798508, -117.221906	0.05	311
NWW-31	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 10	Primarily unvegetated, small, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.798583, -117.221247	0.03	145
NWW-32	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub south of National Trails Hwy; watercourse mapped throughout.	34.798456, -117.220065	<0.01	32
	Watercourse[5]	Allscale Scrub	N/A			0.16	–
NWW-33	Unvegetated Streambed[3]	Allscale Scrub[4]	5 – 18	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.799322, -117.219846	0.05	171
NWW-34	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.800955, -117.215818	0.03	572
NWW-35	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.807290, -117.203290	0.01	66

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-36	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area; watercourse mapped throughout. (See Photo 23 on Figure 5C and Appendix G.)	34.808738, -117.201555	0.01	183
	Watercourse[5]	Allscale Scrub	N/A			0.11	–
NWW-37	Unvegetated Streambed[3]	Allscale Scrub[4]	6 – 6	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area; watercourse mapped throughout.	34.809189, -117.201054	0.01	150
	Watercourse[5]	Allscale Scrub	N/A			0.21	–
NWW-38	Unvegetated Streambed[3]	Allscale Scrub[4]	5 – 5	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area; occurs within watercourse mapped as associated with NWW-37.	34.809316, -117.200892	0.01	141
NWW-39	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.809671, -117.200471	<0.01	182
NWW-40	Unvegetated Streambed[3]	Allscale Scrub[4]	6 – 6	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area; watercourse mapped throughout.	34.810099, -117.199975	0.01	155
	Watercourse[5]	Allscale Scrub	N/A			0.29	–
NWW-41	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area; occurs within watercourse mapped as associated with NWW-40.	34.810323, -117.199718	0.01	172
NWW-42	Unvegetated Streambed[3]	Allscale Scrub[4]	8 – 8	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.811425, -117.198424	0.02	175
NWW-43	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	20 – 20	Primarily unvegetated, single-thread feature within creosote bush scrub; indicators of flow not present before dirt road.	34.826693, -117.188511	0.34	475

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-44	Unvegetated Streambed[3]	Unvegetated Channel	2 - 150	Large, primarily unvegetated feature fed by culvert along Hinkley Road and road runoff from National Trails Hwy and/or features south of National Trails Hwy (NWW-105 and NWW-106).; located within unvegetated channel and allscale scrub; feature runs along berm (earthen-lined and partially concrete); feature enlarges near railroad crossing. (See Photo 21 on Figure 5C and Appendix G.)	34.829248, -117.186429	3.72	5,956
NWW-45	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 6	Primarily unvegetated braided feature within allscale scrub; feature initiates at and is sourced by a residential lot; watercourse present throughout some portions of feature. (See Photo 20 on Figure 5C and Appendix G.)	34.834684, -117.182237	0.21	2,468
	Watercourse[5]	Allscale Scrub	N/A			0.66	–
NWW-46	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 4	Primarily unvegetated braided feature within allscale scrub between hillslopes.	34.835168, -117.181479	0.06	1,172
NWW-47	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 4	Small, primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from two dirt roads leading from National Trails Hwy.	34.833706, -117.176283	0.04	580
NWW-48	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; portion occurs within watercourse mapped as associated with NWW-49.	34.836991, -117.181122	0.03	481
NWW-49	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 10	Primarily unvegetated, large braided and interwoven feature with multiple tributaries within allscale scrub between hillslopes; watercourse present throughout some portions of feature. (See Photo 41 on Figure 5C and Appendix G.)	34.836110, -117.179064	0.73	7,138
	Watercourse[5]	Allscale Scrub	N/A			1.62	–
NWW-50	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.837239, -117.179203	0.02	461
NWW-51	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.837464, -117.178078	0.04	842
NWW-52	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.837867, -117.177679	0.04	562

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-53	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 3	Primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.837648, -117.177101	0.07	1,131
NWW-54	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.835210, -117.172619	0.02	354
NWW-55	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 10	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.835454, -117.171863	0.02	170
NWW-56	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 5	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.835773, -117.172617	0.02	252
NWW-57	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 7	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.836014, -117.172631	0.02	264
NWW-58	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 14	Primarily unvegetated, single-thread feature within allscale scrub.	34.838348, -117.176084	0.50	4,358
NWW-59	Unvegetated Streambed[3]	Allscale Scrub[4]	1 – 16	Large, primarily unvegetated, fan feature with multiple braids and heavily interwoven throughout; upstream portion of the feature runs through various hillslopes and fans downstream; within allscale scrub and creosote bush scrub; portions originate as runoff from National Trails Hwy and/or feature south of National Trails Hwy (NWW-107); watercourse present throughout some portions of feature. (See Photo 42 on Figure 5C and Appendix G.)	34.838248, -117.174160	0.82	8,262
	Watercourse[5]	Allscale Scrub	N/A			9.45	–
NWW-60	Vegetated Streambed[3]	Creosote Bush Scrub	6 – 51	Vegetated feature north of railroad tracks within creosote bush scrub; receives sheet flows from dirt road north of and parallel to railroad tracks. (See Photos 35 and 36 on Figure 5C and Appendix G.)	34.840401, -117.179750	0.17	188
NWW-61	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 12	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from National Trails Hwy/Main St.	34.837031, -117.169791	0.08	910
NWW-62	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 8	Primarily unvegetated feature within allscale scrub between hillslopes; multiple tributaries.	34.840397, -117.175307	0.14	1,696

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-63	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 6	Primarily unvegetated feature within allscale scrub between hillslopes; multiple tributaries.	34.840934, -117.174275	0.20	2,174
NWW-64	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 4	Small, primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.841711, -117.174418	0.04	538
NWW-65	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, single-thread feature within allscale scrub within hillslopes.	34.842293, -117.173643	0.02	482
NWW-66	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 3	Primarily unvegetated, double-thread feature within allscale scrub within hillslopes.	34.843147, -117.172457	0.08	1,260
NWW-67	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 12	Primarily unvegetated feature with multiple tributaries upstream within creosote bush scrub.	34.841131, -117.171984	0.22	2,373
NWW-68	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 12	Primarily unvegetated, braided feature within creosote bush scrub; originates as runoff from National Trails Hwy/Main St; watercourse present throughout some portions of feature. (See Photo 27 on Figure 5C and Appendix G.)	34.839992, -117.170094	0.36	5,708
	Watercourse[5]	Creosote Bush Scrub	N/A			0.51	–
NWW-69	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 8	Large, primarily unvegetated, braided and interwoven feature within allscale scrub and creosote bush scrub between hillslopes; watercourse present throughout some portions of feature. (See Photo 24 on Figure 5C and Appendix G.)	34.842933, -117.168625	0.68	6,858
	Watercourse[5]	Allscale Scrub	N/A			0.83	–
NWW-70	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 20	Large, primarily unvegetated, braided and interwoven feature with multiple mainstems fed by various tributaries; located within allscale scrub and creosote bush scrub between hillslopes; originates as runoff from unnamed dirt roads leading from National Trails Hwy; watercourse present throughout some portions of feature. (See Photo 19 on Figure 5C and Appendix G.)	34.842209, -117.166408	2.10	18,554
	Watercourse[5]	Allscale Scrub	N/A			6.25	–
NWW-71	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.844554, -117.165718	0.10	1,128
NWW-72	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.845370, -117.166236	0.04	427

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-73	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 12	Large, primarily unvegetated, interwoven feature with multiple mainstems fed by various tributaries within allscale scrub and creosote bush scrub; originates as runoff from unnamed dirt roads leading from National Trails Hwy. (See Photo 18 on Figure 5C and Appendix G.)	34.844453, -117.163545	1.24	13,348
NWW-74	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 8	Primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from unnamed dirt road.	34.846950, -117.162756	0.17	1,582
NWW-75	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 4	Small, primarily unvegetated, double-thread feature within allscale scrub.	34.845550, -117.159978	0.04	487
NWW-76	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 13	Large, primarily unvegetated, braided feature with multiple tributaries within allscale scrub; originates as runoff from unnamed dirt road leading from National Trails Hwy; watercourse present throughout some portions of feature. (See Photo 30 on Figure 5C and Appendix G.)	34.848019, -117.159133	0.86	8,649
	Watercourse[5]	Allscale Scrub	N/A			15.45	–
NWW-77	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	2 – 8	Primarily unvegetated feature with one tributary within allscale scrub in between hillslopes; originates as runoff from unnamed dirt road leading from National Trails Hwy; downstream extent continues into watercourse associated with NWW-76.	34.847129, -117.156396	0.17	1,677
NWW-78	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.848845, -117.157242	0.01	278
NWW-79	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 5	Primarily unvegetated, braided feature with island within allscale scrub; originates as runoff from unnamed dirt road.	34.850248, -117.158057	0.13	1,874

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-80	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 20	Large, primarily unvegetated, braided and interwoven feature with multiple mainstems fed by various tributaries within creosote bush scrub; originates from National Trails Hwy/Main St and/or feature south of National Trails Hwy (NWW-108); portions of feature display disturbance by off-road vehicle usage; watercourse present throughout some portions of feature. (See Photos 17 and 18 on Figure 5C and Appendix G.)	34.850680, -117.154564	2.02	15,877
	Watercourse[5]	Creosote Bush Scrub	N/A			13.99	–
NWW-81	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 8	Primarily unvegetated, single-thread feature within allscale scrub.	34.853340, -117.156269	0.12	1,229
NWW-82	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 15	Primarily unvegetated, braided feature within allscale scrub and creosote bush scrub; heavily eroded where feature runs parallel to railroad tracks. (See Photo 16 on Figure 5C and Appendix G.)	34.854433, -117.152784	0.64	8,328
NWW-83	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.856239, -117.153167	0.01	250
NWW-84	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 1	Primarily unvegetated, single-thread feature within creosote bush scrub.	34.854958, -117.146066	0.02	909
NWW-85	Unvegetated Streambed[3]	Allscale Scrub[4]	1 – 5	Primarily unvegetated feature with multiple tributaries within allscale scrub; originates as runoff from unnamed dirt road. (See Photo 11 on Figure 5C and Appendix G.)	34.857281, -117.149898	0.31	3,921
NWW-86	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	3 – 3	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unnamed dirt road.	34.856698, -117.147965	0.02	218
NWW-87	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	2 – 4	Primarily unvegetated, double-thread feature within creosote bush scrub; originates as runoff from unnamed dirt road. (See Photo 13 on Figure 5C and Appendix G.)	34.857936, -117.147949	0.13	2,162

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-88	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from unnamed dirt road.	34.858906, -117.148308	0.04	403
NWW-89	Unvegetated Streambed[3]	Allscale Scrub[4]	1 – 22	Large, primarily unvegetated feature within allscale scrub, creosote bush scrub, and disturbed habitat that consists of two large mainstems with several tributaries; eastern main stem originates south of National Trails Hwy/Main St before traveling through a culvert, western main stem originates as runoff from Mockingbird Rd (dirt road); disturbed by off-road vehicle use and obstructions (tree logs) likely placed by adjacent residential lot residents; heavily eroded downstream near manipulated and heavily used dirt roads adjacent to the railroad tracks; watercourse present throughout some portions of feature. (See Photos 7 – 10, 29, and 32 on Figure 5C and Appendix G.)	34.863711, -117.134655	1.57	12,490
	Watercourse[5]	Allscale Scrub	N/A			1.84	–
NWW-90	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 6	Primarily unvegetated, single-thread feature within allscale scrub between residential lots; originates as runoff from unnamed dirt road. (See Photo 11 on Figure 5C and Appendix G.)	34.860552, -117.142795	0.08	995
NWW-91	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Primarily unvegetated, small, single-thread feature within allscale scrub near residential lots; originates as runoff from upstream residential lot and Dundee Street. (See Photo 12 on Figure 5C and Appendix G.)	34.863147, -117.140564	0.01	150
NWW-92	Unvegetated Streambed[3]	Unvegetated Channel	8 – 45	Primarily unvegetated, large, trapezoidal feature (San Bernardino County Flood Control District Channel) within heavily manipulated, unvegetated channel; evidence of off-road vehicle use; originates south of Main St/National Trails Hwy. (See Photo 6 on Figure 5C and Appendix G.)	34.874455, -117.131291	1.77	4,629

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-93	Unvegetated Streambed[3]	Disturbed Habitat[4]	3 – 20	Rip-rap feature within developed and fenced area; originates at culvert outlet near intersection of National Trails Hwy and Lenwood Rd; downstream extent is large, rip-rap, circular, unvegetated drainage area containing a culvert inlet.	34.873485, -117.118709	0.06	409
NWW-94	Unvegetated Streambed[3]	Disturbed Habitat[4]	10 – 10	Primarily unvegetated feature within disturbed habitat; feature initiates from large stormwater concrete channelized structure. (See Photos 4 and 5 on Figure 5C and Appendix G.)	34.874055, -117.117372	0.09	401
NWW-95	Unvegetated Streambed[3]	Disturbed Habitat[4]	2 – 10	Primarily unvegetated, single-thread feature within disturbed habitat that outlets from culvert along National Trails Hwy; manipulation on the eastern slopes. (See Photo 3 on Figure 5C and Appendix G.)	34.877087, -117.110926	0.06	307
NWW-96	Unvegetated Streambed[3]	Disturbed Habitat[4]	5 – 5	Primarily heavily vegetated, disturbed, single-thread feature within disturbed habitat and tamarisk thickets; originates as road runoff from National Trails Hwy. (See Photo 2 on Figure 5C and Appendix G.)	34.878268, -117.108708	0.01	439
	Vegetated Streambed[3]	Disturbed Habitat	5 – 5			0.04	
NWW-97	Unvegetated Streambed[3]	Disturbed Habitat[4]	3 – 3	Primarily unvegetated, single-thread feature generally within disturbed habitat; feature drains through private commercial lots and outputs across a culvert crossing. (See Photo 1 on Figure 5C and Appendix G.)	34.879422, -117.105552	0.03	506
NWW-98	Unvegetated Streambed[3]	Allscale Scrub – Disturbed[4]	5 – 5	Small, unvegetated single-thread feature within allscale scrub – disturbed habitat that originates as runoff from dirt road parallel to the north side of railroad tracks.	34.880017, -117.105950	0.01	124
NWW-99	Vegetated Streambed[3]	Disturbed Habitat	5 – 12	Vegetated, single-thread feature within disturbed habitat that originates at culvert north of Main St/National Trails Hwy.	34.880936, -117.101226	0.07	353

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-100	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 13	Primarily unvegetated feature within allscale scrub with several tributaries that travels through several culverts; originates as runoff from and at a culvert north of Main St/National Trails Hwy.	34.882602, -117.095407	0.34	2,524
NWW-101	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 36	Primarily unvegetated feature within allscale scrub with multiple tributaries that travels through several culverts; originates as runoff from and at a culvert north of Main St/National Trails Hwy.	34.883416, -117.092671	0.35	1,003
NWW-102	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 5	Small, primarily unvegetated feature within allscale scrub that originates as runoff from Main St/National Trails Hwy.	34.883038, -117.091930	0.01	99
NWW-103	Unvegetated Streambed[3]	Allscale Scrub[4]	13 – 17	Primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy during storm events and converge with NWW-27.	34.797426, -117.223080	0.02	43
NWW-104	Unvegetated Streambed[3]	Allscale Scrub[4]	6 - 12	Small, primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy and converge with NWW-27.	34.797510, -117.222886	0.02	70
NWW-105	Unvegetated Streambed[3]	Allscale Scrub[4]	8 – 8	Small, primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy and converge with NWW-44; occurs within watercourse mapped as associated with NWW-106.	34.828712, -117.182373	0.01	29
NWW-106	Unvegetated Streambed[3]	Allscale Scrub[4]	12 – 12	Primarily unvegetated, single-thread feature generally within disturbed habitat; feature drains through private commercial lots and outputs across a culvert crossing.	34.828907, -117.182084	0.01	36
	Watercourse[5]	Allscale Scrub	N/A			0.15	–
NWW-107	Unvegetated Streambed[3]	Creosote Bush Scrub[6]	3 – 5	Small, primarily unvegetated, single-thread feature within creosote bush scrub that may continue over Main St/National Trails Hwy and converge with NWW-59.	34.835555, -117.169501	<0.01	51

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-108	Unvegetated Streambed[3]	Creosote Bush Scrub – Disturbed[6]	16 – 16	Primarily unvegetated, single-thread feature within creosote bush scrub – disturbed that may continue over Main St/National Trails Hwy and converge with NWW-80.	34.847053, -117.151904	0.01	36
NWW-109 (Mojave River)	Unvegetated Streambed[3]	Unvegetated Channel	50 – 3,100	Sparsely vegetated, dry, sandy wash that comprises the on-site extent of the Mojave River; extends into active desert dune habitat; generally flows southwest to northeast before continuing off site. (See Photos 33, 37, 38, and 43 – 45 on Figure 5C and Appendix G.)	34.863277, -117.170128	10.33	22,078
	Vegetated Streambed[3]	Active Desert Dunes				580.02	
Watercourse A	Watercourse[5]	Allscale Scrub	N/A	Watercourse associated with a streambed that occurs off site and upstream.	34.789811, -117.245502	0.94	–
					Total[6]	**669.96**	**195,124**

[1] Corresponds with the approximate stream bank widths observed during delineation. Width range accounts for entirety of streambed delineated, not individual vegetation communities.
[2] Linear feet not calculated for watercourse to avoid redundant linear foot calculation where such areas overlap with streambed.
[3] A "streambed" under CFGC Section 1602 includes the channel of a watercourse that is generally defined to include the depression between the banks worn by the regular and usual flow of water.
[4] Unvegetated streambed within mapped vegetation community; however, no vegetation technically present within the streambed.
[5] A "watercourse" extends beyond the streambed and can consist of associated features such as low-flow, active, and braided channels and banks associated with islands, and secondary channels within the bounds of a larger channel complex (Vyverberg & Brady 2013)
[6] Acreages and linear feet totals were summed using raw numbers provided during GIS analysis (available upon request) and thus, the sum of the total rounded numbers may not directly add up in this table.

APPENDIX I

ORM BULK UPLOAD AQUATIC RESOURCES OR CONSOLIDATED EXCEL SPREADSHEET (PROVIDED AS AN EXCEL FILE TO THE CORPS)

APPENDIX J

LITERATURE CITATIONS AND REFERENCES

APPENDIX J. LITERATURE CITATIONS AND REFERENCES

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APPENDIX K

GIS DATA (PROVIDED ELECTRONICALLY TO AGENCIES)

ATTACHMENT B

JURISDICTIONAL DETERMINATION REQUEST FORMS

(*SUPERSEDES APPENDIX B OF THE 2022 ARDR*)

Appendix 1 - REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD)

To: District Name Here

- I am requesting a JD on property located at: south of and within the Mojave River, northwest of National Trails Highway, and south and west of California State Route (CA)-58 (Street Address)
  City/Township/Parish: Barstow/Unincorp County: San Bernardino State: CA
  Acreage of Parcel/Review Area for JD: 5328.2
  Section: Various Township: 8N; 9N Range: 4W & 3W; 3W, 2W, & 1W
  Latitude (decimal degrees): 34.853903 Longitude (decimal degrees): -117.159799
  (For linear projects, please include the center point of the proposed alignment.)
- Please attach a survey/plat map and vicinity map identifying location and review area for the JD.
- ✔ I currently own this property. ✔ I plan to purchase this property.
  ___ I am an agent/consultant acting on behalf of the requestor.
  ✔ Other (please explain): Right-of-entry to Corps staff limited to BNSF-owned properties until other properties purchased by BNSF.
- Reason for request: (check as many as applicable)
  ___ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
  ___ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
  ✔ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
  ___ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.
  ___ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide.
  ___ A Corps JD is required in order to obtain my local/state authorization.
  ___ I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
  ___ I believe that the site may be comprised entirely of dry land.
  ___ Other: _____
- Type of determination being requested:
  ___ I am requesting an approved JD.
  ✔ I am requesting a preliminary JD.
  ___ I am requesting a "no permit required" letter as I believe my proposed activity is not regulated.
  ___ I am unclear as to which JD I would like to request and require additional information to inform my decision.

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.

Note: Right-of-entry to Corps staff limited to BNSF-owned properties until other properties purchased by BNSF.

*Signature: David Rankin Date: 8/16/23

- Typed or printed name: David Rankin

Company name: BNSF Railway Company

Address: 2500 Lou Menk Drive, AOB-3
Forth Worth, TX 76131

Daytime phone no.: 817-352-2383

Email address: David.Rankin@BNSF.com

***Authorities:** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD:

B. NAME AND ADDRESS OF PERSON REQUESTING PJD: David Rankin, BNSF Railway, 2500 Lou Menk Dr, AOB-3, Forth Worth, TX 76131

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: CA County/parish/borough: San Bernardino City: Barstow/Unincorporated

Center coordinates of site (lat/long in degree decimal format):

Lat.: 34.853903 Long.: -117.159799

Universal Transverse Mercator: 11S 485392.2m E 3856853.3m N

Name of nearest waterbody: Mojave River

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☐ Field Determination. Date(s):

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
		SEE	ATTACHED		

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- [x] Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
  Map: 2022 ARDR & 2023 ARDR Addendum, prepared by Rocks Biological Consulting.
- [x] Data sheets prepared/submitted by or on behalf of the PJD requestor.
  - [ ] Office concurs with data sheets/delineation report.
  - [ ] Office does not concur with data sheets/delineation report. Rationale: _____.
- [ ] Data sheets prepared by the Corps: _____.
- [ ] Corps navigable waters' study: _____.
- [x] U.S. Geological Survey Hydrologic Atlas: 2022 ARDR & 2023 ARDR Addendum, Figures 2, 2A, 2B; USGS NHD 2020.
  - [x] USGS NHD data.
  - [x] USGS 8 and 12 digit HUC maps.
- [x] U.S. Geological Survey map(s). Cite scale & quad name: 2022 ARDR & 2023 ARDR Addendum, Figures 2, 2A, 2B (1" = 4,500' or 3,000' [Hodge, Hinkley, Barstow SE, Barstow]).
- [x] Natural Resources Conservation Service Soil Survey. Citation: 2022 ARDR & 2023 ARDR Addendum, Figures 4, 4A, 4B; USDA NRCS 2018.
- [x] National wetlands inventory map(s). Cite name: 2022 ARDR & 2023 ARDR Addendum, Figure 4; USFWS NWI 2019.
- [ ] State/local wetland inventory map(s): _____.
- [ ] FEMA/FIRM maps: _____.
- [ ] 100-year Floodplain Elevation is: _____.(National Geodetic Vertical Datum of 1929)
- [x] Photographs: [x] Aerial (Name & Date): See 2022 ARDR & 2023 ARDR Addendum, Figures 1 & 4-6 (Maxar, Esri 2020; San Bernardino County, Esri 2020); Appendix D, Recent and Historic Aerials; Attachment F, Connectivity to Mojave River.
  or [x] Other (Name & Date): See 2022 ARDR, Appendix G; 2023 Addendum, Attachment D.
- [ ] Previous determination(s). File no. and date of response letter: _____.
- [x] Other information (please specify): 2022 ARDR & 2023 ARDR Addendum, prepared by Rocks Biological Consulting.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

_____
Signature and date of
Regulatory staff member
completing PJD

David Rankin 8/10/23
Signature and date of
person requesting PJD
(REQUIRED, unless obtaining
the signature is impracticable)[1]

[1] Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resources (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
NWW-1	34.772787	-117.284653	0.02 ac/123 ln ft	Non-wetland waters	Section 404
NWW-2	34.772847	-117.284610	0.01 ac/121 ln ft	Non-wetland waters	Section 404
NWW-3	34.773221	-117.283817	0.02 ac/132 ln ft	Non-wetland waters	Section 404
NWW-4	34.773653	-117.283036	0.01 ac/113 ln ft	Non-wetland waters	Section 404
NWW-5	34.773734	-117.282869	0.01 ac/109 ln ft	Non-wetland waters	Section 404
NWW-6	34.774652	-117.281701	0.01 ac/126 ln ft	Non-wetland waters	Section 404
NWW-7	34.776674	-117.278786	0.01 ac/119 ln ft	Non-wetland waters	Section 404
NWW-8	34.776786	-117.278705	0.01 ac/96 ln ft	Non-wetland waters	Section 404
NWW-9	34.778794	-117.277384	0.03 ac/107 ln ft	Non-wetland waters	Section 404
NWW-10	34.778399	-117.276743	<0.01 ac/52 ln ft	Non-wetland waters	Section 404
NWW-11	34.778377	-117.276478	0.02 ac/223 ln ft	Non-wetland waters	Section 404
NWW-12	34.778670	-117.276121	0.01 ac/127 ln ft	Non-wetland waters	Section 404
NWW-13	34.778712	-117.276024	0.01 ac/113 ln ft	Non-wetland waters	Section 404
NWW-14	34.778886	-117.275827	0.01 ac/133 ln ft	Non-wetland waters	Section 404
NWW-15	34.778978	-117.275585	0.01 ac/184 ln ft	Non-wetland waters	Section 404
NWW-16	34.784276	-117.262668	0.07 ac/214 ln ft	Non-wetland waters	Section 404
NWW-17	34.784361	-117.262104	0.05 ac/81 ln ft	Non-wetland waters	Section 404
NWW-18	34.786948	-117.252605	0.01 ac/104 ln ft	Non-wetland waters	Section 404
NWW-19	34.787318	-117.251761	0.01 ac/114 ln ft	Non-wetland waters	Section 404
NWW-20	34.791189	-117.241868	0.65 ac/852 ln ft	Non-wetland waters	Section 404
NWW-21	34.795810	-117.228450	0.03 ac/428 ln ft	Non-wetland waters	Section 404
NWW-22	34.796559	-117.227801	0.02 ac/176 ln ft	Non-wetland waters	Section 404
NWW-23	34.795776	-117.228162	0.02 ac/221 ln ft	Non-wetland waters	Section 404
NWW-24	34.797160	-117.227759	0.12 ac/840 ln ft	Non-wetland waters	Section 404
NWW-25	34.796981	-117.225815	0.07 ac/727 ln ft	Non-wetland waters	Section 404
NWW-26	34.797595	-117.225008	0.07 ac/522 ln ft	Non-wetland waters	Section 404
NWW-27	34.798258	-117.223204	0.18 ac/1,155 ln ft	Non-wetland waters	Section 404
NWW-28	34.797819	-117.222127	0.01 ac/109 ln ft	Non-wetland waters	Section 404
NWW-29	34.798766	-117.222983	<0.01 ac/96 ln ft	Non-wetland waters	Section 404
NWW-30	34.798508	-117.221906	0.03 ac/311 ln ft	Non-wetland waters	Section 404
NWW-31	34.798583	-117.221247	0.01 ac/145 ln ft	Non-wetland waters	Section 404
NWW-32	34.798456	-117.220065	<0.01 ac/32 ln ft	Non-wetland waters	Section 404
NWW-33	34.799322	-117.219846	0.02 ac/171 ln ft	Non-wetland waters	Section 404
NWW-34	34.800955	-117.215818	0.03 ac/572 ln ft	Non-wetland waters	Section 404

NWW-35	34.807290	-117.203290	0.01 ac/66 ln ft	Non-wetland waters	Section 404
NWW-36	34.808738	-117.201555	0.01 ac/183 ln ft	Non-wetland waters	Section 404
NWW-37	34.809189	-117.201054	0.01 ac/150 ln ft	Non-wetland waters	Section 404
NWW-38	34.809316	-117.200892	0.01 ac/141 ln ft	Non-wetland waters	Section 404
NWW-39	34.809671	-117.200471	<0.01 ac/182 ln ft	Non-wetland waters	Section 404
NWW-40	34.810099	-117.199975	0.01 ac/155 ln ft	Non-wetland waters	Section 404
NWW-41	34.810323	-117.199718	0.01 ac/172 ln ft	Non-wetland waters	Section 404
NWW-42	34.811425	-117.198424	0.02 ac/175 ln ft	Non-wetland waters	Section 404
NWW-43	34.826693	-117.188511	0.13 ac/475 ln ft	Non-wetland waters	Section 404
NWW-44	34.829248	-117.186429	3.13 ac/5,956 ln ft	Non-wetland waters	Section 404
NWW-45	34.834684	-117.182237	0.21 ac/2,468 ln ft	Non-wetland waters	Section 404
NWW-46	34.835168	-117.181479	0.06 ac/1,172 ln ft	Non-wetland waters	Section 404
NWW-47	34.833706	-117.176283	0.04 ac/580 ln ft	Non-wetland waters	Section 404
NWW-48	34.836991	-117.181122	0.03 ac/481 ln ft	Non-wetland waters	Section 404
NWW-49	34.836110	-117.179064	0.73 ac/7,138 ln ft	Non-wetland waters	Section 404
NWW-50	34.837239	-117.179203	0.02 ac/461 ln ft	Non-wetland waters	Section 404
NWW-51	34.837464	-117.178078	0.04 ac/842 ln ft	Non-wetland waters	Section 404
NWW-52	34.837867	-117.177679	0.04 ac/562 ln ft	Non-wetland waters	Section 404
NWW-53	34.837648	-117.177101	0.07 ac/1,131 ln ft	Non-wetland waters	Section 404
NWW-54	34.835210	-117.172619	0.02 ac/354 ln ft	Non-wetland waters	Section 404
NWW-55	34.835454	-117.171863	0.02 ac/170 ln ft	Non-wetland waters	Section 404
NWW-56	34.835773	-117.172617	0.02 ac/252 ln ft	Non-wetland waters	Section 404
NWW-57	34.836014	-117.172631	0.02 ac/264 ln ft	Non-wetland waters	Section 404
NWW-58	34.838348	-117.176084	0.50 ac/4,358 ln ft	Non-wetland waters	Section 404
NWW-59	34.838248	-117.174160	0.75 ac/8,262 ln ft	Non-wetland waters	Section 404
NWW-60	34.840401	-117.179750	0.17 ac/188 ln ft	Non-wetland waters	Section 404
NWW-61	34.837031	-117.169791	0.05 ac/910 ln ft	Non-wetland waters	Section 404
NWW-62	34.840397	-117.175307	0.14 ac/1,696 ln ft	Non-wetland waters	Section 404
NWW-63	34.840934	-117.174275	0.20 ac/2,174 ln ft	Non-wetland waters	Section 404
NWW-64	34.841711	-117.174418	0.04 ac/538 ln ft	Non-wetland waters	Section 404
NWW-65	34.842293	-117.173643	0.02 ac/482 ln ft	Non-wetland waters	Section 404
NWW-66	34.843147	-117.172457	0.08 ac/1,260 ln ft	Non-wetland waters	Section 404
NWW-67	34.841131	-117.171984	0.22 ac/2,373 ln ft	Non-wetland waters	Section 404
NWW-68	34.839992	-117.170094	0.34 ac/5,708 ln ft	Non-wetland waters	Section 404
NWW-69	34.842933	-117.168625	0.68 ac/6,858 ln ft	Non-wetland waters	Section 404
NWW-70	34.842209	-117.166408	2.09 ac/18,554 ln ft	Non-wetland waters	Section 404
NWW-71	34.844554	-117.165718	0.10 ac/1,128 ln ft	Non-wetland waters	Section 404
NWW-72	34.845370	-117.166236	0.04 ac/427 ln ft	Non-wetland waters	Section 404
NWW-73	34.844453	-117.163545	1.24 ac/13,348 ln ft	Non-wetland waters	Section 404
NWW-74	34.846950	-117.162756	0.17 ac/1,582 ln ft	Non-wetland waters	Section 404
NWW-75	34.845550	-117.159978	0.04 ac/487 ln ft	Non-wetland waters	Section 404
NWW-76	34.848019	-117.159133	0.86 ac/8,649 ln ft	Non-wetland waters	Section 404
NWW-77	34.847129	-117.156396	0.16 ac/1,677 ln ft	Non-wetland waters	Section 404

NWW-78	34.848845	-117.157242	0.01 ac/278 ln ft	Non-wetland waters	Section 404
NWW-79	34.850248	-117.158057	0.13 ac/1,874 ln ft	Non-wetland waters	Section 404
NWW-80	34.850680	-117.154564	2.02 ac/15,877 ln ft	Non-wetland waters	Section 404
NWW-81	34.853340	-117.156269	0.12 ac/1,229 ln ft	Non-wetland waters	Section 404
NWW-82	34.854433	-117.152784	0.64 ac/8,328 ln ft	Non-wetland waters	Section 404
NWW-83	34.856239	-117.153167	0.01 ac/250 ln ft	Non-wetland waters	Section 404
NWW-84	34.854958	-117.146066	0.02 ac/909 ln ft	Non-wetland waters	Section 404
NWW-85	34.857281	-117.149898	0.31 ac/3,921 ln ft	Non-wetland waters	Section 404
NWW-86	34.856698	-117.147965	0.02 ac/218 ln ft	Non-wetland waters	Section 404
NWW-87	34.857936	-117.147949	0.13 ac/2,162 ln ft	Non-wetland waters	Section 404
NWW-88	34.858906	-117.148308	0.04 ac/403 ln ft	Non-wetland waters	Section 404
NWW-89	34.863711	-117.134655	1.43 ac/12,987 ln ft	Non-wetland waters	Section 404
NWW-90	34.860552	-117.142795	0.08 ac/995 ln ft	Non-wetland waters	Section 404
NWW-91	34.863147	-117.140564	0.01 ac/150 ln ft	Non-wetland waters	Section 404
NWW-92	34.874455	-117.131291	8.31 ac/13,518 ln ft	Non-wetland waters	Section 404
NWW-93	34.873485	-117.118709	0.06 ac/409 ln ft	Non-wetland waters	Section 404
NWW-94	34.874055	-117.117372	0.06 ac/401 ln ft	Non-wetland waters	Section 404
NWW-95	34.877087	-117.110926	0.03 ac/307 ln ft	Non-wetland waters	Section 404
NWW-96	34.878268	-117.108708	0.05 ac/439 ln ft	Non-wetland waters	Section 404
NWW-97	34.879422	-117.105552	0.03 ac/506 ln ft	Non-wetland waters	Section 404
NWW-98	34.880017	-117.105950	0.01 ac/124 ln ft	Non-wetland waters	Section 404
NWW-99	34.880936	-117.101226	0.03 ac/353 ln ft	Non-wetland waters	Section 404
NWW-100	34.882602	-117.095407	0.34 ac/2,524 ln ft	Non-wetland waters	Section 404
NWW-101	34.883416	-117.092671	0.29 ac/1,003 ln ft	Non-wetland waters	Section 404
NWW-102	34.883038	-117.091930	0.01 ac/99 ln ft	Non-wetland waters	Section 404
NWW-103	34.797426	-117.223080	0.01 ac/43 ln ft	Non-wetland waters	Section 404
NWW-104	34.797510	-117.222886	0.01 ac/70 ln ft	Non-wetland waters	Section 404
NWW-105	34.828712	-117.182373	0.01 ac/29 ln ft	Non-wetland waters	Section 404
NWW-106	34.828907	-117.182084	0.01 ac/36 ln ft	Non-wetland waters	Section 404
NWW-107	34.835555	-117.169501	<0.01 ac/51 ln ft	Non-wetland waters	Section 404
NWW-108	34.847053	-117.151904	0.01 ac/36 ln ft	Non-wetland waters	Section 404
NWW-109	34.863277	-117.170128	106.87 ac/5,255 ln ft	Non-wetland waters	Section 404
NWW-110	34.862304	-117.029568	0.09 ac/626 ln ft	Non-wetland waters	Section 404
NWW-111	34.862851	-117.029387	0.01 ac/197 ln ft	Non-wetland waters	Section 404
NWW-112	34.862328	-117.030154	0.01 ac/197 ln ft	Non-wetland waters	Section 404
NWW-113	34.863114	-117.031133	0.11 ac/2,234 ln ft	Non-wetland waters	Section 404
NWW-114	34.863906	-117.030060	0.05 ac/735 ln ft	Non-wetland waters	Section 404
NWW-115	34.863948	-117.030548	0.01 ac/180 ln ft	Non-wetland waters	Section 404
NWW-116	34.863745	-117.030843	<0.01 ac/22 ln ft	Non-wetland waters	Section 404
NWW-117	34.863948	-117.031161	0.01 ac/196 ln ft	Non-wetland waters	Section 404
NWW-118	34.863784	-117.031507	<0.01 ac/54 ln ft	Non-wetland waters	Section 404
NWW-119	34.863981	-117.031809	0.05 ac/665 ln ft	Non-wetland waters	Section 404
NWW-120	34.862325	-117.032219	0.07 ac/537 ln ft	Non-wetland waters	Section 404

NWW-121	34.863168	-117.032221	0.01 ac/269 ln ft	Non-wetland waters	Section 404
NWW-122	34.863547	-117.032236	0.01 ac/115 ln ft	Non-wetland waters	Section 404
NWW-123	34.863294	-117.032440	<0.01 ac/103 ln ft	Non-wetland waters	Section 404
NWW-124	34.863374	-117.033400	0.01 ac/140 ln ft	Non-wetland waters	Section 404
NWW-125	34.863847	-117.033290	0.03 ac/232 ln ft	Non-wetland waters	Section 404
NWW-126	34.863806	-117.033928	0.01 ac/132 ln ft	Non-wetland waters	Section 404
NWW-127	34.864203	-117.033791	0.02 ac/307 ln ft	Non-wetland waters	Section 404
NWW-128	34.863964	-117.034043	0.02 ac/280 ln ft	Non-wetland waters	Section 404
NWW-129	34.864078	-117.034199	0.01 ac/128 ln ft	Non-wetland waters	Section 404
NWW-130	34.864243	-117.034403	0.02 ac/294 ln ft	Non-wetland waters	Section 404
NWW-131	34.864655	-117.034310	0.01 ac/121 ln ft	Non-wetland waters	Section 404
NWW-132	34.864770	-117.034393	0.03 ac/305 ln ft	Non-wetland waters	Section 404
NWW-133	34.864415	-117.034695	0.01 ac/129 ln ft	Non-wetland waters	Section 404
NWW-134	34.864537	-117.034800	<0.01 ac/154 ln ft	Non-wetland waters	Section 404
NWW-135	34.865000	-117.034784	0.04 ac/325 ln ft	Non-wetland waters	Section 404
NWW-136	34.864640	-117.034993	0.01 ac/128 ln ft	Non-wetland waters	Section 404
NWW-137	34.865098	-117.035362	<0.01 ac/41 ln ft	Non-wetland waters	Section 404
NWW-138	34.865483	-117.035394	0.01 ac/190 ln ft	Non-wetland waters	Section 404
NWW-139	34.865080	-117.035540	0.01 ac/142 ln ft	Non-wetland waters	Section 404
NWW-140	34.865346	-117.035826	0.03 ac/238 ln ft	Non-wetland waters	Section 404
NWW-141	34.865793	-117.035751	0.02 ac/243 ln ft	Non-wetland waters	Section 404
NWW-142	34.865558	-117.036182	0.01 ac/118 ln ft	Non-wetland waters	Section 404
NWW-143	34.865940	-117.035968	0.02 ac/126 ln ft	Non-wetland waters	Section 404
NWW-144	34.865697	-117.036341	0.02 ac/148 ln ft	Non-wetland waters	Section 404
NWW-145	34.867099	-117.037273	<0.01 ac/69 ln ft	Non-wetland waters	Section 404
NWW-146	34.867280	-117.037889	0.18 ac/272 ln ft	Non-wetland waters	Section 404
NWW-147	34.867479	-117.038380	<0.01 ac/47 ln ft	Non-wetland waters	Section 404
NWW-148	34.868016	-117.038573	0.01 ac/146 ln ft	Non-wetland waters	Section 404
NWW-149	34.867884	-117.039030	0.01 ac/133 ln ft	Non-wetland waters	Section 404
NWW-150	34.867950	-117.039201	0.01 ac/113 ln ft	Non-wetland waters	Section 404
NWW-151	34.868385	-117.038946	0.01 ac/120 ln ft	Non-wetland waters	Section 404
NWW-152	34.868169	-117.039394	0.01 ac/141 ln ft	Non-wetland waters	Section 404
NWW-153	34.868686	-117.039359	0.01 ac/185 ln ft	Non-wetland waters	Section 404
NWW-154	34.868471	-117.039625	<0.01 ac/62 ln ft	Non-wetland waters	Section 404
NWW-155	34.868497	-117.039748	0.01 ac/132 ln ft	Non-wetland waters	Section 404
NWW-156	34.868751	-117.040025	0.01 ac/126 ln ft	Non-wetland waters	Section 404
NWW-157	34.869093	-117.039898	0.01 ac/133 ln ft	Non-wetland waters	Section 404
NWW-158	34.869493	-117.040409	0.01 ac/169 ln ft	Non-wetland waters	Section 404
NWW-159	34.869406	-117.040822	0.01 ac/123 ln ft	Non-wetland waters	Section 404
NWW-160	34.869733	-117.041232	0.01 ac/85 ln ft	Non-wetland waters	Section 404
NWW-161	34.870069	-117.041756	0.01 ac/167 ln ft	Non-wetland waters	Section 404
NWW-162	34.870305	-117.041899	<0.01 ac/55 ln ft	Non-wetland waters	Section 404
NWW-163	34.870368	-117.042117	0.01 ac/169 ln ft	Non-wetland waters	Section 404

NWW-164	34.870510	-117.042262	<0.01 ac/125 ln ft	Non-wetland waters	Section 404
NWW-165	34.870631	-117.042459	0.01 ac/152 ln ft	Non-wetland waters	Section 404
NWW-166	34.870818	-117.042706	0.02 ac/294 ln ft	Non-wetland waters	Section 404
NWW-167	34.870938	-117.042896	0.01 ac/142 ln ft	Non-wetland waters	Section 404
NWW-168	34.871428	-117.042765	0.03 ac/208 ln ft	Non-wetland waters	Section 404
NWW-169	34.871617	-117.042845	0.01 ac/123 ln ft	Non-wetland waters	Section 404
NWW-170	34.871221	-117.043257	0.01 ac/295 ln ft	Non-wetland waters	Section 404
NWW-171	34.871715	-117.043851	0.03 ac/206 ln ft	Non-wetland waters	Section 404
NWW-172	34.872364	-117.043974	0.03 ac/176 ln ft	Non-wetland waters	Section 404
NWW-173	34.872264	-117.044360	<0.01 ac/90 ln ft	Non-wetland waters	Section 404
NWW-174	34.872611	-117.044917	<0.01 ac/210 ln ft	Non-wetland waters	Section 404
NWW-175	34.873081	-117.045449	0.02 ac/155 ln ft	Non-wetland waters	Section 404
NWW-176	34.873274	-117.045677	0.01 ac/173 ln ft	Non-wetland waters	Section 404
NWW-177	34.873893	-117.045930	0.06 ac/571 ln ft	Non-wetland waters	Section 404
NWW-178	34.873797	-117.046218	0.01 ac/84 ln ft	Non-wetland waters	Section 404
NWW-179	34.873847	-117.046343	<0.01 ac/63 ln ft	Non-wetland waters	Section 404
NWW-180	34.873945	-117.046598	0.03 ac/197 ln ft	Non-wetland waters	Section 404
NWW-181	34.874872	-117.046978	<0.01 ac/75 ln ft	Non-wetland waters	Section 404
NWW-182	34.874268	-117.047106	0.07 ac/636 ln ft	Non-wetland waters	Section 404
NWW-183	34.864594	-117.120526	0.06 ac/288 ln ft	Non-wetland waters	Section 404
NWW-184	34.865232	-117.122088	0.02 ac/178 ln ft	Non-wetland waters	Section 404

ATTACHMENT C

ARID WEST WETLAND DETERMINATION DATA FORMS AND EPHEMERAL AND INTERMITTENT STREAMS OHWM DATASHEETS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Barstow International Gateway (BIG) (formerly Big Barstow) City/County: Barstow/San Bernardino Sampling Date: 4/18/2023

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 12

Investigator(s): Kelsey Woldt Section, Township, Range: S4, T08N, R03W

Landform (hillslope, terrace, etc.): terrace/near Mojave River Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): LRR D - Interior Deserts Lat: 33.834733 Long: -117.190673 Datum: WGS 84

Soil Map Unit Name: Riverwash (soil rated as hydric per the NRCS) NWI classification: Freshwater pond

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology ✔ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Representative sample point taken within area mapped as tamarisk thickets and within close proximity to the Mojave River. Hydrology considered significantly disturbed based on presence of bermed road located directly to the west, redirecting flows from the Mojave River. Originally delineated 8/20/2019; conditions reassessed 4/18/2023.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Tamarix ramosissima	5	Yes	FAC
2. Baccharis salicifolia	5	Yes	FAC
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 5-foot radius)			
1. Schismus barbatus	3	Yes	NL/UPL
2. Cryptantha mirantha	2	Yes	NL/UPL
3.			
4.			
5.			
6.			
7.			
8.			
	5	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A	= Total Cover	

% Bare Ground in Herb Stratum 85% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as tamarisk thickets. Tamarix ramosissima is synonymous with Tamarix chinensis (FAC) per NWPL. Hydric soil and wetland hydrology parameters not met; thus prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10 YR 4/2	100%	N/A	N/A	N/A	N/A	loamy sand	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No ✔

Remarks:

Soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): N/A

Water Table Present? Yes _____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral test not met. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Barstow International Gateway (BIG) (formerly Big Barstow) City/County: Barstow/San Bernardino Sampling Date: 6/27/2023

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 13

Investigator(s): Kelsey Woldt, Alec Goodman, Sarah Krejca Section, Township, Range: S13, T09N, R02W

Landform (hillslope, terrace, etc.): within channel Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): LRR D - Interior Deserts Lat: 34.867375 Long: -117.037877 Datum: WGS 84

Soil Map Unit Name: Nebona-Cuddeback Complex, 2 to 9 Percent Slopes (soil rated as hydric per the NRCS) NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Representative sample point taken within area mapped as unvegetated channel.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A = Total Cover		
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 99% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as unvegetated channel. Less than 5% herbaceous cover (approximately 1% Schismus sp.), therefore, per Arid West Manual no herb stratum.

SOIL

Sampling Point: WDP 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10 YR 5/4	100%	N/A	N/A	N/A	N/A	sand	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: shovel refusal (fill/compacted soil)

Depth (inches): 7 inches

Hydric Soil Present? Yes _____ No ✔

Remarks:

Soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): N/A

Water Table Present? Yes _____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral test not met (no vegetation). No wetland hydrology indicators observed.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Barstow International Gateway (BIG) (formerly Big Barstow) **Date:** 4/18/2023 **Time:** 0900
Project Number: N/A **Town:** Barstow **State:** CA
Stream: ODP 30 **Photo begin file#:** 49 **Photo end file#:** 49
Investigator(s): Kelsey Woldt

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
BIG Aquatic Resources Delineation Report Addendum Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.846276, -117.113088

Potential anthropogenic influences on the channel system:
Highly manipulated/disturbed (off-road vehicle use and trash dumping) trapezoidal flood-control channel flowing under National Trails Highway and railroad tracks.

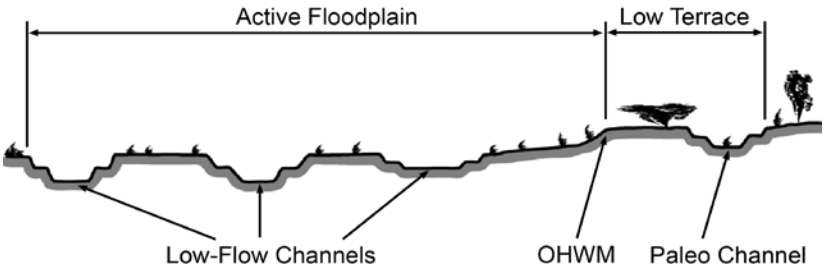
Brief site description:
Site occurs along existing railroad line with some off-site areas south of National Trails Highway; disturbed conditions prevalent.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

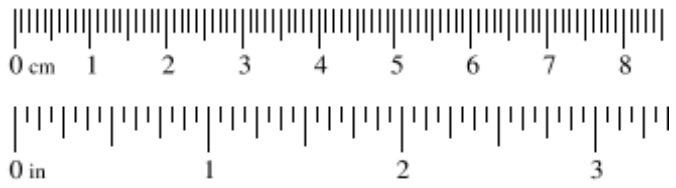


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

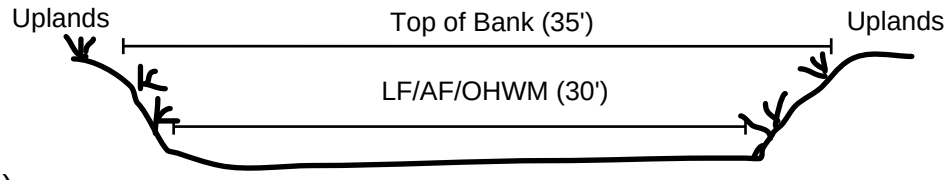
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Barstow **Cross section ID:** ODP 30 **Date:** 4/18/2023 **Time:** 0900

Cross section drawing:



Facing north
(downstream)

OHWM

GPS point: 34.846276, -117.113088

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 30-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Highly manipulated trapezoidal channel; evidence of off-road vehicle use throughout.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Barstow **Cross section ID:** ODP 30 **Date:** 4/18/2023 **Time:** 0900

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 30-foot wide unvegetated AF with a defined break in bank slope; drift and debris present as trash and dead plant material. Medium sand sediment texture with some granules throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 20 % Tree: 0 % Shrub: 17 % Herb: 3 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Soil development and surface relief define uplands. Fine sand sediment texture with some pebbles throughout. Vegetation dominated by Larrea tridentata, Atriplex polycarpa, Hirschfeldia incana, Erodium cicutarium, Schismus barbatus, and Bromus rubens.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Barstow International Gateway (BIG) (formerly Big Barstow)
Date: 4/18/2023
Time: 0930
Project Number: N/A
Town: Barstow
State: CA
Stream: ODP 31
Photo begin file#: 50
Photo end file#: 50
Investigator(s): Kelsey Woldt

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Addendum Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.866015, -117.122899

Potential anthropogenic influences on the channel system:
Highly manipulated/disturbed (off-road vehicle use and trash dumping) trapezoidal flood-control channel flowing under National Trails Highway and railroad tracks.

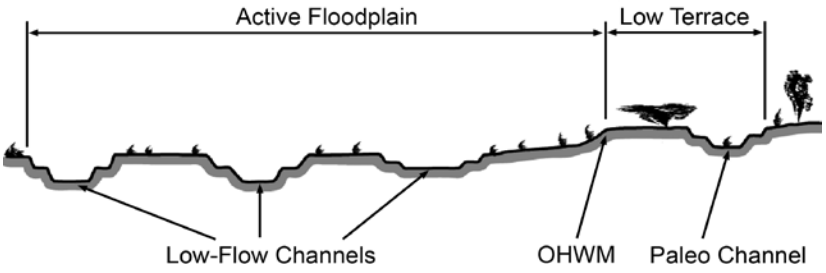
Brief site description:
Site occurs along existing railroad line with some off-site areas south of National Trails Highway; disturbed conditions prevalent.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

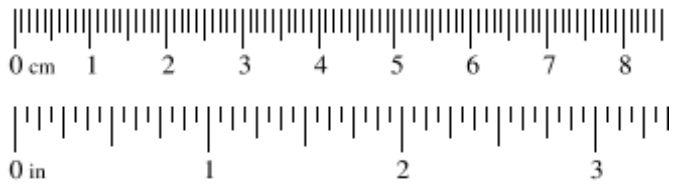


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

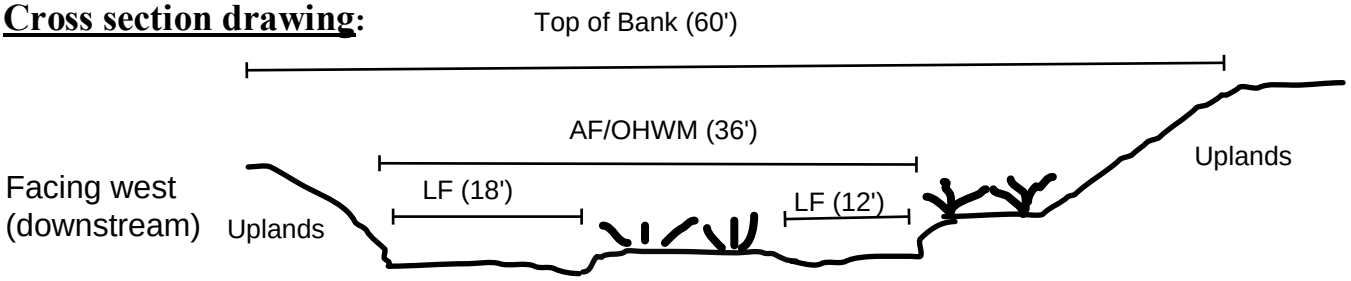
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Barstow **Cross section ID:** ODP 31 **Date:** 4/18/2023 **Time:** 0930

Cross section drawing:



OHWM

GPS point: 34.866015, -117.122899

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [ ] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Approximately 36-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation species.

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace/Upland

GPS point: Just below AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- [x] NA
- [ ] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Two unvegetated low-flow channels (LF) (18' southern and 12' northern) with a defined break in slope. Fine sand sediment texture with some pebbles throughout.

Project ID: Barstow **Cross section ID:** ODP 31 **Date:** 4/18/2023 **Time:** 0930

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 5 % Tree: 0 % Shrub: 5 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 36-foot wide active floodplain (AF) with a defined break in bank slope; drift and debris present as trash. Medium sand sediment texture with some granules throughout. Vegetation dominated by Atriplex canescens and Atriplex polycarpa.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 5 % Tree: 0 % Shrub: 0 % Herb: 5 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Soil development and surface relief define uplands. Medium sand sediment texture with some pebbles throughout. Vegetation dominated by Schismus barbatus.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Barstow International Gateway (BIG) (formerly Big Barstow)
Date: 4/18/2023
Time: 1615
Project Number: N/A
Town: Barstow
State: CA
Stream: ODP 32
Photo begin file#: 54
Photo end file#: 54
Investigator(s): Kelsey Woldt

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Addendum Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.835258, -117.192358

Potential anthropogenic influences on the channel system:
Area receives upstream runoff/flows from surrounding development and snow melt. Sandy bermed areas resulting from County of San Bernardino flood control measures occur along northern and southern extent of river. Evidence of trash dumping.

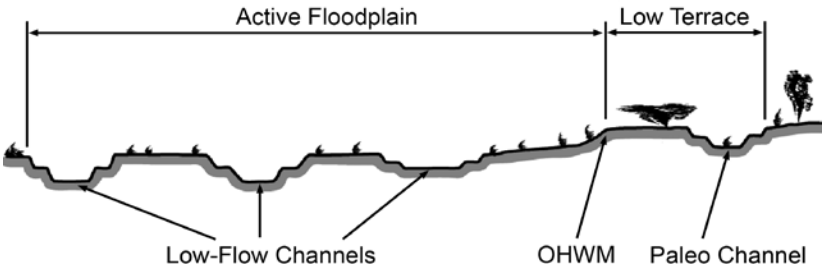
Brief site description:
Within Mojave River adjacent to Hinkley Road; immediate surrounding area generally undeveloped except for Hinkley Road.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

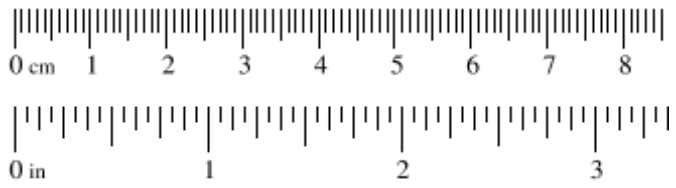


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

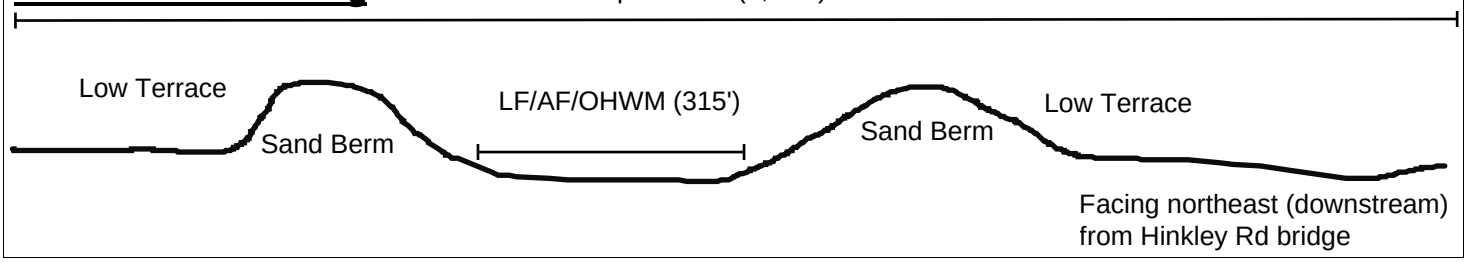
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Barstow **Cross section ID:** ODP 32 **Date:** 4/18/2023 **Time:** 1615

Cross section drawing:



OHWM

GPS point: 34.835258, -117.192358

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 315-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: unknown

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: surface water
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channels (LF) assumed within areas of active flow during site visit given the low rain/drought year within this intermittent section of the Mojave River. No vegetation occurring within the LF (unvegetated channel). Could not assess sediment texture.

Project ID: Barstow **Cross section ID:** ODP 32 **Date:** 4/18/2023 **Time:** 1615

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very fine sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 315-foot wide AF with a defined break in bank slope; drift and debris present as trash and dead plant material. Very fine sand sediment texture throughout. No vegetation occurring within the AF (unvegetated channel).

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 35 % Tree: 5 % Shrub: 27 % Herb: 3 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☑ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low terrace present outside of sandy bermed areas created by the County of San Bernardino for flood control purposes. Soil development and surface relief define uplands. Fine sand sediment texture with some cobble throughout. Vegetation dominated by Populus sp., Tamarix ramossisima, Schismus barbatus, and Salix sp.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Barstow International Gateway (BIG) (formerly Big Barstow)
Project Number: N/A
Stream: ODP 33
Investigator(s): Sarah Krejca

Date: 6/27/2023
Town: Barstow
Photo begin file#: 56

Time: 0940
State: CA
Photo end file#: 56

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
BIG Aquatic Resources Delineation Report Addendum Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.864155, -117.030134

Potential anthropogenic influences on the channel system:
Off-road vehicle use and dirt roads throughout the entire area.

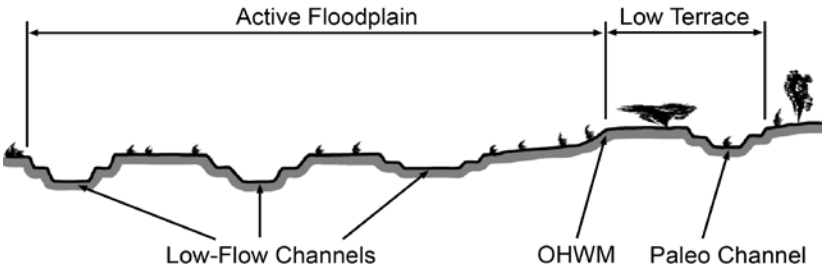
Brief site description:
Site occurs along existing dirt road(s) and substation; disturbed conditions prevalent.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

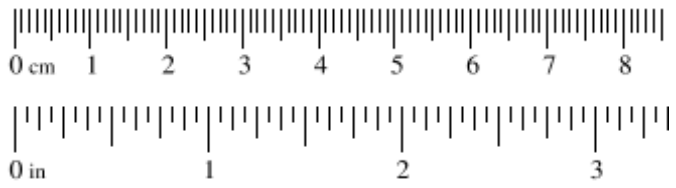


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

Wentworth Size Classes

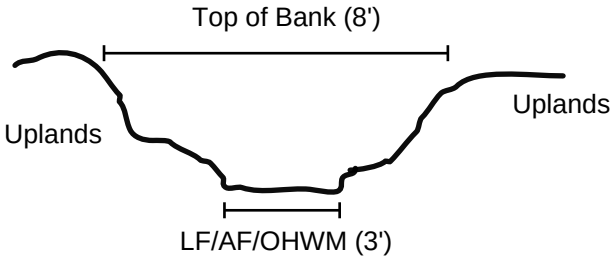
Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Barstow **Cross section ID:** ODP 33 **Date:** 6/27/2023 **Time:** 0940

Cross section drawing:

Facing north (downstream)



OHWM

GPS point: 34.864155, -117.030134

Indicators:

- ☑ Change in average sediment texture
- ☑ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover and species.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Barstow **Cross section ID:** ODP 33 **Date:** 6/27/2023 **Time:** 0940

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 1 % Tree: 0 % Shrub: 0 % Herb: 1 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide AF with a defined break in bank slope. Medium sand sediment texture throughout. Vegetation dominated by Schismus sp.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine sand w/pebbles

Total veg cover: 20 % Tree: 0 % Shrub: 15 % Herb: 5 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Soil development and surface relief define uplands. Fine sand sediment texture with some pebbles throughout. Vegetation dominated by Larrea tridentata and Schismus sp.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Barstow International Gateway (BIG) (formerly Big Barstow) **Date:** 6/27/2023 **Time:** 1025
Project Number: N/A **Town:** Barstow **State:** CA
Stream: ODP 34 **Photo begin file#:** 57 **Photo end file#:** 57
Investigator(s): Sarah Krejca

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
BIG Aquatic Resources Delineation Report Addendum Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.862701, -117.031073

Potential anthropogenic influences on the channel system:
Dirt roads throughout the entire area. Concrete v-ditch created to collect and redirect storm water and runoff.

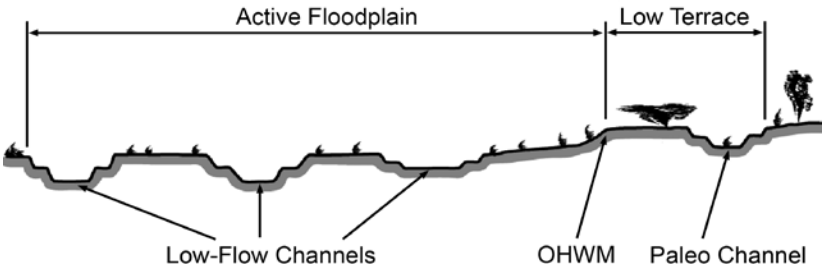
Brief site description:
Concrete v-ditch with areas of accumulated sediment that collects and conveys storm water. Site occurs along existing dirt road(s) and substation; disturbed conditions prevalent. Site occurs along existing dirt road(s) and substation; disturbed conditions prevalent.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

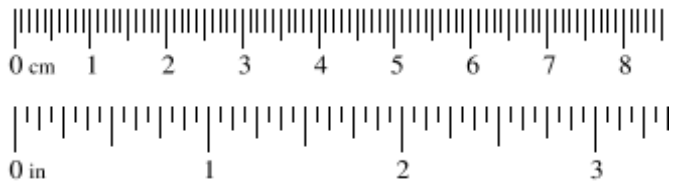


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

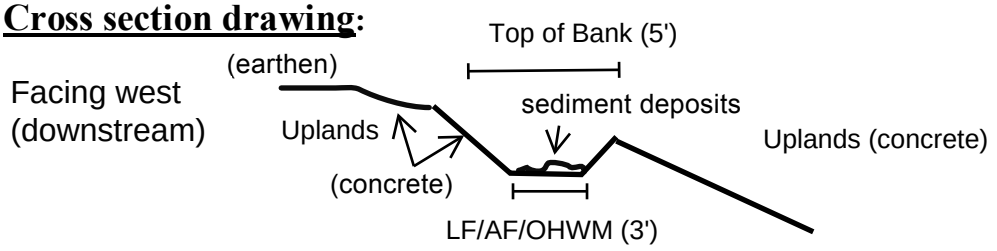
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Barstow **Cross section ID:** ODP 34 **Date:** 6/27/2023 **Time:** 1025

Cross section drawing:



OHWM

GPS point: 34.862701, -117.031073

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☐ Break in bank slope
- ☑ Other: water staining
- ☑ Other: sediment deposits

Comments:

Approximately 3-foot wide OHWM within concrete v-ditch. The OHWM was defined by water staining and sediment deposits.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Barstow **Cross section ID:** ODP 34 **Date:** 6/27/2023 **Time:** 1025

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: concrete w/very coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: water staining
- ☑ Other: sediment deposits
- ☐ Other: _____

Comments:

Approximately 3-foot wide AF within concrete v-ditch with water staining and sediment deposits composed of very coarse sand sediment texture.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium sand (southern uplands)

Total veg cover: 5 % Tree: 0 % Shrub: 4 % Herb: 1 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Soil development (on southern portion) and surface relief define uplands. Southern uplands transition from concrete to earthen with medium sand sediment texture throughout; northern uplands composed entirely of concrete. Vegetation within earthen portion dominated by Larrea tridentata, Schismus sp., and Atriplex sp.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Barstow International Gateway (BIG) (formerly Big Barstow) **Date:** 6/28/2023 **Time:** 0600
Project Number: N/A **Town:** Barstow **State:** CA
Stream: ODP 35 **Photo begin file#:** 58 **Photo end file#:** 58
Investigator(s): Kelsey Woldt, Alec Goodman, Sarah Krejca

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
BIG Aquatic Resources Delineation Report Addendum Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.867343, -117.037853

Potential anthropogenic influences on the channel system:
Off-road vehicle use and dirt roads throughout the entire area; trash and tire tracks within channel.

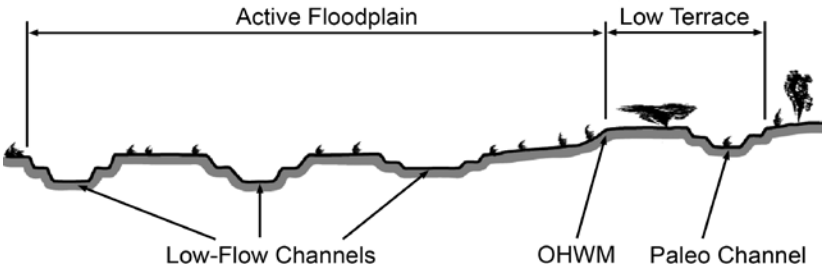
Brief site description:
Site occurs along existing dirt road(s) and substation; disturbed conditions prevalent.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

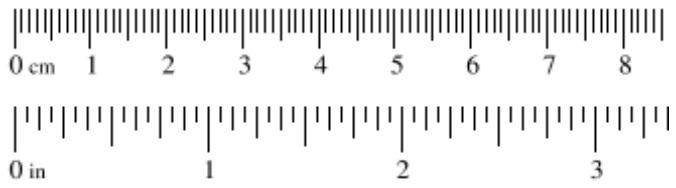


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

Wentworth Size Classes

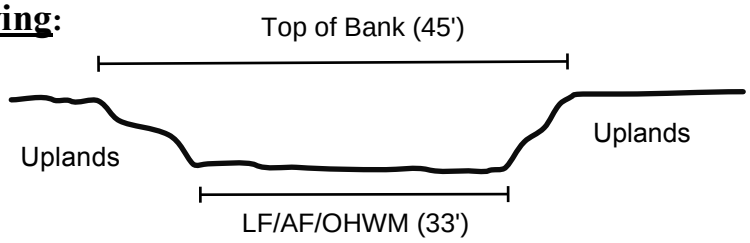
Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Barstow **Cross section ID:** ODP 35 **Date:** 6/28/2023 **Time:** 0600

Cross section drawing:

Facing north (downstream)



OHWM

GPS point: 34.867343, -117.037853

Indicators:

- ☑ Change in average sediment texture
- ☑ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 33-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover and species.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Barstow **Cross section ID:** ODP 35 **Date:** 6/28/2023 **Time:** 0600

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 2 % Tree: 0 % Shrub: 1 % Herb: 1 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 33-foot wide AF with a defined break in bank slope. Medium sand sediment texture with some pebbles throughout. Very sparsely vegetated; vegetation dominated by Larrea tridentata and Malacothrix glabrata.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine sand w/cobble

Total veg cover: 8 % Tree: 0 % Shrub: 4 % Herb: 4 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Soil development and surface relief define uplands. Fine sand sediment texture with some cobble throughout. Vegetation dominated by Ambrosia dumosa, Lepidium fremontii, Stephanomeria sp., Malacothrix glabrata, Erodium cicutarium, Sisymbrium altissimum, and Brassica tournefortii.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Barstow International Gateway (BIG) (formerly Big Barstow) **Date:** 6/28/2023 **Time:** 0645
Project Number: N/A **Town:** Barstow **State:** CA
Stream: ODP 36 **Photo begin file#:** 60 **Photo end file#:** 60
Investigator(s): Kelsey Woldt, Alec Goodman, Sarah Krejca

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
BIG Aquatic Resources Delineation Report Addendum Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.872282, -117.043990

Potential anthropogenic influences on the channel system:
Off-road vehicle use and dirt roads throughout the entire area; tire tracks within channel.

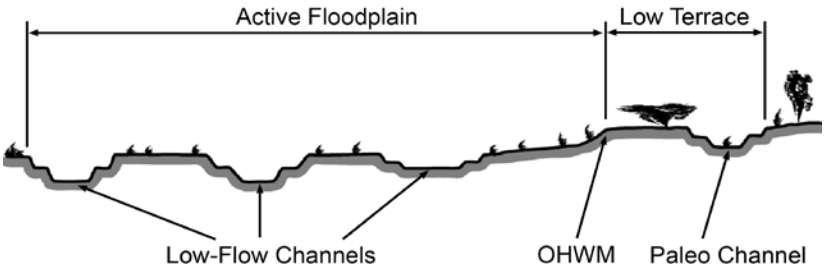
Brief site description:
Site occurs along existing dirt road(s) and substation; disturbed conditions prevalent.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

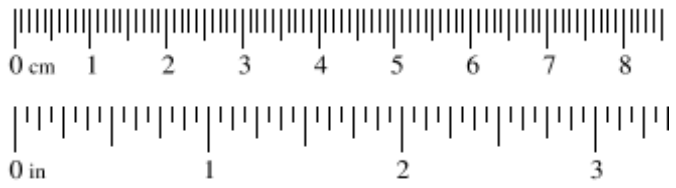


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

Wentworth Size Classes

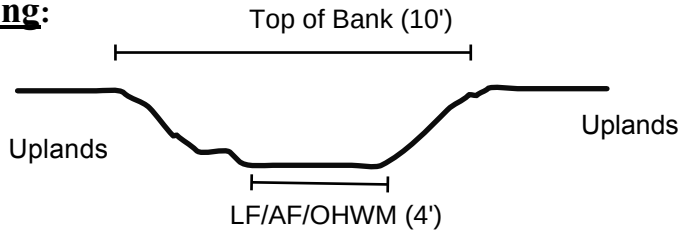
Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Barstow **Cross section ID:** ODP 36 **Date:** 6/28/2023 **Time:** 0645

Cross section drawing:

Facing north (downstream)



OHWM

GPS point: 34.872282, -117.043990

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Barstow **Cross section ID:** ODP 36 **Date:** 6/28/2023 **Time:** 0645

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium sand w/granules

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide, unvegetated AF with a defined break in bank slope. Medium sand sediment texture with some granules throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium sand w/pebbles

Total veg cover: 10 % Tree: 0 % Shrub: 3 % Herb: 7 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Soil development and surface relief define uplands. Medium sand sediment texture with some pebbles throughout. Vegetation dominated by Larrea tridentata,Schismus sp., Malacothrix glabrata, Erodium cicutarium, Sisymbrium irio, and Amsinckia tessellata.

ATTACHMENT D

SITE PHOTOGRAPHS

Attachment D

Site Photographs[1]

Big Barstow (Barstow International Gateway Project) Aquatic Resources Delineation – April 18, 2023; June 14, 2023; Jun 27-28, 2023



Photo 49. Upstream view of Ordinary High Water Mark (OHWM) Datasheet Point (ODP) 30 within Non-Wetland Waters (NWW-) 92, facing east, within unvegetated channel. ODP 30 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.864284, -117.113102). April 18, 2023.



Photo 50. Downstream view of ODP 31 within NWW-92, facing northwest, within unvegetated channel. ODP 31 exhibited a break in bank slope, change in average sediment texture, and change in vegetation species (34.865598 -117.122899). April 18, 2023.



Photo 51. Downstream view of NWW-92, facing north, where the bed and bank becomes less defined and flows begin to dissipate. Although this photo was taken in August 2021, similar conditions were observed in April 2023 (34.873073, -117.135220). August 10, 2021.



Photo 52. View north of NWW-92, facing south, showing no evidence of flows. Although this photo was taken in August 2021, similar conditions were observed in April 2023 (34.876784, -117.136639). August 10, 2021.

[1] See corresponding Figure 5 series for photo point locations. See Aquatic Resources Delineation Report Addendum Sections 1.5 through 1.6 and Attachment E for a discussion of each feature.



Photo 53. View north of NWW-92, facing southwest, showing no evidence of flows. Although this photo was taken in August 2021, similar conditions were observed in April 2023 (34.876731, -117.136782). August 10, 2021.



Photo 54. Downstream view of ODP 32 within NWW-109 (Mojave River), facing north, within unvegetated channel. ODP 32 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.835602, -117.191856). April 18, 2023.



Photo 55. View of Wetland Data Form Point (WDP) 12 within NWW-109 (Mojave River), facing south, within tamarisk thickets. WDP 12 did not meet any of the three wetland parameters (34.834734, -117.190730). April 18, 2023.



Photo 56. Downstream view of ODP 33 within NWW-114, facing north, within creosote bush scrub. ODP 33 exhibited a break in bank slope, change in average sediment texture, change in vegetation cover, and change in vegetation species (34.864206, -117.030126). June 27, 2023.



Photo 57. Downstream view of ODP 34 within NWW-113, facing west, within a concrete channel. ODP 34 exhibited water staining and sediment deposits (34.862708, -117.031081). June 27, 2023.



Photo 58. Downstream view of ODP 35 within NWW-146, facing north, within unvegetated channel. ODP 35 exhibited a break in bank slope, change in average sediment texture, change in vegetation cover, and change in vegetation species (34.867344 -117.037851). June 28, 2023.



Photo 59. View of WDP 13 within NWW-146, facing south, within unvegetated channel. WDP 13 did not meet any of the three wetland parameters (34.867332, -117.037929). June 28, 2023.



Photo 60. Downstream view of ODP 36 within NWW-172, facing north, within creosote bush scrub. ODP 36 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.872265, -117.043991). June 28, 2023.



Photo 61. View of dirt road within area where the U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) maps a “Stream/River” feature and the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps a “Riverine” feature, facing north, within disturbed habitat; no ordinary high water mark (OHWM) indicators were observed (34.863689, -117.032276). June 27, 2023.



Photo 62. View of dirt road within area where the USGS NHD maps a “Stream/River” feature and the USFWS NWI maps a “Riverine” feature, facing north, within creosote bush scrub and disturbed habitat; no OHWM indicators were observed (34.866621, -117.036994). June 27, 2023.



Photo 63. View of dirt road within developed area where the USGS NHD maps a “Stream/River” feature, facing north; no OHWM indicators were observed (34.874743, -117.047406). June 27, 2023.



Photo 64. Overview of portion of 2023 ARDR review area west of Lenwood Road and south of Main Street, facing southeast, showing no evidence of flows (34.870182, -117.119458). April 18, 2023..

ATTACHMENT E

AQUATIC RESOURCE SUMMARY TABLES FOR 2023 ARDR ADDENDUM REVIEW AREA

Table E-1. Aquatic Resource Summary for 2023 ARDR Addendum Review Area: Corps/RWQCB

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Linear Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-24 (portion within 2023 ARDR addendum review area)	R6	12 – 12	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates within 2022 review area as runoff from National Trails Hwy/Main St.	34.797875, -117.133117	0.01[7]	39[7]
NWW-89 (portion within 2023 ARDR addendum review area)	R6	4 – 4	CAST, CVC, BBS[4] (See ODP 5, 6, 7, 23, 25 in the 2022 ARDR)	None[5] (See WDP 3 in the 2022 ARDR)	Yes/No	Creosote Bush Scrub[6]	Unvegetated feature within creosote bush scrub that meanders in and out of the 2023 ARDR addendum review area before continuing into the 2022 review area and through a culvert along National Trails Hwy/Main St.	34.860789, -117.133117	0.05[7]	497[7]
NWW-92 (portion within 2023 ARDR addendum review area)	R6	2 – 45	CAST, CVS, CVC, BBS; See ODP 30 and 31 (Also see ODP 4 in the 2022 ARDR)	WH[5]	Yes/No	Unvegetated Channel	Primarily unvegetated, large, trapezoidal feature (San Bernardino County Flood Control District Channel) within heavily manipulated, unvegetated channel; evidence of off-road vehicle use; originates south of Main St/National Trails Hwy and dissipates within northern portion of 2023 ARDR addendum review area. (See Photos 49 – 51 on Figures 5A–5B and Attachment D.)	34.867370, -117.122673	6.99[7]	8,890[7]
NWW-109 (Mojave River) (portion within 2023 ARDR addendum review area)	R4	110 – 375	CAST, CVC, BBS; See ODP 32 (Also see ODP 26 and 28 in the 2022 ARDR)	None; See WDP 12	Yes/No	Unvegetated Channel	Sparsely vegetated, dry, sandy wash that comprises the on-site extent of the Mojave River; generally flows southwest to northeast before continuing off site. (See Photos 54 and 55 on Figures 5A – 5B and Attachment D.)	34.835454, -117.191774	2.57[7]	437[7]
NWW-110	R6	2 – 12	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated feature with multiple small tributaries within creosote bush scrub; originates south	34.862304, -117.029568	0.09	626

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Linear Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
							of review area and dissipates at unnamed dirt road.			
NWW-111	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.862851, -117.029387	0.01	197
NWW-112	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.862328, -117.030154	0.01	197
NWW-113	R6	1 – 3	WS, SD; See ODP 34	None[5]	Yes/No	Developed	Primarily concrete feature within developed area; conveys flows around Tortilla substation and into NWW-114 through NWW-119. (See Photo 57 on Figures 5A – 5B and Attachment D.)	34.863114, -117.031133	0.11	2,234
NWW-114	R6	1 – 10	CAST, CVS, CVC, BBS; See ODP 33	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated feature with small tributaries within creosote bush scrub. (See Photo 56 on Figures 5A – 5B and Attachment D.)	34.863906, -117.030060	0.05	735
NWW-115	R6	1 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; partially fed by flows from concrete-lined NWW-113.	34.863948, -117.030548	0.01	180
NWW-116	R6	1 – 1	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; fed by flows from concrete-lined NWW-113.	34.863745, -117.030843	<0.01	22
NWW-117	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; fed by flows from concrete-lined NWW-113.	34.863948, -117.031161	0.01	196
NWW-118	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; fed by flows from concrete-lined NWW-113.	34.863784, -117.031507	<0.01	54
NWW-119	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, double-thread feature within creosote bush scrub;	34.863981, -117.031809	0.05	665

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Linear Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
							partially fed by flows from concrete-lined NWW-113.			
NWW-120	R6	4 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, double-thread feature within creosote bush scrub; originates south/southwest of review area.	34.862325, -117.032219	0.07	537
NWW-121	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, double-thread feature within creosote bush scrub.	34.863168, -117.032221	0.01	269
NWW-122	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unnamed dirt road.	34.863547, -117.032236	0.01	115
NWW-123	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unnamed dirt road.	34.863294, -117.032440	<0.01	103
NWW-124	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.863374, -117.033400	0.01	140
NWW-125	R6	5 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd.	34.863847, -117.033290	0.03	232
NWW-126	R6	3 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.863806, -117.033928	0.01	132
NWW-127	R6	1 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, multi-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-126.	34.864203, -117.033791	0.02	307

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Linear Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-128	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, double-thread feature within creosote bush scrub; originates south/southwest of review area.	34.863964, -117.034043	0.02	280
NWW-129	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.864078, -117.034199	0.01	128
NWW-130	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, double-thread feature within creosote bush scrub; originates south/southwest of review area.	34.864243, -117.034403	0.02	294
NWW-131	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-130.	34.864655, -117.034310	0.01	121
NWW-132	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, multi-thread feature within creosote bush scrub; originates as runoff from Bonanza Rd.	34.864770, -117.034393	0.03	305
NWW-133	R6	3 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.864415, -117.034695	0.01	129
NWW-134	R6	1 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.864537, -117.034800	<0.01	154
NWW-135	R6	1 – 12	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, double-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-134 and NWW-136.	34.865000, -117.034784	0.04	325
NWW-136	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush	34.864640, -117.034993	0.01	128

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Linear Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
							scrub; originates south/southwest of review area.			
NWW-137	R6	1 – 1	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.865098, -117.035362	<0.01	41
NWW-138	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-137.	34.865483, -117.035394	0.01	190
NWW-139	R6	1 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.865080, -117.035540	0.01	142
NWW-140	R6	4 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, double-thread feature within creosote bush scrub; originates south/southwest of review area.	34.865346, -117.035826	0.03	238
NWW-141	R6	3 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, double-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-140.	34.865793, -117.035751	0.02	243
NWW-142	R6	3 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.865558, -117.036182	0.01	118
NWW-143	R6	7 – 7	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-142.	34.865940, -117.035968	0.02	126
NWW-144	R6	5 – 7	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub;	34.865697, -117.036341	0.02	148

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Linear Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
							originates south/southwest of review area.			
NWW-145	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd.	34.867099, -117.037273	<0.01	69
NWW-146	R6	30 – 30	CAST, CVS, CVC, BBS; See ODP 35	None; see WDP 13	Yes/No	Unvegetated Channel	Large, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area. (See Photos 58 and 59 on Figures 5A – 5B and Attachment D.)	34.867280, -117.037889	0.18	272
NWW-147	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.867479, -117.038380	<0.01	47
NWW-148	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd.	34.868016, -117.038573	0.01	146
NWW-149	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.867884, -117.039030	0.01	133
NWW-150	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.867950, -117.039201	0.01	113
NWW-151	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd.	34.868385, -117.038946	0.01	120
NWW-152	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.868169, -117.039394	0.01	141

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Linear Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-153	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-152.	34.868686, -117.039359	0.01	185
NWW-154	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.868471, -117.039625	<0.01	62
NWW-155	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.868497, -117.039748	0.01	132
NWW-156	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, double-thread feature within creosote bush scrub.	34.868751, -117.040025	0.01	126
NWW-157	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-156.	34.869093, -117.039898	0.01	133
NWW-158	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd.	34.869493, -117.040409	0.01	169
NWW-159	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.869406, -117.040822	0.01	123
NWW-160	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.869733, -117.041232	0.01	85
NWW-161	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.870069, -117.041756	0.01	167

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Linear Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-162	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.870305, -117.041899	<0.01	55
NWW-163	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, double-thread feature within creosote bush scrub.	34.870368, -117.042117	0.01	169
NWW-164	R6	1 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.870510, -117.042262	<0.01	125
NWW-165	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.870631, -117.042459	0.01	152
NWW-166	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, double-thread feature within creosote bush scrub; originates south/southwest of review area.	34.870818, -117.042706	0.02	294
NWW-167	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.870938, -117.042896	0.01	142
NWW-168	R6	3 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, double-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-167.	34.871428, -117.042765	0.03	208
NWW-169	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.871617, -117.042845	0.01	123
NWW-170	R6	1 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, double-thread feature within creosote bush scrub; originates south/southwest of review area.	34.871221, -117.043257	0.01	295
NWW-171	R6	4 – 7	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub that	34.871715, -117.043851	0.03	206

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Linear Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
							exhibits signs of off-road vehicle usage; originates south of review area.			
NWW-172	R6	4 – 8	CAST, CVC, BBS; See ODP 36	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub that exhibits signs of off-road vehicle usage; originates as runoff from the unpaved Bonanza Road and downstream of NWW-171. (See Photo 60 on Figures 5A – 5B and Attachment D.)	34.872364, -117.043974	0.03	176
NWW-173	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.872264, -117.044360	<0.01	90
NWW-174	R6	1 – 1	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.872611, -117.044917	<0.01	210
NWW-175	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates from unnamed dirt road.	34.873081, -117.045449	0.02	155
NWW-176	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.873274, -117.045677	0.01	173
NWW-177	R6	2 – 12	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, multi-thread feature within creosote bush scrub; originates as runoff from the unpaved Bonanza Road and downstream of NWW-176.	34.873893, -117.045930	0.06	571
NWW-178	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.873797, -117.046218	0.01	84
NWW-179	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.873847, -117.046343	<0.01	63

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Linear Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-180	R6	3 – 10	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.873945, -117.046598	0.03	197
NWW-181	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.874872, -117.046978	<0.01	75
NWW-182	R6	3 – 7	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, multi-thread feature within creosote bush scrub; originates south/southwest of review area.	34.874268, -117.047106	0.07	636
NWW-183	R6	4 – 10	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south of review area.	34.864594, -117.120526	0.06	288
NWW-184	R6	5 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south of review area.	34.865232, -117.122088	0.02	178
								Total[8]	11.10	26,855

[1] OHWM Indicators: CAST = Change in average sediment texture; CVS = Change in vegetation species; CVC = Change in vegetation cover; BBS = Break in bank slope; WS = Water staining; SD = Sediment deposits

[2] Wetland Indicators: WH = Wetland Hydrology

[3] See Figure 6 for all vegetation communities present within/around each aquatic resource.

[4] Based on a representative ODP taken within an aquatic resource with similar conditions.

[5] Based on a representative WDP taken within an aquatic resource with similar conditions.

[6] Unvegetated within mapped vegetation community; however, no vegetation technically present within the OHWM.

[7] Acreage and linear feet only provided for portion of aquatic resource located within the 2023 ARDR addendum review area.

[8] Acreages and linear feet totals were summed using raw numbers provided during GIS analysis (available upon request) and thus, the sum of the total rounded numbers may not directly add up in this table.

Table E-2. Aquatic Resource Summary for 2023 ARDR Addendum Review Area: CDFW

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-24 (portion within 2023 ARDR addendum review area)	Unvegetated Streambed[2]	Allscale Scrub[3]	20 – 20	Primarily unvegetated, single-thread feature within allscale scrub; originates within 2022 review area as runoff from National Trails Hwy/Main St.	34.797875, -117.133117	0.02[4]	39[4]
NWW-89 (portion within 2023 ARDR addendum review area)	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	4 – 5	Unvegetated feature within creosote bush scrub that meanders in and out of the 2023 ARDR addendum review area before continuing into the 2022 review area and through a culvert along National Trails Hwy/Main St.	34.860789, -117.133117	0.05[4]	497[4]
NWW-92 (portion within 2023 ARDR addendum review area)	Unvegetated Streambed[2]	Unvegetated Channel	2 – 60	Primarily unvegetated, large, trapezoidal feature (San Bernardino County Flood Control District Channel) within heavily manipulated, unvegetated channel; evidence of off-road vehicle use; originates south of Main St/National Trails Hwy and dissipates within northern portion of 2023 ARDR addendum review area. (See Photos 49 – 51 on Figure 5C and Attachment D.)	34.867370, -117.122673	10.08[4]	8,890[4]
NWW-109 (Mojave River) (portion within 2023 ARDR addendum review area)	Unvegetated Streambed[2]	Unvegetated Channel	1,450 – 2,115	Sparsely vegetated, sandy wash that comprises the on-site extent of the Mojave River; extends into tamarisk thickets habitat; generally flows southwest to northeast before continuing off site. (See Photos 54 and 55 on Figure 5C and Attachment D.)	34.835454, -117.191774	2.57[4]	437[4]
	Vegetated Streambed[2]	Tamarisk Thickets				14.13[4]	
NWW-110	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 12	Primarily unvegetated feature with multiple small tributaries within creosote bush scrub; originates south of review area and dissipates at unnamed dirt road.	34.862304, -117.029568	0.10	626
NWW-111	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 2	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.862851, -117.029387	0.01	197
NWW-112	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 2	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.862328, -117.030154	0.01	197
NWW-113	Unvegetated Streambed[2]	Developed	2 – 12	Primarily concrete feature within developed area; conveys flows around Tortilla substation and into NWW-114 through NWW-119. (See Photo 57 on Figure 5C and Attachment D.)	34.863114, -117.031133	0.27	2,234
		Disturbed Habitat[3]				0.02	
NWW-114	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 12	Primarily unvegetated feature with small tributaries within creosote bush scrub. (See Photo 56 on Figure 5C and Attachment D.)	34.863906, -117.030060	0.08	735

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-115	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	1 – 2	Small, primarily unvegetated, single-thread feature within creosote bush scrub; partially fed by flows from concrete-lined NWW-113.	34.863948, -117.030548	0.01	180
NWW-116	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 2	Small, primarily unvegetated, single-thread feature within creosote bush scrub; fed by flows from concrete-lined NWW-113.	34.863745, -117.030843	<0.01	22
NWW-117	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 3	Small, primarily unvegetated, single-thread feature within creosote bush scrub; fed by flows from concrete-lined NWW-113.	34.863948, -117.031161	0.01	196
NWW-118	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 3	Small, primarily unvegetated, single-thread feature within creosote bush scrub; fed by flows from concrete-lined NWW-113.	34.863784, -117.031507	<0.01	54
NWW-119	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 7	Primarily unvegetated, double-thread feature within creosote bush scrub; partially fed by flows from concrete-lined NWW-113.	34.863981, -117.031809	0.06	665
NWW-120	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	5 – 8	Primarily unvegetated, double-thread feature within creosote bush scrub; originates south/southwest of review area.	34.862325, -117.032219	0.09	537
NWW-121	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 3	Small, primarily unvegetated, double-thread feature within creosote bush scrub.	34.863168, -117.032221	0.01	269
NWW-122	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	5 – 5	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unnamed dirt road.	34.863547, -117.032236	0.01	115
NWW-123	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 2	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unnamed dirt road.	34.863294, -117.032440	<0.01	103
NWW-124	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 5	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.863374, -117.033400	0.01	140
NWW-125	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	5 – 5	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd.	34.863847, -117.033290	0.03	232
NWW-126	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 5	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.863806, -117.033928	0.01	132
NWW-127	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	1 – 6	Primarily unvegetated, multi-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-126.	34.864203, -117.033791	0.02	307
NWW-128	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 3	Primarily unvegetated, double-thread feature within creosote bush scrub; originates south/southwest of review area.	34.863964, -117.034043	0.02	280
NWW-129	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 4	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.864078, -117.034199	0.01	128
NWW-130	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 3	Primarily unvegetated, double-thread feature within creosote bush scrub; originates south/southwest of review area.	34.864243, -117.034403	0.02	294

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-131	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 3	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-130.	34.864655, -117.034310	0.01	121
NWW-132	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 5	Primarily unvegetated, multi-thread feature within creosote bush scrub; originates as runoff from Bonanza Rd.	34.864770, -117.034393	0.03	305
NWW-133	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 8	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.864415, -117.034695	0.01	129
NWW-134	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 2	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.864537, -117.034800	0.01	154
NWW-135	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	1 – 12	Primarily unvegetated, double-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-134 and NWW-136.	34.865000, -117.034784	0.04	325
NWW-136	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 6	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.864640, -117.034993	0.01	128
NWW-137	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 2	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.865098, -117.035362	<0.01	41
NWW-138	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 3	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-137.	34.865483, -117.035394	0.01	190
NWW-139	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 2	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.865080, -117.035540	0.01	142
NWW-140	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	4 – 6	Primarily unvegetated, double-thread feature within creosote bush scrub; originates south/southwest of review area.	34.865346, -117.035826	0.03	238
NWW-141	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 5	Primarily unvegetated, double-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-140.	34.865793, -117.035751	0.02	243
NWW-142	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 8	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.865558, -117.036182	0.02	118
NWW-143	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	7 – 7	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-142.	34.865940, -117.035968	0.02	126
NWW-144	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	7 – 9	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.865697, -117.036341	0.03	148
NWW-145	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 4	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd.	34.867099, -117.037273	0.01	69

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-146	Unvegetated Streambed[2]	Unvegetated Channel	45 – 45	Large, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area. (See Photos 58 and 59 on Figures 5A – 5B and Attachment D.)	34.867280, -117.037889	0.26	272
NWW-147	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 3	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.867479, -117.038380	<0.01	47
NWW-148	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 4	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd.	34.868016, -117.038573	0.01	146
NWW-149	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 5	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.867884, -117.039030	0.01	133
NWW-150	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 2	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.867950, -117.039201	0.01	113
NWW-151	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 5	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd.	34.868385, -117.038946	0.01	120
NWW-152	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 3	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.868169, -117.039394	0.01	141
NWW-153	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 2	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-152.	34.868686, -117.039359	0.01	185
NWW-154	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 3	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.868471, -117.039625	<0.01	62
NWW-155	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 3	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.868497, -117.039748	0.01	132
NWW-156	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 3	Small, primarily unvegetated, double-thread feature within creosote bush scrub.	34.868751, -117.040025	0.01	126
NWW-157	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	4 – 7	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-156.	34.869093, -117.039898	0.02	133
NWW-158	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 4	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd.	34.869493, -117.040409	0.01	169
NWW-159	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 3	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.869406, -117.040822	0.01	123
NWW-160	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 3	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.869733, -117.041232	0.01	85
NWW-161	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 3	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.870069, -117.041756	0.01	167

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-162	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	4 – 4	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.870305, -117.041899	0.01	55
NWW-163	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 4	Primarily unvegetated, double-thread feature within creosote bush scrub.	34.870368, -117.042117	0.01	169
NWW-164	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 3	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.870510, -117.042262	0.01	125
NWW-165	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 4	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.870631, -117.042459	0.01	152
NWW-166	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 5	Primarily unvegetated, double-thread feature within creosote bush scrub; originates south/southwest of review area.	34.870818, -117.042706	0.02	294
NWW-167	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 5	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.870938, -117.042896	0.01	142
NWW-168	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	4 – 7	Primarily unvegetated, double-thread feature within creosote bush scrub; originates as runoff from unpaved Bonanza Rd and downstream of NWW-167.	34.871428, -117.042765	0.03	208
NWW-169	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 2	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.871617, -117.042845	0.01	123
NWW-170	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 3	Primarily unvegetated, double-thread feature within creosote bush scrub; originates south/southwest of review area.	34.871221, -117.043257	0.02	295
NWW-171	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	5 – 9	Primarily unvegetated, single-thread feature within creosote bush scrub that exhibits signs of off-road vehicle usage; originates south of review area.	34.871715, -117.043851	0.04	206
NWW-172	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	5 – 10	Primarily unvegetated, single-thread feature within creosote bush scrub that exhibits signs of off-road vehicle usage; originates as runoff from the unpaved Bonanza Road and downstream of NWW-171. (See Photo 60 on Figure 5C and Attachment D.)	34.872364, -117.043974	0.04	176
NWW-173	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 2	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.872264, -117.044360	<0.01	90
NWW-174	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	1 – 1	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.872611, -117.044917	<0.01	210
NWW-175	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 5	Primarily unvegetated, single-thread feature within creosote bush scrub; originates from unnamed dirt road.	34.873081, -117.045449	0.02	155
NWW-176	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 2	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.873274, -117.045677	0.01	173

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-177	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 12	Primarily unvegetated, multi-thread feature within creosote bush scrub; originates as runoff from the unpaved Bonanza Road and downstream of NWW-176.	34.873893, -117.045930	0.06	571
NWW-178	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	4 – 4	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.873797, -117.046218	0.01	84
NWW-179	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 3	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.873847, -117.046343	<0.01	63
NWW-180	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 12	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south/southwest of review area.	34.873945, -117.046598	0.04	197
NWW-181	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	2 – 2	Small, primarily unvegetated, single-thread feature within creosote bush scrub.	34.874872, -117.046978	<0.01	75
NWW-182	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	3 – 9	Primarily unvegetated, multi-thread feature within creosote bush scrub; originates south/southwest of review area.	34.874268, -117.047106	0.07	636
NWW-183	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	6 – 15	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south of review area.	34.864594, -117.120526	0.07	288
NWW-184	Unvegetated Streambed[2]	Creosote Bush Scrub[3]	5 – 5	Primarily unvegetated, single-thread feature within creosote bush scrub; originates south of review area.	34.865232, -117.122088	0.02	178
					Total[4]	28.82	26,855

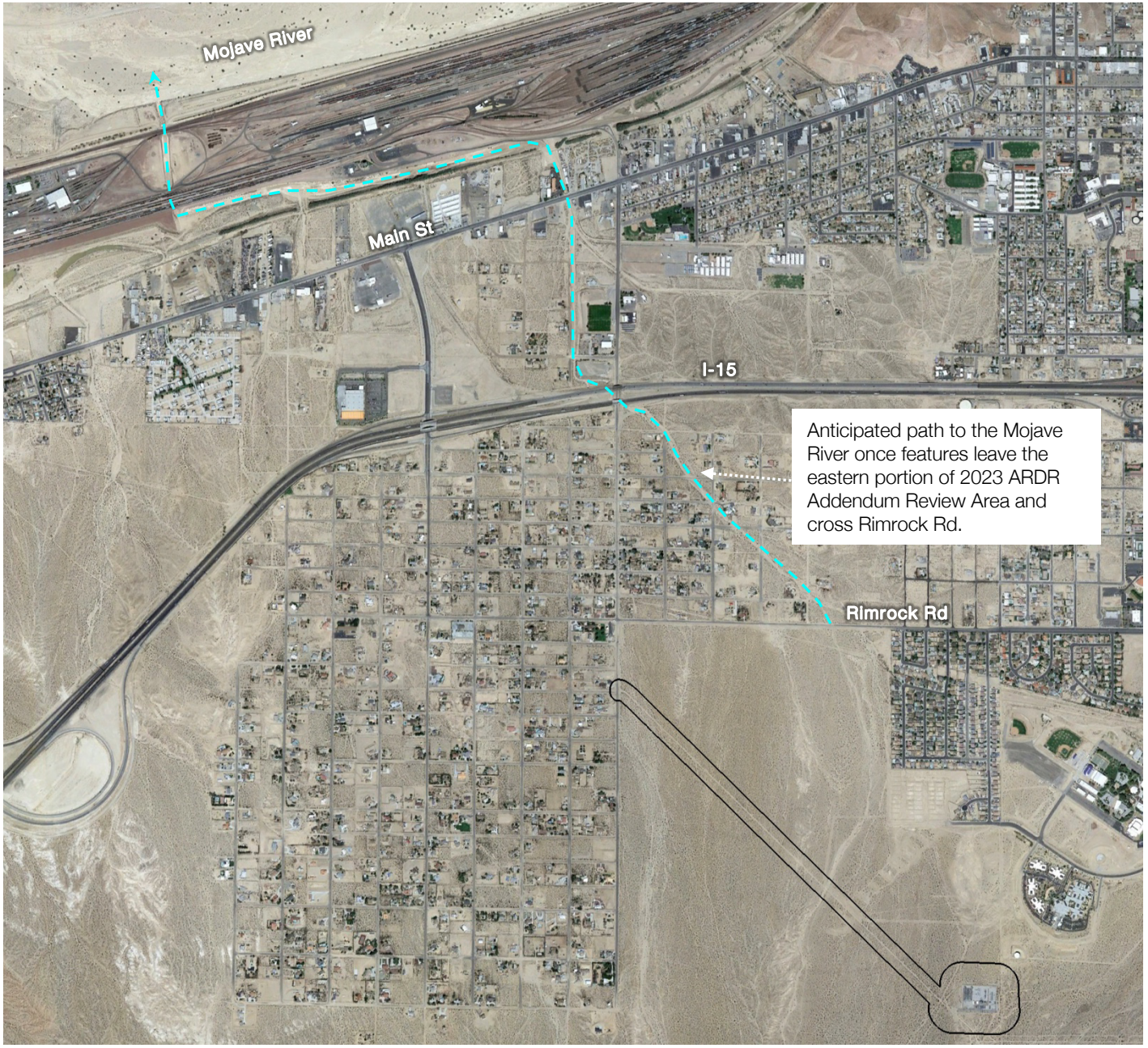
[1] Corresponds with the approximate stream bank widths observed during delineation. Width range accounts for entirety of streambed delineated, not individual vegetation communities.
[2] A "streambed" under CFGC Section 1602 includes the channel of a watercourse that is generally defined to include the depression between the banks worn by the regular and usual flow of water.
[3] Unvegetated streambed within mapped vegetation community; however, no vegetation technically present within the streambed.
[4] Acreage and linear feet only provided for portion of aquatic resource located within the 2023 ARDR addendum review area.
[5] Acreages and linear feet totals were summed using raw numbers provided during GIS analysis (available upon request) and thus, the sum of the total rounded numbers may not directly add up in this table.

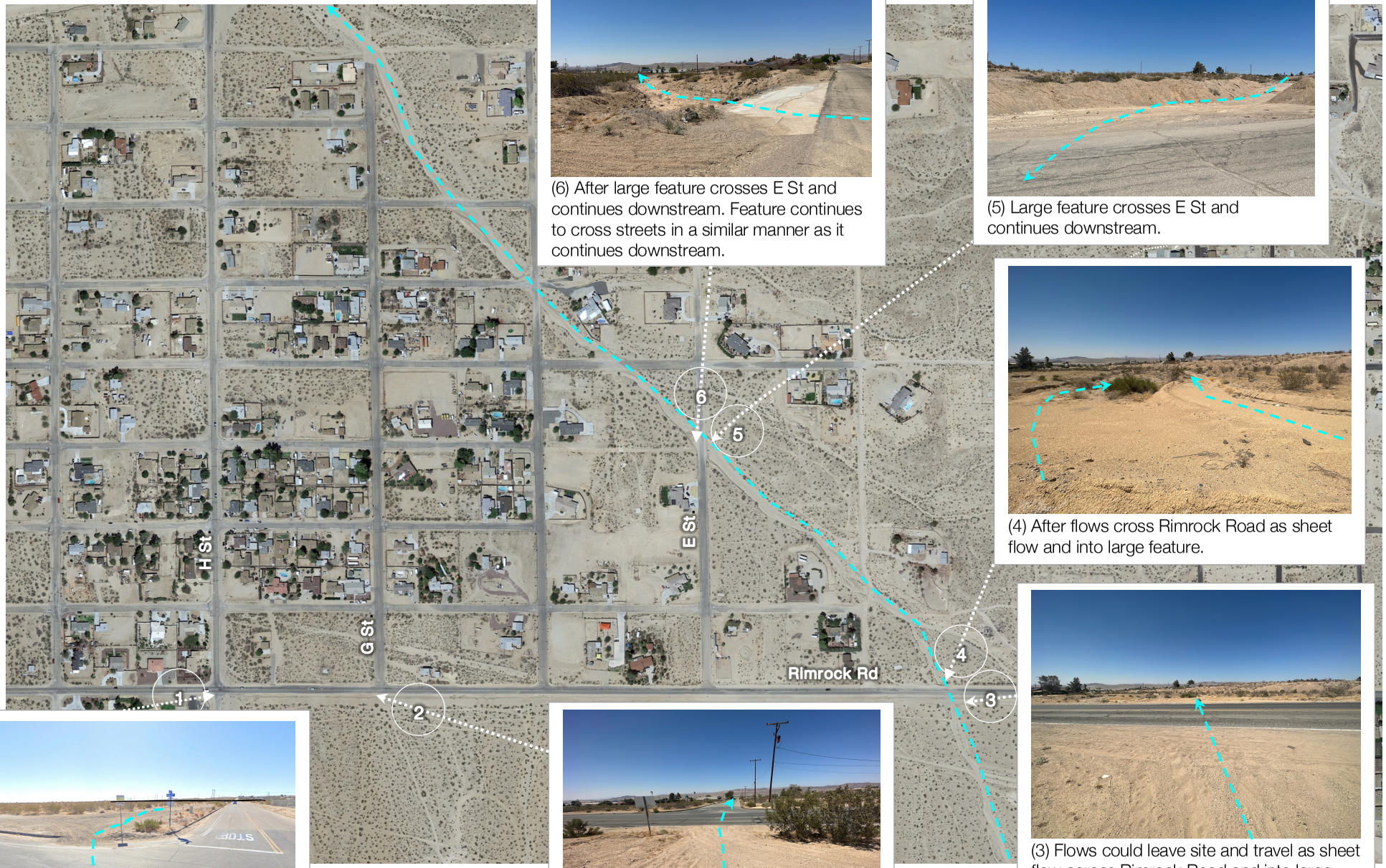
ATTACHMENT F

CONNECTIVY TO MOJAVE RIVER

Attachment F

Connectivity to Mojave River





(1) Flows could leave site and travel as sheet flow across Rimrock Road and down H Street towards large feature.

(2) Flows could leave site and travel as sheet flow across Rimrock Road and down G Street towards large feature.

(3) Flows could leave site and travel as sheet flow across Rimrock Road and into large feature.

(4) After flows cross Rimrock Road as sheet flow and into large feature.

(5) Large feature crosses E St and continues downstream.

(6) After large feature crosses E St and continues downstream. Feature continues to cross streets in a similar manner as it continues downstream.

Attachment F-2



(14) Flows continue to the Mojave River.

(12) Facing upstream within large feature.

(11) Feature continues through culvert under Main St.

(8) Feature continues through culvert under the I-15.

(7) Facing southeast/upstream as feature continues towards I-15.

(10) Facing south/upstream as feature continues towards Main St.

(13) Feature continues through railroad crossing towards Mojave River.

(9) Feature daylights north of I-15 before continuing downstream.

Attachment F-3

ATTACHMENT G

ORM BULK UPLOAD AQUATIC RESOURCES OR CONSOLIDATED EXCEL SPREADSHEET

(*SUPERSEDES APPENDIX I OF THE 2022 ARDR*)

ATTACHMENT H

GIS DATA

(PROVIDED ELECTRONICALLY TO AGENCIES)

ATTACHMENT C

BIG BARSTOW AQUATIC RESOURCES DELINEATION REPORT 2024 ADDENDUM, PREPARED BY RBC AND DATED JUNE 13, 2024

ROCKS
BIOLOGICAL CONSULTING

To: Deanna Cummings, U.S. Army Corps of Engineers

From: Travis Whitney, Rocks Biological Consulting

Date: June 13, 2024

Subject: Big Barstow (Barstow International Gateway Project) Aquatic Resources Delineation Report Addendum

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This memorandum serves as an addendum (2024 ARDR addendum) to the September 23, 2022 *Big Barstow Aquatic Resources Delineation Report* (2022 Aquatic Resources Delineation Report [ARDR]; Attachment A) and the August 9, 2023 Big Barstow (Barstow International Gateway Project) ARDR Addendum (2023 Addendum; Attachment B). This addendum addresses the updated project footprint for the Barstow International Gateway Project (project; formerly 'Big Barstow') related to the relocation of the solar farm component of the project. The majority of the proposed solar farm area plus a 100-foot survey buffer (2024 ARDR addendum review area; Figure 1) occurs outside of the previous ARDR review areas referenced in the 2022 ARDR and 2023 Addendum (collectively referred to in this addendum as the 2023 ARDR review area). As such, the analysis provided herein focuses on the 2024 ARDR addendum review area while also describing and summarizing jurisdictional connection to the 2023 ARDR review area to account for aquatic resources across the entire project footprint.

Additionally, this addendum includes a request for the U.S. Army Corps of Engineers (Corps) to complete a Preliminary Jurisdictional Determination (PJD), based on the information provided cumulatively in the 2023 ARDR (Attachments A and B) and 2024 ARDR addendum, as Attachment C.

1.1 SITE DESCRIPTIONS, LANDSCAPE SETTING

The 166.39-acre 2024 ARDR addendum review area is generally flat with elevations ranging from approximately 2,261 to 2,338 feet above mean sea level (amsl; Figure 2). The 2024 ARDR addendum review area is within the Mojave Hydrologic Unit Code (HUC) 8 (18090208), Daggett Wash-Mojave River HUC 10 (1809020811), Town of Lenwood-Mojave River HUC 12 (180902081102). The Mojave River headwaters in the San Bernardino Mountains, continues for approximately 120 miles via surface and subsurface flows through the Mojave Desert, then drains into Soda Dry Lake (Lahontan Regional Water Quality Control Board [LRWQCB] 2002). The Mojave River typically only conveys surface flows during large storm events or in areas where geologic structures force groundwater to the surface (LRWQCB 2002; Figure 3).

1.2 METHODS

Rocks Biological Consulting (RBC) conducted aquatic resources delineation field visits for the 2024 ARDR addendum review area on April 11, 2024 and April 12, 2024. Field conditions

during these field visits are provided below in Table 1. Complete methods are provided in Section 3 of the 2022 ARDR (Attachment A).

Table 1. Field Conditions

Date	Survey Time Start – End	Temperature (°F) Start – End	Wind Speed Range (miles per hour) Start – End	Cloud Cover (%) Start – End	Personnel[1]
4/11/2024	0745 – 1330	56 – 84	0 to 3 – 5 to 8	0 – 0	KW, TW
4/12/2024	0755 – 1045	58 – 74	3 to 5 – 3 to 5	10 – 10	KW, TW

[1]*KW = Kelsey Woldt, TW = Travis Whitney*

Figure 1 and Figures 5A – 5C depict the 166.39-acre 2024 ARDR addendum review area.

1.3 SITE ALTERATIONS, CURRENT AND PAST LAND USE

1.3.1 SOILS

Based on the Natural Resources Conservation Service (NRCS) soils map (Figure 4), one soil map unit occurs within the 2024 ARDR addendum review area (Table 2).

Table 2. Soils Mapped within 2024 ARDR Addendum Review Area

Soil Map Unit	Soil Series/Unit	Taxonomic Class	NRCS Hydric Status[1]
Norob-Halloran complex[2], 0 to 5 percent slopes	Norob	Fine-loamy, mixed, superactive, thermic Typic Natrargids	Yes
	Halloran	Coarse-loamy, mixed, superactive, thermic Typic Natrargids	

Source: NRCS Official Soil Series Description and Series Classification database (NRCS n.d.a); *Soil Survey of San Bernardino County California, Mojave River Area* (USDA 1986); NRCS Soil Data Access (SDA) Hydric Soils List (NRCS n.d.b).
[1] Based on the NRCS Soil Data Access (SDA) Hydric Soils List (NRCS n.d.b). As stated in the Arid West Supplement (Corps 2008), RBC used the hydric soils list as a tool and made final hydric soils determinations based on field-collected data at representative wetland delineation sample points deemed appropriate on site as recorded on the attached Arid West Wetland Determination Data Forms (Attachment D) discussed further in Section 1.5.1.
[2] A complex consists of two or more soils or miscellaneous areas that either contain such small areas or are so complexly mapped that they are unable to be displayed separately (Ditzler 2015).

The National Technical Committee for Hydric Soils defines hydric soils; *Changes in Hydric Soils Database Selection Criteria* (77 FR 12234) outlines the current four hydric soil criteria. As shown above in Table 2, the NRCS Soil Data Access (SDA) Hydric Soils List specifies the soil map unit within the review area as hydric (NRCS n.d.b).

1.3.2 VEGETATION

Table 3 provides vegetation community acreages within the 2024 ARDR addendum review area based on vegetation mapping conducted by RBC on May 16, 2024. Vegetation communities within the 2024 ARDR addendum review area are shown on Figure 6. The vegetation community classifications generally follow *A Manual of California Vegetation* (Sawyer et al. 2009) and *Preliminary Descriptions of the Terrestrial Natural Communities of*

California (Holland 1986). Please refer to Attachment A for descriptions of these vegetation communities as they occur in the 2024 ARDR addendum review area.

Table 3. Vegetation Communities within 2024 ARDR Addendum Review Area

Manual of California Vegetation Vegetation Community/Land Cover Type	Holland 1986 Vegetation Community/Land Cover Type	Acre(s)[1]
Ambrosia dumosa Shrubland Alliance	Mojavean Creosote Bush Scrub	0.14
Atriplex polycarpa Shrubland Alliance - Disturbed	Allscale Scrub – Disturbed	5.99
Larrea tridentata – Ambrosia dumosa Shrubland Alliance	Mojavean Creosote Bush Scrub	90.92
Developed Land	Developed Land	53.20
Disturbed Land	Disturbed Land	16.15
	Total	166.39

[1] Acreages summed using raw numbers provided during GIS analysis (available upon request) and thus the sum of the total rounded numbers may not directly add up in this table.

1.4 PRECIPITATION DATA AND ANALYSIS

1.4.1 PRECIPITATION SUMMARY

Table 4 describes the estimated monthly total precipitation for the 2024 ARDR addendum review area from April 2023 to April 2024 to provide pertinent pre-site visit precipitation data from the NRCS database for the Barstow station (NRCS 2024).

Table 4. Precipitation Data for April 2023 – April 2024

	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Monthly Total Precipitation (inch[es])	0.00	0.46	T	T	1.97	0.09	T	0.10	1.33	3.01	1.03	0.60

Source: NRCS Agricultural Applied Climate Information System (AgACIS) database (NRCS 2024)
[1] Per AgACIS database: Value of 'T' indicates a trace.

1.4.2 ANTECEDENT PRECIPITATION TOOL DATA

Table 5 summarizes the key data extrapolated from the Corps' Antecedent Precipitation Tool (APT) output to compare the current year 30-day rolling total to the averaged 30-year normal for the weather stations with comprehensive historical data within 30 miles of the review area: estimated drought conditions, wet or dry season determination, antecedent runoff condition (ARC) score, and antecedent precipitation condition. The APT output summarized in Table 5 noted a PDSI class of "mild wetness" during the April 2024 field surveys (Corps 2024). The precipitation and climatic conditions were classified as "normal conditions" for the review area during the April 2024 field surveys based on the 30-day rolling totals for the three months preceding the field survey dates (Corps 2024).

Table 5. Antecedent Precipitation Tool Data for 2024 ARDR Addendum Review Area

Field Survey Date	PDSI Value	PDSI Class	Season	ARC Score	Antecedent Precipitation Condition
4/11/2024	1.9	Mild wetness	Dry season	14	Normal Conditions
4/12/2024	1.9	Mild wetness	Dry season	14	Normal Conditions

Source: Antecedent Precipitation Tool (Corps 2024)

1.5 DESCRIPTION OF OBSERVED POTENTIAL AQUATIC RESOURCES

The following descriptions of observed potential aquatic resources within the review area document the presence or absence of aquatic resource indicators per the methods discussed in Section 3 of the 2022 ARDR. The subsections below are intended to be reviewed independently under each agency's purview unless otherwise directed in the text (i.e., the aquatic resource description is the same between two or more agencies) given the various regulatory definitions and standards per each agency and in conjunction with Section 6 of the 2022 ARDR (Attachment A) and Section 1.5 of the 2023 Addendum (Attachment B).

Note that the nomenclature used in this report for the Wetland Data Form Points (WDPs), Ordinary High Water Mark (OHWM) Datasheet Points (ODPs), and aquatic resources is sequential with that used in the 2023 ARDR; therefore, within this addendum the WDP numbering begins at WDP 14 and the ODP numbering begins at ODP 37 (Attachment D). Additionally, aquatic feature nomenclature in this addendum begins at non-wetland water (NWW)-185, resuming numerical sequence with the features described in the 2023 ARDR. The only exception being NWW-89, which is an additional extent of same feature depicted in the 2023 ARDR review area, and thus is also identified as NWW-89 (Figures 5A – 5C).

Attachment F provides representative site photographs of the aquatic resources within the 2024 ARDR addendum review area; Figures 5A – 5C display representative photo points (1 – 24).

1.5.1 CORPS/RWQCB WETLAND WATERS OF THE U.S./STATE

RBC collected data at two representative WDPs within the 2024 ARDR addendum review area to determine the presence or absence of jurisdictional wetland waters of the U.S./State (WDP 14 and 15; Figures 5A and 5B; Attachment D). The delineated aquatic features on site did not meet the appropriate wetland parameters to qualify as wetland waters of the U.S./State based on the data collected during the field delineation (Attachment D).

1.5.2 CORPS/RWQCB NON-WETLAND WATERS OF THE U.S./STATE

RBC collected data at four representative ODPs within the 2024 ARDR addendum review area to determine the presence of potential waters of the U.S./State (ODPs 37 through 40; Figures 5A and 5B; Attachment D). RBC selected representative ODP locations as there were multiple dry washes (i.e., features) with similar hydrology or OHWM characteristics. Overall, the 2024 ARDR addendum review area supports five unvegetated features (a portion of NWW-89 and NWW-185 through NWW-188), including both single-thread and multi thread dry washes. The OHWMs within the 2024 ARDR addendum review area varied in width from an average minimum of one foot and an average maximum of seven feet. These

features were primarily unvegetated and generally surrounded by the *Larrea tridentata* – (Not Listed/Upland [NL/UPL]) *Ambrosia dumosa* (NL/UPL) shrubland alliance. See Attachment G, Table G-1 for NWW-89 and NWW-185 though NWW-188 within the 2024 ARDR addendum review area.

Generally, NWW-185, NWW-186, NWW-187 drain north and NWW-188 drains northeast. NWW-89 drains northeast before redirecting north and then northwest into a corrugated metal pipe (CMP) culvert underneath Main Street (Figures 5A and 5B). All NWWs within the review area are unvegetated and earthen in composition. NWW-185 occurs in the southeastern corner of the review area and receives runoff from the west and outlets to Swale (S)-1. NWW-186 receives drainage from S-1 to the south, Erosional Feature (EF)-1 and EF-2 to the west, and constructed berms to the west and east before draining north into S-2. NWW-187 channelizes sheet flow from the west at the downstream end of S-2, and collects flows from S-6 and EF-4 and the constructed berms. NWW-188 channelizes flows from S-3 and EF-6, EF-7, and EF-8 and drains to the northeast along an unpaved transmission line access road. All NWWs start and stop within the 2024 ARDR addendum review area, with the exception of NWW-89, which flows through the CMP culvert beneath Main Street and continues to flow to the 2023 ARDR review area to the north, as shown in Figures 5A and 5B of Attachments A and B. Figures 5A and 5B display the limits of where OHWM indicators were observed within the 2024 ARDR addendum review area.

Staff concluded based on field observations that NWW-185 through NWW-188 are ephemeral features that only receive flows from runoff in direct response to precipitation; NWW-89 was also categorized an ephemeral feature based on field observations and the USGS NHD database (USGS 2024). The general characteristics of each of the observed features within the review area are provided in Attachment G, Table G-1. Staff did not observe standing water at any features within the 2024 ARDR addendum review area during the 2024 field surveys.

Staff determined the presence of an OHWM at one location within each of the following features within the 2024 ARDR addendum review area: NWW-89, NWW-188, EF-8, and S-3 (Attachment D, ODP 37 – 40). Indicators of an OHWM for NWW-89 and NWW-188 generally included a change in average sediment texture, change in vegetation cover and change in vegetation species between the active floodplain and upland areas as well as a visible break in bank slope along the active channel (Attachment D, ODP 37 and 40). The OHWMs present at these locations were representative of the OHWMs within NWW-185, NWW-186, and NWW-187.

1.5.3 CDFW STREAMBED AND ASSOCIATED RIPARIAN AND WETLAND HABITATS

Figure 5C displays the estimated extent of streambed within the 2024 ARDR addendum review area. Overall, the 2024 ARDR addendum review area supports five linear features (a portion of NWW-89 and NWW-185 through NWW-188), including both single-thread and multi thread dry washes. No associated riparian or wetland habitat occurs within the review area. NWW-185, NWW-186, NWW-187, and NWW-188 vary in width from an average minimum of two feet and an average maximum of six feet and were primarily unvegetated

and surrounded by creosote bush (NL/UPL), white bursage (NL/UPL), and many-fruit saltbush (FACU). The portion of NWW-89 that intersects the 2024 review area varies in width from an average minimum of two feet and an average maximum of 13 feet and is similarly surrounded by the upland species listed above. See Attachment G, Table G-2 for the estimated extent of CDFW jurisdiction for NWW-185, NWW-186, NWW-187, NWW-188, and NWW-89 within the 2024 ARDR addendum review area.

Generally, NWW-185, NWW-186, NWW-187 drain north and NWW-188 drains northeast. NWW-89 drains northeast before redirecting north and then northwest into a CMP culvert underneath Main Street (Figure 5C). All NWWs within the review area are unvegetated and earthen in composition. NWW-185 occurs in the southeastern corner of the review area and receives runoff from the west and outlets to S-1. NWW-186 receives drainage from S-1 to the south, EF-1 and EF-2 to the west, and constructed berms to the west and east before draining north into S-2. NWW-187 channelizes sheet flow from the west at the downstream end of S-2, and collects flows from S-6 and EF-4 and the constructed berms. NWW-188 channelizes flows from S-3 and EF-6, EF-7, and EF-8 and drains to the northeast along an unpaved transmission line access road. All NWWs start and stop within the 2024 ARDR addendum review area, with the exception of NWW-89, which flows through a CMP culvert beneath Main Street and continues to carry flow to the 2023 ARDR review area to the north, as shown in Figure 5C of Attachments A and B. Figure 5C displays the limits of where CDFW jurisdictional indicators were observed within the 2024 ARDR addendum review area.

No riparian habitat was mapped within the 2024 ARDR addendum review area. Two watercourses, Watercourse B and Watercourse C (see Attachment A for Watercourse A) were mapped within the 2024 ARDR addendum review area. Both watercourses occur within the *Larrea tridentata – Ambrosia dumosa* shrubland alliance, drain northeast, are supplied by NWW-89, and outlet into NWW-89. The general characteristics of each of the observed features within the 2024 ARDR addendum review area are provided in Attachment G, Table G-2.

1.5.4 OTHER FEATURES

RBC field staff surveyed and recorded additional areas with potential aquatic resource indicators within the 2024 ARDR addendum review area, including 15 erosional features, and nine swales as described below. The features discussed in this section are not discussed further in this ARDR as they are not anticipated to be jurisdictional under current Corps, RWQCB, or CDFW regulations, policy, and/or guidance based on the information provided in this section.

Erosional Features 1 – 15

Field staff observed 15 erosional features (EF-1 through EF-15; Figures 5A – 5C) during the field delineation that are either highly incised or lack an observable break in slope and do not exhibit a notable change in vegetation species or vegetation cover (Attachment F, Photos 23 & 24).

ODP 39, taken in an area of *Larrea tridentata – Ambrosia dumosa* shrubland alliance within EF-6, exhibited an abrupt/highly incised break in bank slope and a slight change in average

sediment texture but did not exhibit a distinctive change in vegetation species, vegetation cover, or any other OHWM indicators. The conditions observed at EF-6 were similar to and representative of the conditions observed at EF-1 through EF-14. Thus, these erosional features were determined to be highly incised and did not meet the appropriate OHWM parameters to qualify as NWWs of the U.S./State (Figures 5A – 5C; Attachment D, ODP 39).

Swales 1 – 9

Nine swales (S-1 through S-9; Figures 5A – 5C; Attachment F, Photo 13) were observed during the field delineation that did not display an observable OHWM, bed and bank, or other evidence of conveying regular flows on site.

ODP 38, taken in an area of *Larrea tridentata – Ambrosia dumosa* shrubland alliance within S-3, did not show evidence of a break in slope or a defined bed and bank between the swale and adjacent slopes/uplands (Attachment D, ODP 38; Attachment F, Photo 13). Additionally, ODP 4 did not exhibit a change in average sediment texture, change in vegetation species or cover, or any other OHWM indicators between the swale and adjacent upland area. The conditions observed at S-3 were similar to and representative of the conditions observed at S-1, S-2, and S-4 through S-9. Therefore, these features were determined to not have an OHWM nor a defined bed and bank.

1.6 RESULTS AND CONCLUSIONS

The results provided in this section include the extent of delineated aquatic resources within the 2024 ARDR addendum review area based on observed field indicators of potential waters of the U.S., waters of the State, and CDFW streambed and watercourse per the methodologies presented in Section 3 of the 2022 ARDR (Attachment A). Table 6 provides a summary of the aquatic resources delineated, by resource agency, within the 2024 Addendum and 2023 ARDR review areas. Further details for each aquatic resource mapped within the 2024 ARDR addendum review area (NWW-185, NWW-186, NWW-187, NWW-188, and NWW-89) are provided in Attachment G.

This section, however, does not analyze the Corps' jurisdictional status of the delineated features per the current regulations, guidance, and standard operating procedures. As mentioned in the introduction to, a request for the Corps to complete a PJD based on the information provided in this addendum, the 2023 ARDR Addendum (Attachment B), and the 2022 ARDR (Attachment A) is included as Attachment C.

Table 6. Total Delineated Aquatic Resources within 2024 ARDR Addendum Review Area, 2023 ARDR Addendum Review Area ,and 2022 ARDR Review Area

Agency	Aquatic Resource Type	2023 ARDR Review Area		2024 ARDR Review Area		TOTAL[1]	
		Acres	Linear Feet	Acres	Linear Feet	Acres	Linear Feet
Corps	Non-Wetland Waters of the U.S.	*136.69*	*204,719*	0.89	7,023	137.57	211,742
	Total Corps Aquatic Resources	***136.69***	***204,719***	***0.89***	***7,023***	***137.57***	***211,742***

RWQCB	Non-Wetland Waters of the U.S./State	*136.69*	*204,719*	0.89	7,023	137.57	211,742
	Total RWQCB Aquatic Resources[1]	***136.69***	***204,719***	***0.89***	***7,023***	***137.57***	***211,742***
CDFW	Unvegetated Streambed	*49.18*	*203,997*	1.43	7,023	50.61	211,020
	Vegetated Streambed	*594.43*	*17,982*	N/A	N/A	594.43	17,982
	Watercourse	55.18	N/A[2]	1.68	N/A[2]	56.86	N/A[2]
	Total CDFW Aquatic Resources[1]	***698.79***	***221,979***	***3.11***	***7,023***	***701.90***	***229,002***

[1] Acreages and linear feet totals were summed using raw numbers provided during GIS analysis (available upon request) and thus, the sum of the total rounded numbers may not directly add up in this table.
[2] Linear feet not calculated for watercourse to avoid redundant linear foot calculation where such areas overlap with streambed.

1.6.1 CORPS

NWW-185, NWW-186, NWW-187, NWW-188, and NWW-89 displayed clear indicators of an OHWM, such as a break in bank slope, change in average sediment texture, and change in vegetation cover and/or species between the drainage and adjacent uplands (Attachment D); however, these features did not meet the three wetland parameters.

As such, NWW-185, NWW-186, NWW-187, NWW-188, and NWW-89 may be considered non-wetland waters of the U.S. Approximately 0.89 acres (7,023 linear feet) of potential non-wetland waters of the U.S. associated with NWW-185, NWW-186, NWW-187, NWW-188, and NWW-89 occur within the 2024 ARDR addendum review area, as further detailed in Attachment G, Table G-1 and as shown on Figure 5A.

Cumulatively, based on the results of this addendum and the 2023 ARDR, approximately 137.57 acres (211,742 linear feet) of potential non-wetland waters of the U.S. associated with NWW-1 through NWW-188 occur within the ARDR review area of the entire project. The ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet is included as Attachment G and supersedes Attachment G of the 2023 ARDR Addendum and Appendix I of the 2022 ARDR.

1.6.2 RWQCB

NWW-185, NWW-186, NWW-187, NWW-188, and NWW-89 displayed clear indicators of an OHWM, such as a break in bank slope, change in average sediment texture, and change in vegetation cover and/or species between the drainage and adjacent uplands (Attachment D); however, these features did not meet the three wetland parameters.

As such, NWW-185, NWW-186, NWW-187, NWW-188, and NWW-89 may be considered non-wetland waters of the State. Approximately 0.89 acres (7,023 linear feet) of potential non-wetland waters of the State associated with NWW-185, NWW-186, NWW-187, NWW-188, and NWW-89 occur within the 2024 ARDR addendum review area, as further detailed in Attachment G, Table G-1 and as shown on Figure 5B.

Cumulatively, based on the results of this addendum and the 2023 ARDR, approximately 137.57 acres (211,742 linear feet) of potential non-wetland waters of the State associated with NWW-1 through NWW-188 occur within the ARDR review area of the entire project. The ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet is included as

Attachment G and supersedes Attachment G of the 2023 ARDR Addendum and Appendix I of the 2022 ARDR.

1.6.3 CDFW

NWW-185, NWW-186, NWW-187, NWW-188, and NWW-89 qualify as CDFW streambed (Figure 5C).

Approximately 1.43 acres (7,023 linear feet) of unvegetated streambed associated with NWW-185, NWW-186, NWW-187, NWW-188, and NWW-89 occur within the 2024 ARDR addendum review area, as further detailed in Attachment G, Table G-2 and as shown on Figure 5C. Additionally, 1.68 acres of CDFW watercourse occurs within the 2024 ARDR Addendum review area (Watercourses B and C; Figure 5C).

Cumulatively, based on the results of this addendum and the 2023 ARDR, approximately 594.43 acres (17,982 linear feet) of vegetated streambed, 50.61 acres (211,020 linear feet) of unvegetated streambed, and 56.86 acres of watercourse associated with NWW-1 through NWW-188 occur within the ARDR review area of the entire project.

2 REFERENCES

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FIGURES

Figure 1. Project Location

Figure 2. USGS Topo and NHD

Figure 3. Watershed

Figure 4. NRCS Soils Survey Data and NWI

Figure 5A. Corps Aquatic Resources

Figure 5B. RWQCB Aquatic Resources

Figure 5C. CDFW Streambed and Watercourse

Figure 6. Vegetation

ATTACHMENTS

Attachment A. *Big Barstow Aquatic Resources Delineation Report*, prepared by RBC and dated September 23, 2022

Attachment B. *Big Barstow Aquatic Resources Delineation Report 2023 Addendum*, prepared by RBC and dated August 16, 2023

Attachment C. Jurisdictional Determination Request Forms (*supersedes Attachment B of the 2023 ARDR Addendum and Appendix B of the 2022 ARDR*)

Attachment D. Arid West Wetland Determination Data Forms and Ephemeral and Intermittent Streams OHWM Datasheets

Attachment E. Antecedent Precipitation Tool Output

Attachment F. Site Photographs

Attachment G. Aquatic Resource Summary Tables for 2023 ARDR Addendum Review Area

Attachment H. ORM Bulk Upload Aquatic Resources or Consolidated Excel Spreadsheet (*supersedes Attachment G of the 2023 ARDR Addendum and Appendix I of the 2022 ARDR*)

Attachment I. GIS Data (provided electronically to agencies)

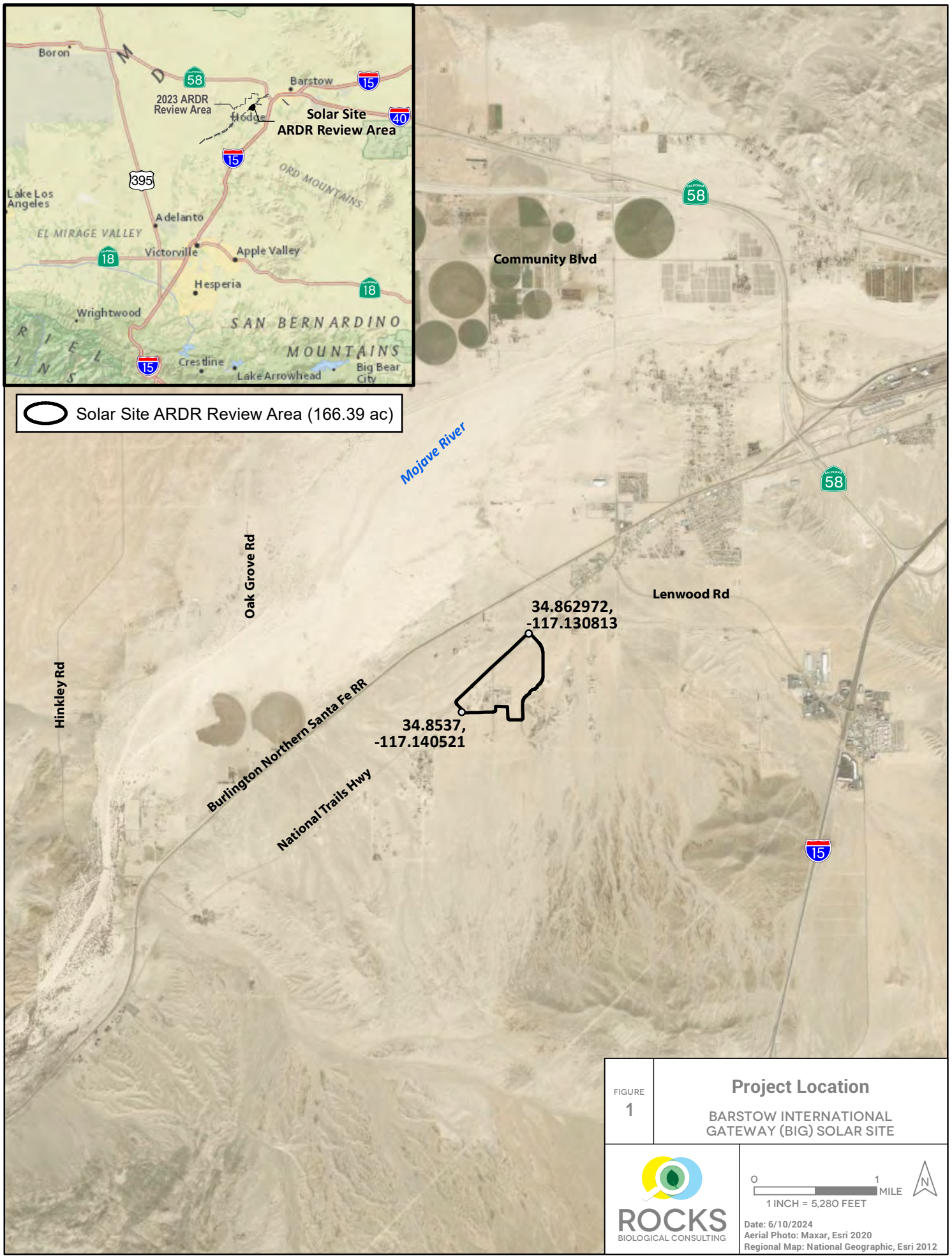


FIGURE 1

Project Location

BARSTOW INTERNATIONAL GATEWAY (BIG) SOLAR SITE

ROCKS BIOLOGICAL CONSULTING

0 1 MILE

1 INCH = 5,280 FEET

N

Date: 6/10/2024
Aerial Photo: Maxar, Esri 2020
Regional Map: National Geographic, Esri 2012

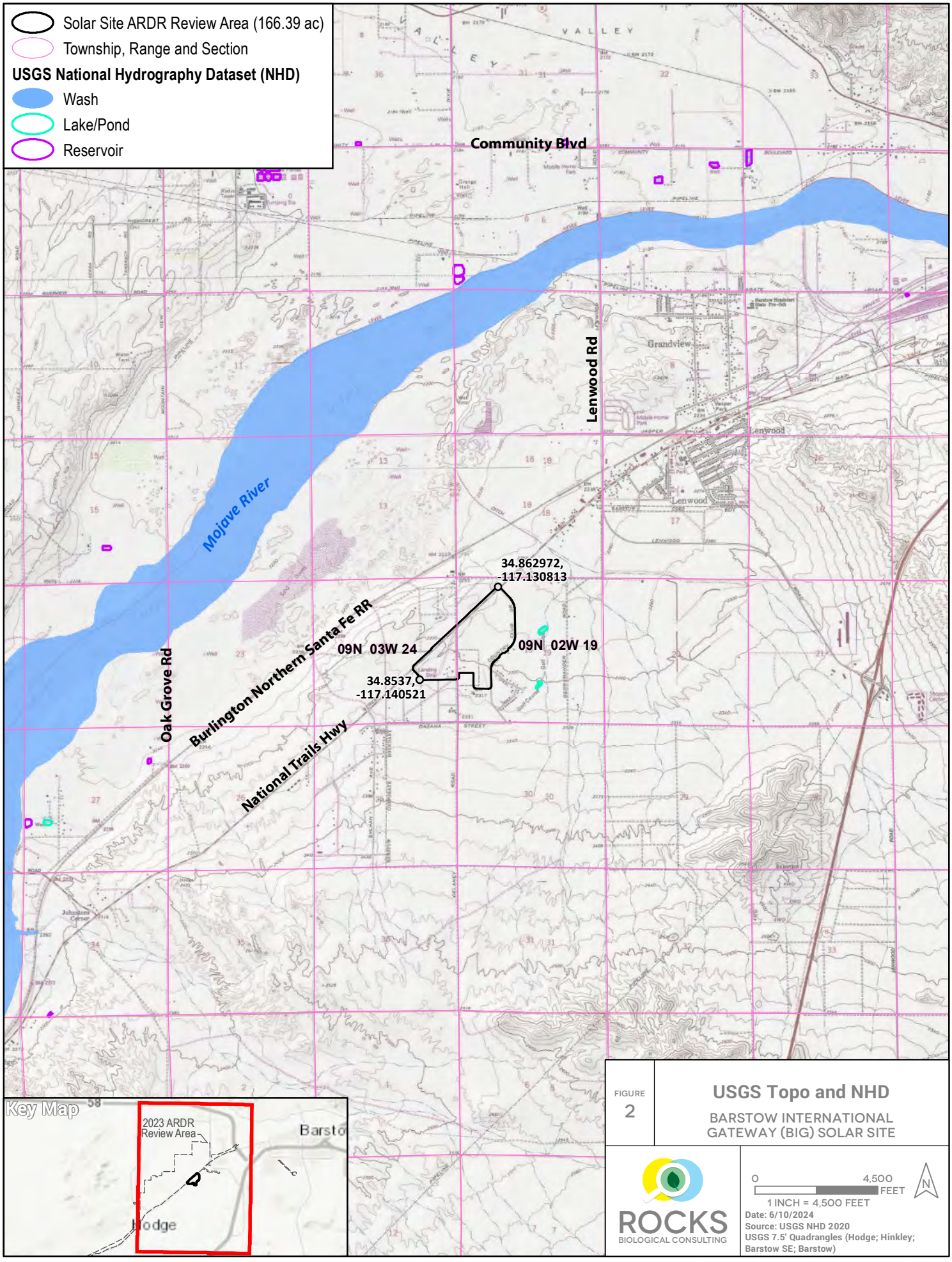


FIGURE 2

USGS Topo and NHD

BARSTOW INTERNATIONAL GATEWAY (BIG) SOLAR SITE

ROCKS BIOLOGICAL CONSULTING

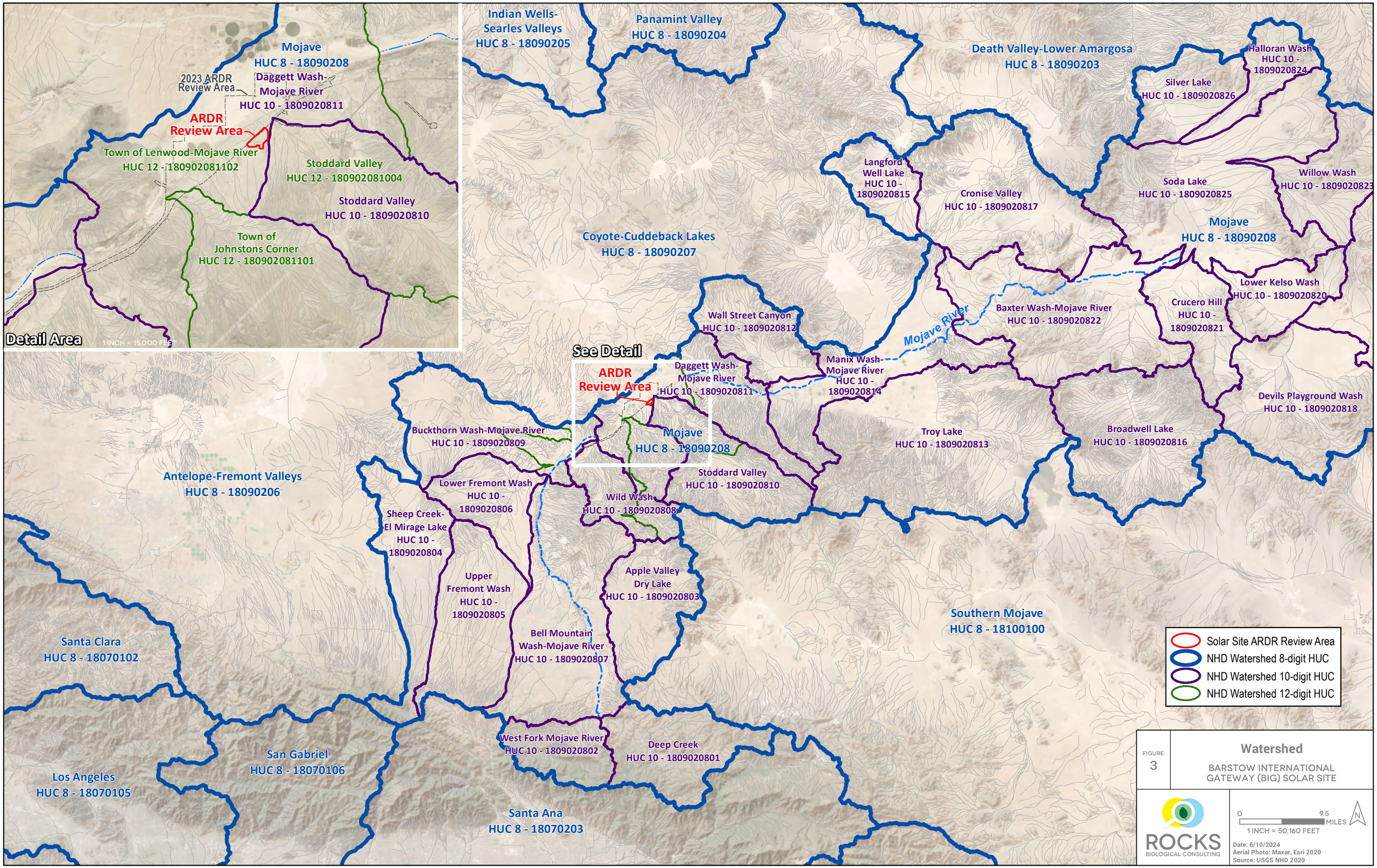
0 4,500 FEET

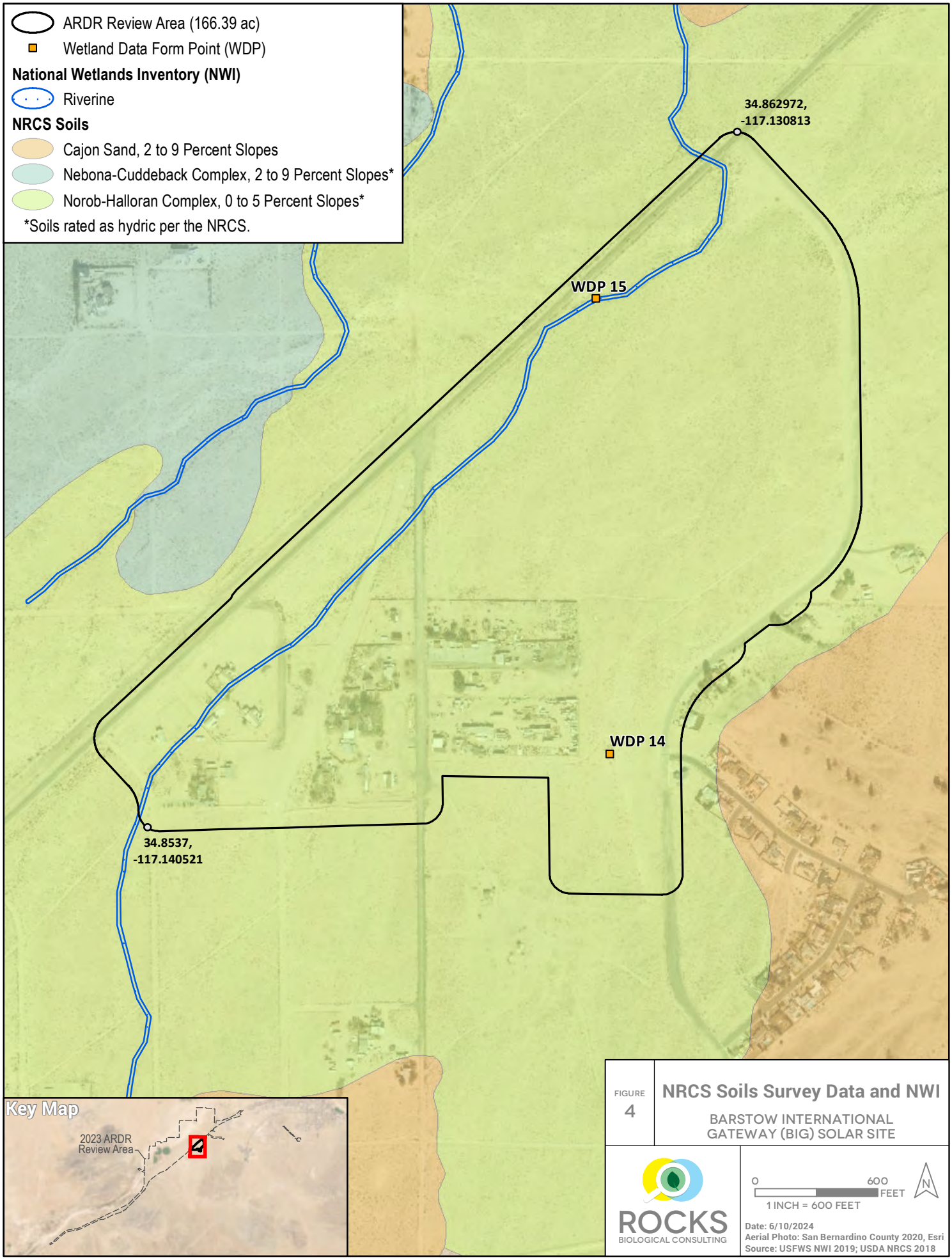
1 INCH = 4,500 FEET

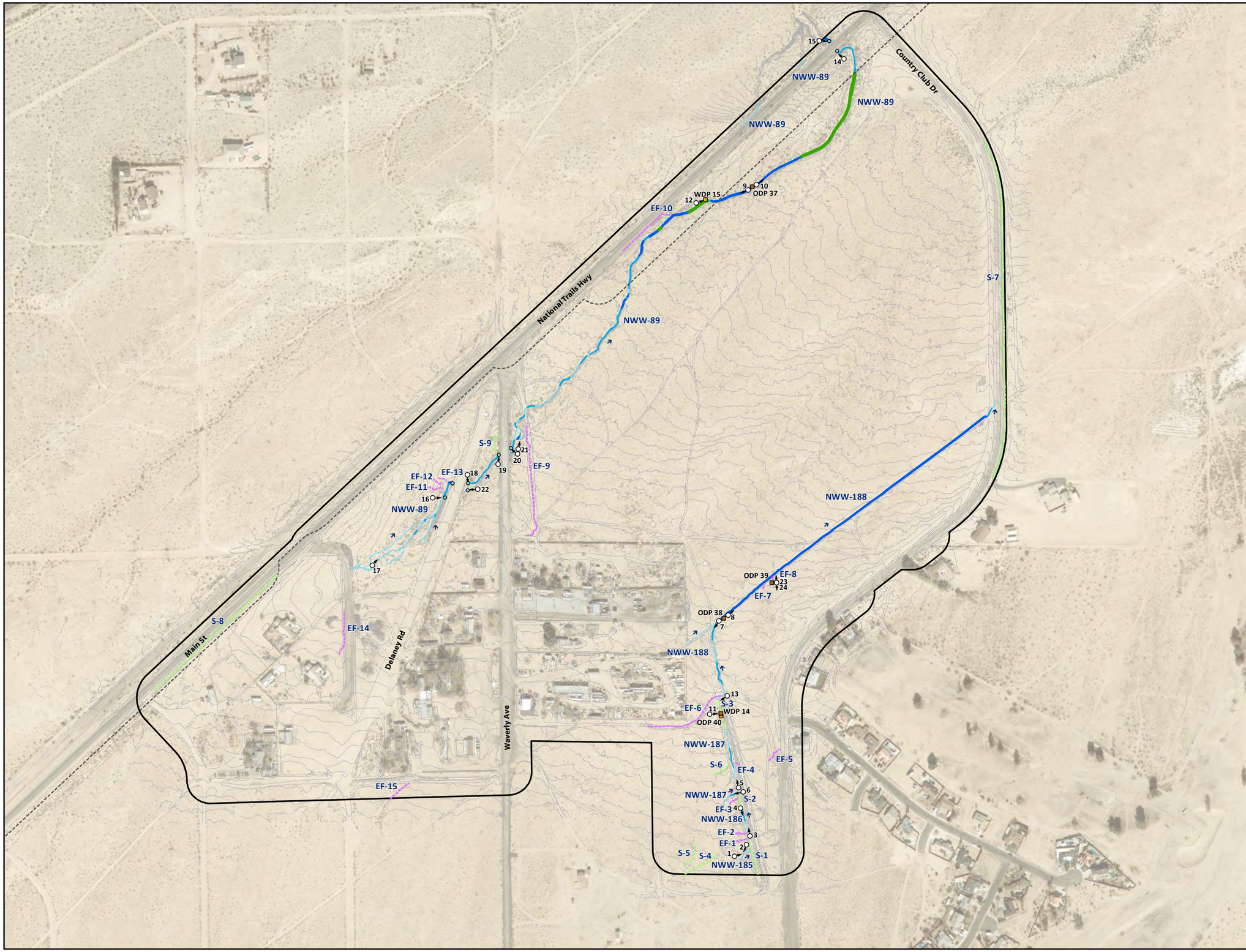
Date: 6/10/2024

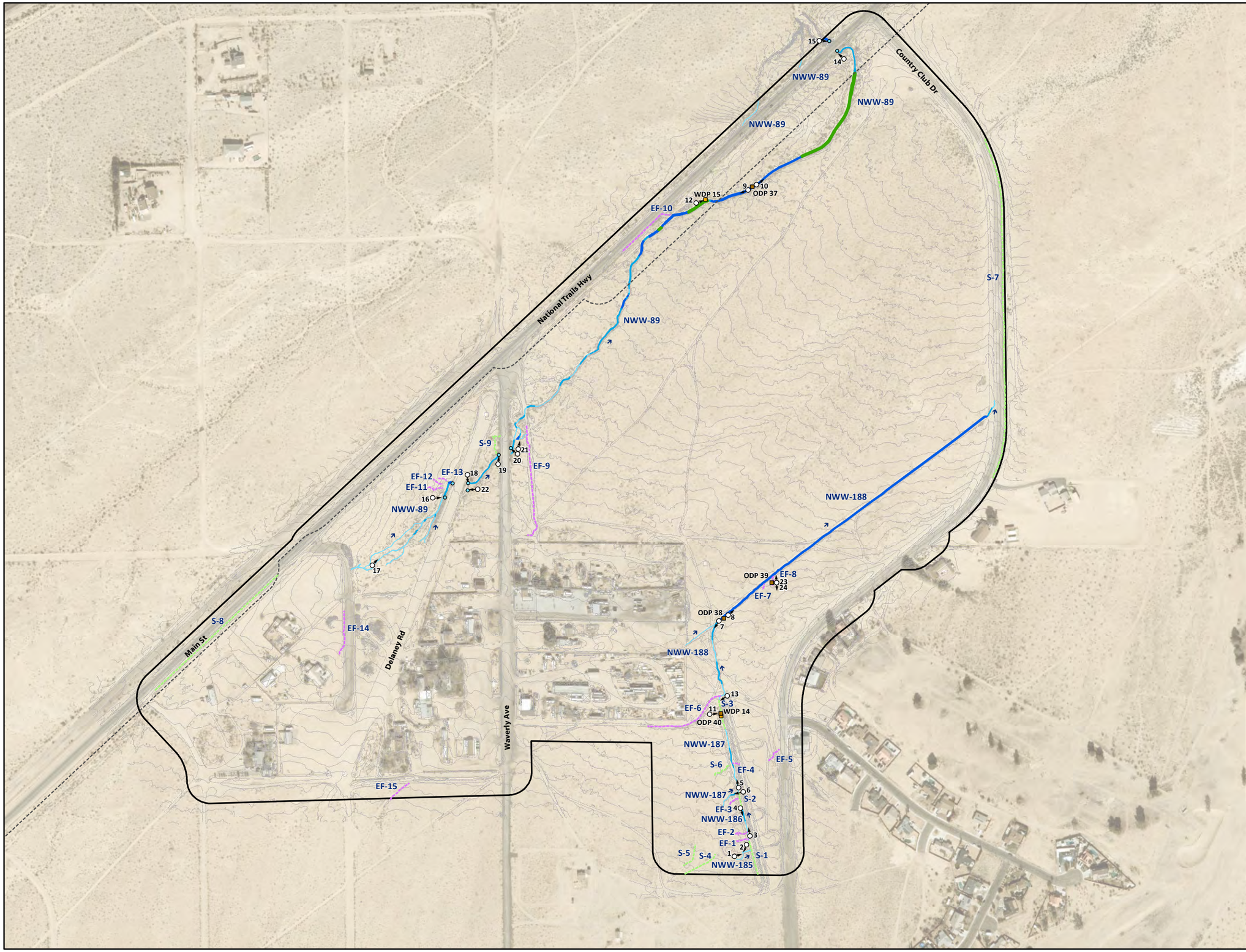
Source: USGS NHD 2020

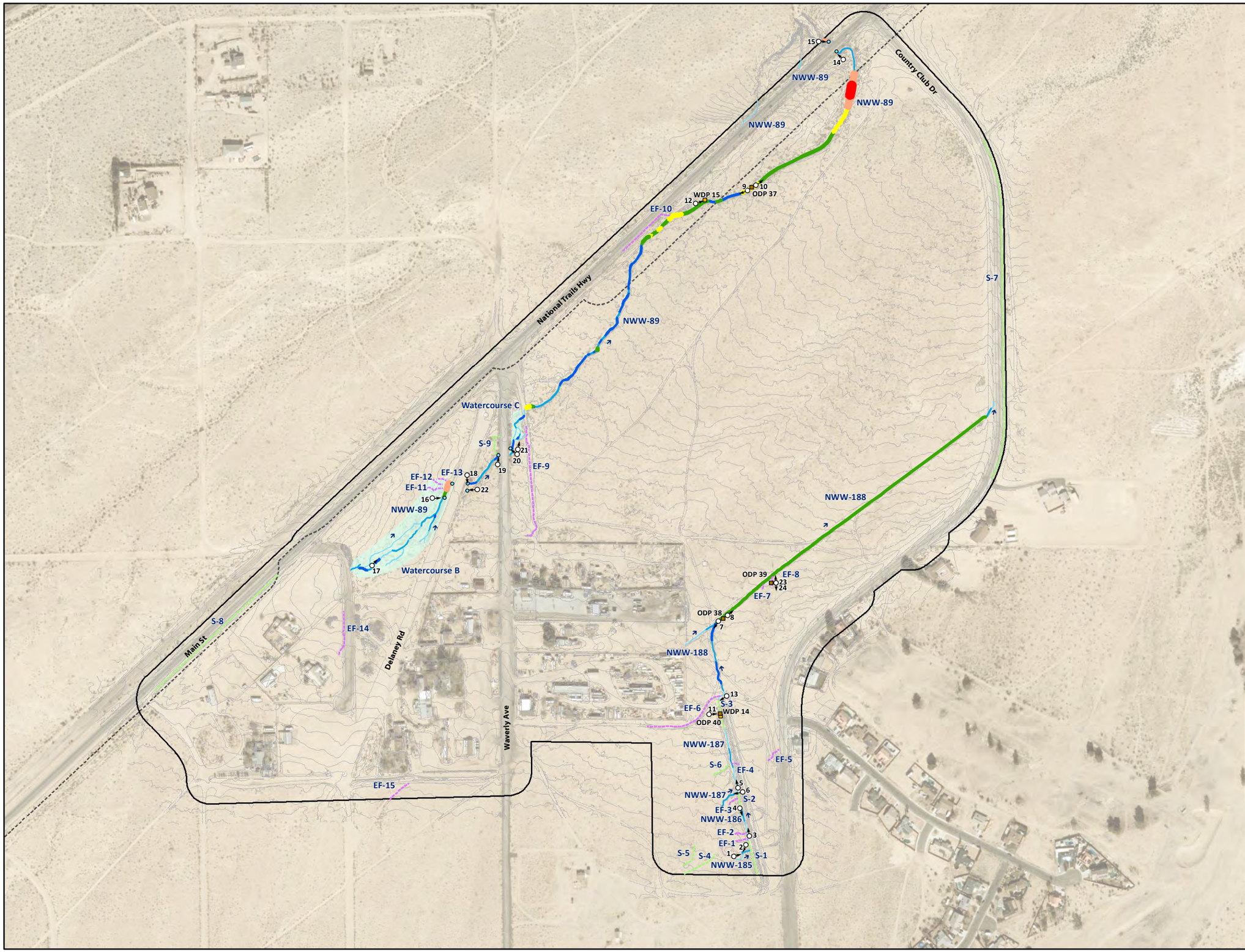
USGS 7.5' Quadrangles (Hodge; Hinkley; Barstow SE; Barstow)


Mojave
HUC 8 - 18090208
Daggett Wash-
Mojave River
HUC 10 - 1809020811
2023 ARDR
Review Area
ARDR
Review Area
Town of Lenwood-Mojave River
HUC 12 - 180902081102
Stoddard Valley
HUC 12 - 180902081004
Stoddard Valley
HUC 10 - 1809020810
Town of
Johnstons Corner
HUC 12 - 180902081101
Detail Area
1 INCH = 15,000 FEET
Indian Wells-
Searles Valleys
HUC 8 - 18090205
Panamint Valley
HUC 8 - 18090204
Death Valley-Lower Amargosa
HUC 8 - 18090203
Halloran Wash
HUC 10 -
1809020824
Silver Lake
HUC 10 - 1809020826
Langford
Well Lake
HUC 10 -
1809020815
Cronise Valley
HUC 10 - 1809020817
Soda Lake
HUC 10 - 1809020825
Willow Wash
HUC 10 - 1809020823
Mojave
HUC 8 - 18090208
Coyote-Cuddeback Lakes
HUC 8 - 18090207
Lower Kelso Wash
HUC 10 - 1809020820
Crucero Hill
HUC 10 -
1809020821
Wall Street Canyon
HUC 10 - 1809020812
Baxter Wash-Mojave River
HUC 10 - 1809020822
Mojave River
See Detail
Manix Wash-
Mojave River
HUC 10 -
1809020814
Devils Playground Wash
HUC 10 - 1809020818
Broadwell Lake
HUC 10 - 1809020816
Troy Lake
HUC 10 - 1809020813
Buckthorn Wash-Mojave River
HUC 10 - 1809020809
Antelope-Fremont Valleys
HUC 8 - 18090206
Lower Fremont Wash
HUC 10 -
1809020806
Sheep Creek-
El Mirage Lake
HUC 10 -
1809020804
Upper
Fremont Wash
HUC 10 -
1809020805
Wild Wash
HUC 10 - 1809020808
Stoddard Valley
HUC 10 - 1809020810
Apple Valley
Dry Lake
HUC 10 - 1809020803
Bell Mountain
Wash-Mojave River
HUC 10 - 1809020807
Southern Mojave
HUC 8 - 18100100
Santa Clara
HUC 8 - 18070102
West Fork Mojave River
HUC 10 - 1809020802
Deep Creek
HUC 10 - 1809020801
San Gabriel
HUC 8 - 18070106
Los Angeles
HUC 8 - 18070105
Santa Ana
HUC 8 - 18070203
Solar Site ARDR Review Area
NHD Watershed 8-digit HUC
NHD Watershed 10-digit HUC
NHD Watershed 12-digit HUC
FIGURE
3
Watershed
BARSTOW INTERNATIONAL
GATEWAY (BIG) SOLAR SITE
ROCKS
BIOLOGICAL CONSULTING
0
9.5
MILES
N
1 INCH = 50,160 FEET
Date: 6/10/2024
Aerial Photo: Maxar, Esri 2020
Source: USGS NHD 2020


ARDR Review Area (166.39 ac)
Wetland Data Form Point (WDP)
National Wetlands Inventory (NWI)
Riverine
NRCS Soils
Cajon Sand, 2 to 9 Percent Slopes
Nebona-Cuddeback Complex, 2 to 9 Percent Slopes*
Norob-Halloran Complex, 0 to 5 Percent Slopes*
*Soils rated as hydric per the NRCS.
34.862972,
-117.130813
WDP 15
WDP 14
34.8537,
-117.140521
Key Map
2023 ARDR
Review Area
FIGURE
4
NRCS Soils Survey Data and NWI
BARSTOW INTERNATIONAL
GATEWAY (BIG) SOLAR SITE
ROCKS
BIOLOGICAL CONSULTING
0
600
FEET
1 INCH = 600 FEET
N
Date: 6/10/2024
Aerial Photo: San Bernardino County 2020, Esri
Source: USFWS NWI 2019; USDA NRCS 2018


Solar Site ARDR Review Area (166.39 ac)[1]
2023 ARDR Review Area
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location
Corps Aquatic Resources
Non-Wetland Waters (0.89 ac)[1] (widths)[2]
1'-3'
4'-6'
7'-10'
11'-15'
Other Features[3]
Erosional Feature
Swale
[1] Represents total acreage for ARDR Review Area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.
[3] Features lacking OHWM or three-parameter wetland, and thus anticipated to be non-jurisdictional.
National Trails Hwy
Country Club Dr
Main St
Delaney Rd
Waverly Ave
NWW-89
NWW-188
NWW-187
NWW-186
NWW-185
EF-1
EF-2
EF-3
EF-4
EF-5
EF-6
EF-7
EF-8
EF-9
EF-10
EF-11
EF-12
EF-13
EF-14
EF-15
S-1
S-2
S-3
S-4
S-5
S-6
S-7
S-8
S-9
WDP 15
WDP 14
ODP 37
ODP 38
ODP 39
ODP 40
Key Map
2023 ARDR Review Area
FIGURE 5A
Corps Aquatic Resources
BARSTOW INTERNATIONAL GATEWAY (BIG) SOLAR SITE
ROCKS BIOLOGICAL CONSULTING
0 400 FEET
1 INCH = 400 FEET
N
Date: 6/11/2024
Aerial Photo: San Bernardino County 2020, Esri


Solar Site ARDR Review Area (166.39 ac)[1]
2023 ARDR Review Area
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location
RWQCB Aquatic Resources
Non-Wetland Waters (0.89 ac)[1] (widths)[2]
1'-3'
4'-6'
7'-10'
11'-15'
Other Features[3]
Erosional Feature
Swale
[1] Represents total acreage for ARDR Review Area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.
[3] Features lacking OHWM or three-parameter wetland, and thus anticipated to be non-jurisdictional.
National Trails Hwy
Country Club Dr
Main St
Delaney Rd
Waverly Ave
NWW-89
NWW-188
NWW-187
NWW-186
NWW-185
EF-1
EF-2
EF-3
EF-4
EF-5
EF-6
EF-7
EF-8
EF-9
EF-10
EF-11
EF-12
EF-13
EF-14
EF-15
S-1
S-2
S-3
S-4
S-5
S-6
S-7
S-8
S-9
WDP 14
WDP 15
ODP 37
ODP 38
ODP 39
ODP 40
Key Map
2023 ARDR Review Area
FIGURE 5B
RWQCB Aquatic Resources
BARSTOW INTERNATIONAL GATEWAY (BIG) SOLAR SITE
ROCKS BIOLOGICAL CONSULTING
0 400 FEET
1 INCH = 400 FEET
N
Date: 6/11/2024
Aerial Photo: San Bernardino County 2020, Esri



Solar Site ARDR Review Area (166.39 ac)[1]

2023 ARDR Review Area

Culvert

Wetland Data Form Point (WDP)

OHWM Datasheet Point (ODP)

Flow Direction

Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (1.43 ac)[1] (widths)[2]

- 1'-3'
- 4'-6'
- 7'-10'
- 11'-15'
- 16'-21'
- 22'-30'
- >30'

Watercourse (1.68 ac)

- Watercourse

Other Features[3]

- Erosional Feature
- Swale

[1] Represents total acreage for survey area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking a defined lake or streambed, and thus anticipated to be non-jurisdictional.



FIGURE 5C

CDFW Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY (BIG) SOLAR SITE

ROCKS BIOLOGICAL CONSULTING

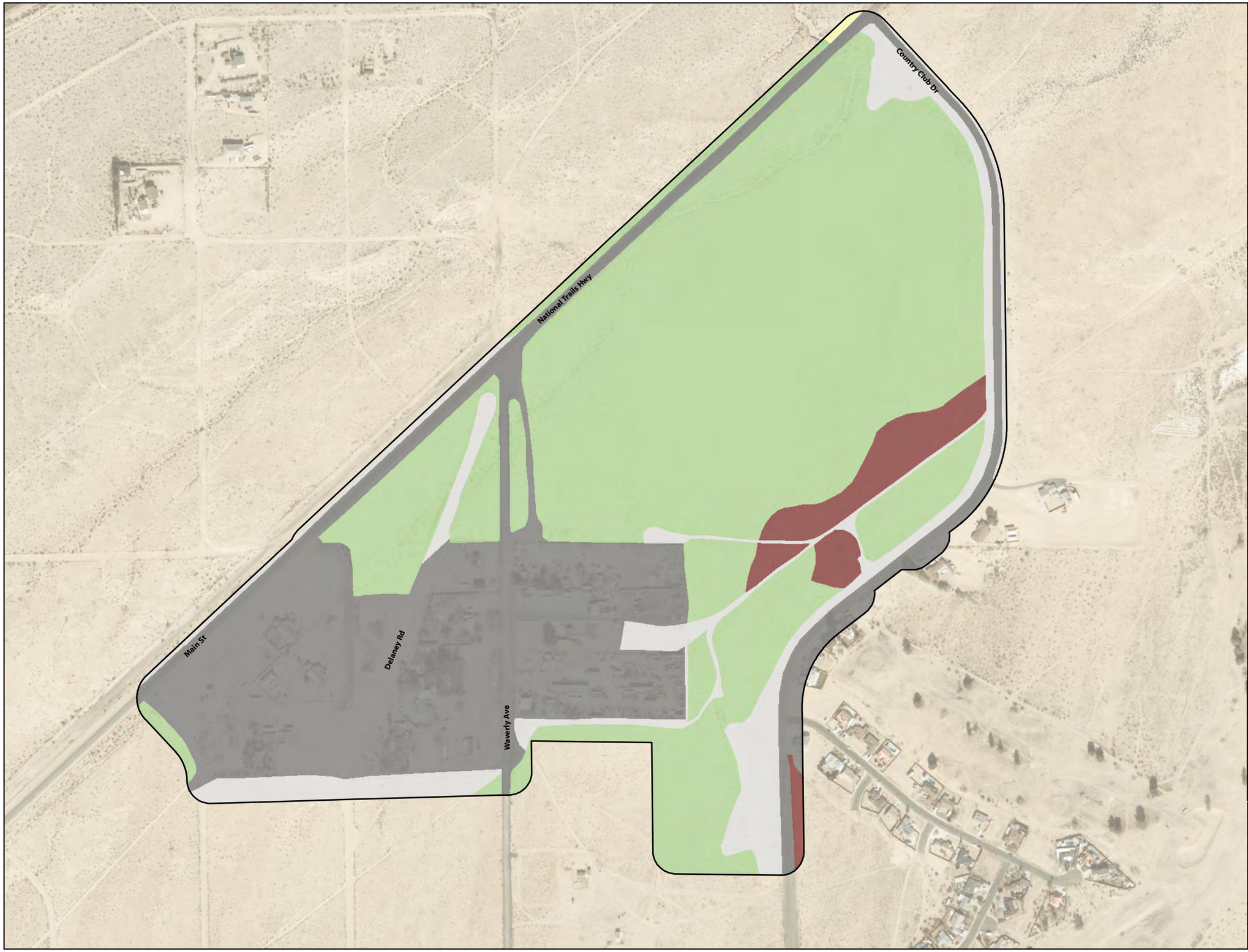
0 400 FEET

1 INCH = 400 FEET

N

Date: 6/11/2024

Aerial Photo: San Bernardino County 2020, Esri



Solar Site ARDR Review Area

Vegetation

- Ambrosia dumosa Shrubland Alliance
- Atriplex polycarpa Shrubland Alliance - DISTURBED
- Developed
- Disturbed
- Larrea tridentata – Ambrosia dumosa Shrubland Alliance

Key Map



FIGURE 6

Vegetation

BARSTOW INTERNATIONAL GATEWAY (BIG) SOLAR SITE

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 6/10/2024

Aerial Photo: San Bernardino County 2020, Esri

ATTACHMENT A

BIG BARSTOW AQUATIC RESOURCES DELINEATION REPORT, PREPARED BY RBC AND DATED SEPTEMBER 23, 2022

ROCKS
BIOLOGICAL CONSULTING





BIG BARSTOW
AQUATIC RESOURCES DELINEATION REPORT

San Bernardino County, California

September 23, 2022

Prepared for:
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APPENDICES

Appendix A. Checklist: Minimum Standards for Acceptance of Aquatic Resource Delineation Reports
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Appendix C. Applicable Aquatic Resource Protection Regulations
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1 INTRODUCTION

On behalf of Burlington Northern Santa Fe (BNSF) Railway Company, Rocks Biological Consulting (RBC) conducted a formal aquatic resources delineation for the Big Barstow review area, composed of approximately 5,105 acres (Figure 1), to identify areas that may be considered jurisdictional under the U.S. Army Corps of Engineers (Corps) pursuant to Section 404 of the Clean Water Act; the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act; and the California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code (CFGC). The information provided in this aquatic resources delineation report (ARDR) is necessary to define the presence or absence of aquatic resources within the review area. This ARDR can also be used by the agencies to inform the jurisidictional status of delineated aquatic resources and by the applicant and agencies to assess conformance with state and federal regulations and to estimate potential impacts and associated permitting requirements. Furthermore, the information contained in this report is in compliance with the Corps Los Angeles District's *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports* (Minimum Standards; Corps 2017). Appendix A provides a checklist to ensure compliance with the Minimum Standards.

This ARDR also serves as a request for the Corps to complete a Preliminary Jurisdictional Determination (PJD) based on the information provided in this report. Appendix B provides the requried forms associated with the PJD request.

2 SITE DESCRIPTION, LANDSCAPE SETTING

2.1 LOCATION

The review area is generally located south of and partially within the Mojave River, south and west of California State Route (CA)-58, northwest of National Trails Highway, and extends west-southwest from the City of Barstow for approximately 14.1 miles along the existing BNSF railroad tracks, within the City of Barstow and unincorporated San Bernardino County, California (Figure 1). The review area is generally bounded by the Mojave River to the north/northwest; National Trails Highway, undeveloped land, and/or low-density residential to the south/southeast; BNSF railroad tracks and undeveloped land to the west; and BNSF railroad tracks, undeveloped land, and/or low-density residential to the east. The latitude and longitude of the approximate center of the review area is 34.853903, -117.159799. The review area sits on Township 8 North, Range 4 West, including Sections 12 to 15 and 22; Township 8 North, Range 3 West, including Sections 3 to 5 and 7 to 9; Township 9 North, Range 3 West, including Sections 12 to 14, 22 to 28, and 33 to 35; and Township 9 North, Range 2 West, including Sections 7 to 9, and 17 to 19 within the Hodge, Barstow SE, Barstow, and Hinkley 7.5-minute quadrangles, as mapped by the U.S. Geological Survey (USGS; Figure 2).

2.2 TOPOGRAPHY

The review area consists of elevations ranging from approximately 2,189 to 2,413 feet above mean sea level (amsl; Figure 2). The review area is relatively flat except for the presence of dunes within portions of the review area north of the railroad tracks and several hillslopes within the central portion of the review area south of the railroad tracks. Overall, the review area gradually decreases

in elevation moving northwest towards the Mojave River. Drainage patterns within the Mojave River trend southwest to northeast. Drainage patterns within the remainder of the review area generally trend southeast to north/northwest towards the Mojave River.

2.3 WATERSHED

The review area is within the Mojave Hydrologic Unit Code (HUC) 8 (18090208), Daggett Wash-Mojave River HUC 10 (1809020811), Stoddard Valley HUC 10 (1809020810), Buckthorn Wash-Mojave River HUC 10 (1809020809), Town of Lenwood-Mojave River HUC 12 (180902081102), Town of Johnstons Corner HUC 12 (180902081101), North Lake-Mojave River HUC 12 (180902080905), and Stoddard Valley HUC 12 (180902081004) (Figure 3). The Mojave River headwaters in the San Bernadino Mountains, continues for approximately 120 miles via surface and subsurface flows through the Mojave Desert, then drains into Soda Dry Lake (Lahontan Regional Water Quality Control Board [LRWQCB] 2002). The Mojave River typically only conveys surface flows during large storm events or in areas where geologic structures force groundwater to the surface (LRWQCB 2002).

In addition to the watersheds defined by the USGS and commonly used by the Corps, the RWQCB also defines watershed boundaries by Hydrologic Units (HUs). The review area is within the South Lahontan Hydrologic Basin, the Mojave HU, and the Middle Mojave Hydrologic Area (LRWQCB 2021).

3 METHODS

3.1 PRE-FIELD REVIEW

Prior to the on-site delineations, field maps were created using a Geographic Information System (GIS) and a color aerial photograph at a 1:450 scale. RBC staff also reviewed USGS National Hydrography Dataset (NHD) and topography data (Figure 2), U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data (Figure 4), and Natural Resources Conservation Service (NRCS) soils data (Figure 4) to further determine the potential locations of aquatic resources within the review area. RBC also utilized Google Earth to assess current and historic presence or absence of flows and/or ponding in the review area (Google Earth Pro 2022).

3.2 ON-SITE DELINEATION AND MAPPING

RBC conducted a constraints-level wetland/non-wetland waters jurisdictional assessment for the review area on August 10, 2021. RBC conducted formal aquatic resources delineation field visits for the review area on October 20, 2021; December 1, 2021; March 16, 23, and 24, 2022; April 12, 13, and 15, 2022; May 17, 2022; and June 20, 2022. Field visits were conducted over portions of the review area based on when access was granted to each parcel/portion of the review area. Areas where access was prohibited were visually assessed with binoculars and/or the use of aerial imagery. Field conditions during these field visits are provided below in Table 1.

Table 1. Field Conditions

Date	Survey Time Start – End	Temperature (°F) Start – End	Wind Speed Range (miles per hour) Start – End	Cloud Cover (%) Start – End	Personnel[1]
8/10/2021	0800 – 1550	87 – 103	0 to 1 – 0 to 1	0 – 0 (hazy from fires)	SK, IH
10/20/2021	0930 – 1545	54 – 75	0 to 2 – 0 to 1	5 – 10	NF, SK, SS
12/01/2021	0940 – 1300	55 – 73	0 to 2 – 0 to 2	0 – 0	NF, SK
3/16/2022	0820 – 1450	56 – 77	8 to 10 – 7 to 12	0 – 5	AG, KW, RL, SK
3/23/2022	0815 – 1530	56 – 80	1 to 3 – 7 to 12	0 – 0	KW, RL
3/24/2022	0700 – 1315	52 – 82	4 to 8 – 4 to 6	0 – 1	KW, RL
4/12/2022	0730 – 1500	43 – 61	2 to 5 – 0 to 3	0 – 0	ET, KW, RL, SK
4/13/2022	0730 – 1430	43 – 64	0 to 1 – 0 to 1	0 – 0	ET, KW, RL
4/15/2022	1045 – 1200	66 – 70	5 to 8 – 2 to 5	2 – 2	ET
5/17/2022	0830 – 1130	72 – 81	12 to 14 – 12 to 14	0 – 0	KW, RL
6/20/2022	0715 – 1640	59 – 91	3 to 5 – 3 to 6	0 – 0	KW, RL

[1] AG = Alec Goodman, ET = Emily Trevino, IH = Ian Hirschler, KW = Kelsey Woldt, NF = Natasha Foti, RL = Ryan Layden, SK = Sarah Krejca, SS = Shanti Santulli

Figure 1 and Figures 5A – 5C depict the approximately 5,105-acre review area.

Areas with depressions, drainage patterns, and/or wetland vegetation within the review area were evaluated, with focus on the presence of defined channels and/or wetland vegetation, soils, and hydrology. While in the field, potential aquatic resources were recorded using a hand-held Global Positioning System (GPS) unit with a level of accuracy ranging from 4 to 30 feet. RBC staff refined the data using aerial photographs and topographic maps with one-foot contours to ensure accuracy.

All figures generated for this ARDR follow the Corps' Updated Map and Drawing Standards for the South Pacific Division Regulatory Program (Corps 2016).

The below subsections provide the aquatic resources delineation methods used per agency; Appendix C provides additional details regarding the agencies' applicable regulations and guidance associated with this ARDR.

3.2.1 CORPS

Ordinary High Water Mark Delineation

Aquatic resources with a defined ordinary high water mark (OHWM) would be considered potential non-wetland waters of the U.S. Corps regulations at 33 Code of Federal Regulations (CFR) 329.11 define an OHWM as "the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas" (51 Federal Register

[FR] 41251, November 13, 1986). RBC staff used guidance provided in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (OHWM Field Guide; Lichvar & McColley 2008) and Regulatory Guidance Letter (RGL) 05-05 to estimate the extent of an OHWM in the field. For each feature exhibiting the potential presence of an OHWM, RBC completed a 2010 Arid West Ephemeral and Intermittent Streams OHWM Datasheet following the guidance provided in the *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (OHWM Datasheet; Curtis & Lichvar 2010). Per the 2010 OHWM Datasheet, common indicators of an OHWM include a break in slope (i.e., abrupt cut in bank slope created by hydrogeomorphic processes across the landscape), changes in average sediment texture between floodplain units (i.e., low-flow, active floodplain, low terrace), and changes in vegetation species and/or cover between floodplain units.

Wetland Delineation

Field staff examined potential wetland waters of the U.S. using the routine determination methods set forth in Part IV, Section D, Subsection 2 of the Corps 1987 *Wetland Delineation Manual* (Wetland Manual; Environmental Laboratory 1987) and the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0* (Arid West Supplement; Corps 2008). Areas that met the three parameters per the Arid West Supplement (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology, following methods set forth in the Wetland Manual and Arid West Supplement) were considered wetland waters of the U.S. RBC staff based wetland plant indicator status (i.e., Obligate [OBL], occurs 99+% in wetlands; Facultative Wetland [FACW], occurs 67-99% in wetlands; Facultative [FAC], occurs 34-66% in wetlands; Facultative Upland [FACU], occurs 1-33% in wetlands; Upland [UPL], occurs 99+% in uplands; and Not Listed [NL], considered UPL for wetland delineation purposes) on the *National Wetland Plant List* (NWPL; Corps 2020a) and hydric soils indicators on *Field Indicators of Hydric Soils in the United States, Version 8.2* (NRCS 2018). Soil chromas were identified in the field according to *Munsell Soil-Color Charts with Genuine Munsell Color Chips* (Munsell Color 2015) and per the Wetland Manual and Arid West Supplement. Plants were identified according to *The Jepson Manual: Vascular Plants of California, 2nd edition* (Baldwin et al. 2012) and nomenclature follows Jepson eFlora (Jepson Flora Project 2022).

3.2.2 RWQCB

Ordinary High Water Mark Delineation

The State Water Resources Control Board (SWRCB) and RWQCBs do not have regulations or guidance on defining the extent of non-wetland waters of the State. As such, field staff identified the lateral limits of potential non-wetland waters of the State using the same methodology for determining an OHWM per the Corps as described in Section 3.2.1. as they have generally been considered coincident.

Wetland Delineation

The State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (the Procedures; SWRCB 2021) defines wetland waters of the State. The Procedures were adopted on April 2, 2019, went into effect on May 28,

2020, and were revised on April 6, 2021. As detailed in the Procedures, the SWRCB and RWQCBs define a wetland as follows: “An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area’s vegetation is dominated by hydrophytes or the area lacks vegetation” (SWRCB 2021).

The Procedures provide that RWQCBs shall rely on a wetland delineation from a final ARDR verified by the Corps to determine the extent of wetland waters of the State. If any potential wetland areas have not been delineated in a final ARDR verified by the Corps, the limits of such potential wetland waters of the State shall be identified using the same wetland delineation methods per the Corps as described in Section 3.2.1, except that a lack of vegetation (i.e., less than 5 percent areal coverage of plants during the peak of the growing season) does not preclude an area from meeting the definition of a wetland waters of the State (SWRCB 2021).

3.2.3 CDFW

River, Lake, Stream, Watercourse, and Associated Riparian and Wetland Habitat Delineation

CDFW jurisdiction relies on the presence of a river, lake, and/or stream and associated riparian or wetland habitat (CFGC § 1600 et seq). Lakes include “natural lakes or man-made reservoirs” (14 California Code of Regulations [CCR] § 1.56). CDFW regulations define a stream as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports riparian vegetation" (14 CCR § 1.72). The 1987 *Rutherford v. State of California* (188 Cal. App. 3d 1268) decision further provided that a streambed is the “channel of a water course; the depression between the banks worn by the regular and usual flow of the water.” A streambed includes the “[a]rea extending between the opposing banks measured from the foot of the banks from the top of the water at its ordinary stage, including sand bars which may exist between the foot of said banks…” (188 Cal. App. 3d 1268). The bank is defined as “the slope or elevation of land that bounds the bed of the stream in a permanent or long-standing way, and that confines the stream water up to its highest level” (*The People v. Phillip Wright Osborn*, 116 Cal. App. 4th 764 (2004)).

RBC staff utilized a combination of field indicators (e.g., evidence of ponding such as moist and/or cracked soils and secondary channels), 50- and 100-year floodplain modeling, and local topography to delineate the extent of streambed associated with the Mojave River in areas where the active desert dunes continually erase signs of hydrology and bed and bank; RBC confirmed the use of this approach with Brandy Wood, CDFW Senior Environmental Scientist (Supervisor) with the Inland Deserts Region. Floodplain mapping throughout the extent of the Mojave River within the review area was not available through the Federal Emergency Management Agency’s (FEMA’s) National Flood Hazard Layer (NFHL) Viewer (FEMA n.d.) or the County of San Bernardino Department of Public Works’ ArcGIS web maps (County of San Bernardino Department of Public Works 2022). As such, the project engineer, TranSystems, performed hydraulic modeling of the Mojave River using Sedimentation and River Hydraulics – Two-Dimension (SRH-2D) software developed by the U.S. Bureau of Reclamation, in collaboration with the Federal Highway Administration in the U.S. and the Water Resources Agency in Taiwan (Bureau of Reclamation

2020). SRH-2D is hydraulic modeling software capable of analyzing 2-dimensional (2D) flow simulations for riverine systems. Further details regarding TranSystems' hydraulic modeling methods and results are available upon request.

Riparian habitat refers to vegetation and habitat associated with a stream. CDFW-jurisdictional habitat includes all riparian shrub or tree canopy that may extend beyond the banks of a stream. Isolated riparian habitat (i.e., where riparian vegetation does not appear associated with an ephemeral wash) is not considered CDFW-jurisdictional.

To assist in assessing CDFW-jurisdictional limits in desert areas, RBC staff utilized the methods outlined in the *MESA – Mapping Episodic Stream Activity Field Guide* (MESA Field Guide; Vyverberg & Brady 2013). The MESA Field Guide was developed to describe the methodology for delineating episodic streams and the active watercourse within the arid and semi-arid California desert regions. The MESA guidelines indicate the active watercourse extends beyond the streambed and can consist of associated features such as low-flow, active, and braided channels and banks associated with islands, and secondary channels within the bounds of a larger channel complex (Vyverberg & Brady 2013).

CDFW follows the USFWS wetland definition and classification system, which defines a wetland as transitional land between terrestrial and aquatic systems having one or more of the following attributes: "(1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year" (Cowardin et al. 1979). A wetland is presumed when all three attributes are present; if less than three attributes are present the presumption of a wetland must be supported by "the demonstrable use of wetland areas by wetland associated fish or wildlife resources, related biological activity, and wetland habitat values" (California Fish and Game Commission [CFGC] 1994).

Potential CDFW-jurisdictional wetland boundaries were determined based on the presence of wetland areas supported by a river, lake, or stream. Wetland delineation methods to determine the presence of one or more wetland attributes included the same methods per the Corps as described in Section 3.2.1.

Based on the above, potential CDFW-jurisdictional aquatic resources delineated included rivers, lakes, and/or streams and their associated riparian and wetland habitats, and active watercourse. Field staff delineated the lateral extent of potential CDFW jurisdiction to be "bank to bank" for a streambed or to the "dripline" of riparian habitat and/or wetland boundary, if present.

4 SITE ALTERATIONS, CURRENT AND PAST LAND USE

RBC staff reviewed Google Earth Pro (Google Earth Pro 2022), NetrOnline Historic Aerials (NetrOnline 2022), and the University of California – Santa Barbara (UCSB; UCSB n.d.) database to assess historic and ongoing land uses within the review area. The railroad tracks and National Trails Highway occurred within their current locations within the review area at least as far back as October 1929 (i.e., the earliest aerial image available; UCSB n.d.; Appendix D). Development of ranchland and/or residential uses increased somewhat between 1929 and 1952, with minor changes in development/land use continuing through at least 1984, particularly in the far northwestern portion of the review area (UCSB n.d.; NetrOnline 2022; Appendix D). Between July

1973 and December 1984, a large agricultural (row crop) operation was established within/around the northwestern portion of the review area (UCSB n.d; NetrOnline 2022; Appendix D). Additionally, portions of the Mojave River appear to have been bermed sometime between May 1952 and January 1953, redirecting and constricting the Mojave River's natural flow path (UCSB n.d.; Appendix D). Additional berming of the Mojave River appears to have occurred between January 1953 and June 1959, between June 1959 and November 1963, and again, between November 1963 and July 1973 (UCSB n.d.). The bermed areas appeared to remain relatively consistent from July 1973 through June 2022 (the last survey date) (UCSB n.d.; NetrOnline 2022; Google Earth Pro 2022; Appendix D). Basin (B-) 2 was constructed between July 1973 and December 1984 and is currently used for irrigation purposes (UCSB n.d.; NetrOnline 2022; Appendix D; C. Stevens, personal communication, May 26, 2022). Construction of B-1 began around May 2009 along with installation of the nearby basketball court, fishing docks, and playground; B-1 is currently used for recreational purposes (Google Earth Pro 2022; Appendix D; C. Stevens, personal communication, May 26, 2022). Since May 2009, minor changes in development and land use have occurred within the review area; much of the review area remains undeveloped to this day (Google Earth Pro 2022; Appendix D). Normal circumstances, as defined in the Corps 1987 Wetland Manual (Environmental Laboratory 1987), were assumed to be present within the review area; no evidence of recent natural events or human activities that would affect the results of the delineation were observed within the review area during the 2021 and 2022 field delineations.

The following sections provide additional details regarding site alterations and land use specific to on-site soils, hydrology, and vegetation based on available data and the site visit.

4.1 SOILS

Based on the NRCS soils data map (Figure 4), 20 soil map units, outlined below in Table 2, occur within the review area:

Table 2. Soils Mapped within Review Area

Soil Map Unit	Soil Series/Unit	Taxonomic Class	NRCS Hydric Status[1]
Bryman loamy fine sand, 2 to 5 percent slopes	Bryman	Fine-loamy, mixed, superactive, thermic Typic Haplargids	No
Cajon gravelly sand, 2 to 15 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	No
Cajon loamy sand, 5 to 9 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	No
Cajon sand, 0 to 2 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	Yes
Cajon sand, 2 to 9 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	No
Cajon-Arizo complex[1], 2 to 15 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	No
	Arizo	Sandy-skeletal, mixed, thermic Typic Torriorthents	

Soil Map Unit	Soil Series/Unit	Taxonomic Class	NRCS Hydric Status[1]
Cajon-Wasco, cool complex[1], 2 to 9 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	Yes
	Wasco	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Torriorthents	
Cave loam, dry, 0 to 2 percent slopes	Cave	Loamy, mixed, superactive, thermic, shallow Typic Petrocalcids	Yes
Dune land	Dune land	–	Yes
Helendale loamy sand, 0 to 2 percent slopes	Helendale	Coarse-loamy, mixed, superactive, thermic Typic Haplargids	No
Helendale loamy sand, 2 to 5 percent slopes	Helendale	Coarse-loamy, mixed, superactive, thermic Typic Haplargids	No
Joshua loam, 2 to 5 percent slopes	Joshua	Fine-loamy, mixed, superactive, thermic Argidic Argidurids	No
Nebona-Cuddeback complex[1], 2 to 9 percent slopes	Nebona	Loamy, mixed, superactive, thermic, shallow Typic Haplodurids	Yes
	Cuddeback	Fine-loamy, mixed, superactive, thermic Typic Argidurids	
Norob-Halloran complex[1], 0 to 5 percent slopes	Norob	Fine-loamy, mixed, superactive, thermic Typic Natrargids	Yes
	Halloran	Coarse-loamy, mixed, superactive, thermic Typic Natrargids	
Riverwash	Riverwash	–	Yes
Rock Outcrop-Lithic Torriorthents complex, 15 to 50 percent slopes	Rock Outcrop	–	No
	Torriorthents	Loamy-skeletal, mixed, superactive, calcareous, mesic Lithic Torriorthents	
Rosamond loam, saline-alkali	Rosamond	Fine-loamy, mixed, superactive, calcareous, thermic Typic Torrifluvents	Yes
Victorville sandy loam	Victorville	Coarse-loamy, mixed, superactive, calcareous, thermic Typic Torrifluvents	Yes
Villa loamy sand	Villa	Sandy, mixed, thermic Typic Torrifluvents	Yes
Villa loamy sand, hummocky	Villa	Sandy, mixed, thermic Typic Torrifluvents	Yes

Source: NRCS Official Soil Series Description and Series Classification database (NRCS n.d.b); *Soil Survey of San Bernardino County California, Mojave River Area* (USDA 1986); NRCS Soil Data Access (SDA) Hydric Soils List (NRCS n.d.).a).

[1] Based on the NRCS Soil Data Access (SDA) Hydric Soils List (NRCS n.d.)..a). As stated in the Arid West Supplement (Corps 2008), RBC used the hydric soils list as a tool and made final hydric soils determinations based on field-collected data at representative wetland delineation sample points deemed appropriate on site as recorded on the attached Arid West Wetland Determination Data Forms (Appendix E) discussed further in Section 6.1.

[2] A complex consists of two or more soils or miscellaneous areas that either contain such small areas or are so complexly mapped that they are unable to be displayed separately (Ditzler 2015).

The National Technical Committee for Hydric Soils defines hydric soils; *Changes in Hydric Soils Database Selection Criteria* (77 FR 12234) outlines the current four hydric soil criteria. The NRCS Soil Data Access (SDA) Hydric Soils List specifies 11 soil map units within the review area as hydric per Critiera 2, 3, and/or 4 (NRCS n.d.a). The soil series/units outlined above in Table 2 are further described below per the USDA's NRCS Official Soil Series Description and Series Classification database (NRCS n.d.b) and the USDA's *Soil Survey of San Bernardino County California, Mojave River Area* (USDA 1986).

Arizo – The Arizo series consists of very deep, excessively drained soils that have negligible to medium runoff. These soils formed in mixed alluvium on recent alluvial fans, inset fans, fan apron, fan skirts, stream terraces, and floodplains of intermittent streams and channels with slopes ranging from 0 to 15 percent at elevations of 750 to 4,600 feet amsl. Arizo soil is used primarily for rangeland and wildlife habitat. Native vegetation consists primarily of creosote bush (*Larrea tridentata*) and burrobush (*Hymenoclea* sp.).

Bryman – The Bryman series consists of deep, well-drained soils that have slow runoff and moderately slow permeability. These soils formed in mixed alluvium derived primarily from granitic rock and occur on terraces and older alluvial fans with slopes ranging from 0 to 15 percent at elevations of 2,800 to 3,800 feet amsl. Bryman soil is used primarily for irrigated crops, homesites, and recreation. Native vegetation consists of creosote bush, bursage (*Ambrosia* sp.), green ephedra (*Ephedra viridis*), Joshua tree (*Yucca brevifolia*), and annual forbs and grasses.

Cajon – The Cajon series consists of very deep, somewhat excessively drained soils that have slight to low runoff and rapid permeability. These soils formed in sandy alluvium and occur on alluvial fans, fan aprons, fan skirts, inset fans, and river terraces with slopes ranging from 0 to 15 percent at elevations of 200 to 4,300 feet amsl. Cajon soil is used primarily for range, watershed, and recreation, and irrigated areas are used for growing alfalfa and other crops. Uncultivated areas consist of desert shrubs.

Cave – The Cave series consists of very shallow, well-drained soils that have medium to very high runoff and moderate or moderately rapid permeability. These soils formed in mixed alluvium and occur on fan remnants, fan piedmonts, and stream terraces with slopes ranging from 0 to 35 percent at elevations of 1,500 to 5,060 feet amsl. Cave soil is used primarily for livestock grazing, wildlife habitat, and urban development. Native vegetation consists of creosote bush, blackbrush (*Coleogyne ramosissima)*, bursage, Joshua tree, mesquite (*Prosopis* sp.), cactus, and annual grasses and weeds.

Cuddeback – The Cuddeback series consists of moderately deep, well-drained soils that have medium to rapid runoff and moderately slow permeability above the duripan but very slow in the duripan. These soils formed in mixed alluvium on terraces and alluvial fans with slopes ranging from 2 to 9 percent at elevations of 2,200 to 3,000 feet amsl. Cuddeback soil is used mainly for wildlife habitat and recreation. Native vegetation consists of very sparse stands of creosote bush yucca species, and annual grasses and forbs.

Dune Land – The Dune Land miscellaneous areas consists of excessively drained soils with slow runoff and very rapid permeability. These soils formed from wind-deposited sand and occur on unstable hills and ridges of loose, wind-deposited sand with slopes ranging from 5 to 15 percent. Dunes are generally less than 15 feet high but can sometimes reach 25 feet high. Dune Land soil is

used primarily for wildlife habitat and recreation and is essentially barren of vegetation.

Halloran – The Halloran series consists of deep, moderately well-drained soils that have slow runoff and moderately slow permeability. These soils formed in mixed alluvium dominantly from granitic sources and occur on old alluvial derraces and depressional areas with slopes ranging from 0 to 2 percent at elevations of 1,800 to 1,850 feet amsl. Halloran soil is used primarily for wildlife habitat and recreation. Native vegetation consists of creosote bush, saltbush (*Atriplex* sp.), and alkali-tolerant vegetation.

Helendale – The Helendale series consists of very deep, well-drained soils that have negligible to low runoff and moderately high to high saturated hydraulic conductivity. These soils formed in alluvium from granitic sources and occur on fan piedmonts, fan remnants, alluvial fans, and terraces with slopes ranging from 0 to 15 percent at elevations of 2,500 to 3,800 feet amsl. Helendale soil is used primarily for irrigated agriculture and pasture, residential development, military operations, recreation, and wildlife habitat. Native vegetation consists of creosote bush, cheesebush (*Ambrosia salsola*), Nevada jointfir (*Ephedra nevadensis*), Joshua tree (*Yucca brevifolia*), and annural forbs and grasses.

Joshua – The Joshua series consists of moderately deep, well-drained soils that have medium to rapid runoff and moderately slow to slow permeability. These soils formed in material derived from mixed sources and occur on old terraces with a well-developed erosion pavement with slopes ranging from 2 to 15 percent at elevations of 2,600 to 3,000 feet amsl. Joshua soil is used primarily for wildlife habitat and recreation. Native vegetation consists of very sparse strands of creosote bush, white bursage (*Ambrosia dumosa*), yucca species, saltbush, and annual grasses and forbs.

Lithic Torriorthents – Lithic Torriorthents consists of very shallow and shallow, well-drained soils that have medium to rapid runoff and rapid to very rapid permeability. These soils formed from weathering of granitic rock and occur between areas of Rock outcrop (i.e., exposed granitic rock), in small depressional areas, and on relatively stable hillslopes ranging from 15 to 50 percent at elevations of 3,000 to 4,950 feet amsl. Lithic Torriorthents soil is used primarily for wildlife habitat.

Nebona – The Nebona series consists of shallow, well-drained soils that have medium to rapid runoff and moderately rapid permeability in the upper part but very slow in the duripan. These soils formed in mixed alluviam and occur on terraces with slopes ranging from 2 to 9 percent at elevations of 2,200 to 3,000 feet amsl. Nebona soil is used mainly for wildlife habitat and recreation. Native vegetation consists of very sparse stands of creosote bush, white bursage, yucca species, some saltbush, and annual grasses and forbs.

Norob – The Norob series consists of very deep, moderately well-drained soils that have negligible to medium runoff with slow permeability. These soils formed in mixed alluvium and occur on alluvial plains and alluvial flats in the Mojave Desert with slopes ranging from 0 to 5 percent at elevations of 2,300 to 3,200 feet amsl. Norob soil is used primarily for livestock grazing, military operations, and recreation. Native vegetation consists of saltbush, creosote bush, and scattered annual grasses and forbs.

Riverwash – The Riverwash miscellaneous areas consists of excessively drained soils in the Mojave River riverbed and in beds of intermittent streams subject to flooding during prolonged storms of high intensity. These soils formed in areas of alluvium derived primarily from granitic rocks and occur on unstable sandy and gravelly alluvium that is frequently removed, resorted, and

redeposited with slopes ranging from 0 to 2 percent at elevations of 1,700 to 3,100 feet amsl. Riverwash soil is used mainly for wildlife habitat and areas of Riverwash are essentially barren of vegetation. Small areas of Villa loamy sand and Victorville sandy loam soils are also included in this unit on low stream terraces along the Mojave River.

Rock Outcrop – The Rock Outcrop miscellaneous areas consists of exposed granitic bedrock on mountainsides, ridges, and rugged hills at elevations of 3,000 to 4,950 feet amsl. Rock outcrop is used primarily for wildlife habitat.

Rosamond – The Rosamond series consists of deep, well-drained soils that have medium runoff and moderate to moderately slow permeability. These soils formed in alluvium derived primarily from granitic rock and occur on slopes ranging from 0 to 2 percent at elevations from 2,200 to 2,900 feet amsl. Rosamond series is used primarily for desert range in larger areas, and irrigated areas are used for growing alfalfa and row crops. Native vegetation consists primarily of rabbitbrush, big sagebrush (*Artemisia tridentata*), saltbush, and annual and perennial grass and weeds.

Victorville – The Victorville series consists of deep, moderately well-drained soils that have medium runoff and moderately rapid permeability. These soils formed in mixed alluvium, dominantly from granitic sources and occur on low river terraces and flood plains with slopes ranging from 0 to 2 percent at elevations of 2,200 to 2,800 amsl. Victorville soil is used mainly for irrigated crops such as alfalfa, pasture, and small grains. Native vegetation consists of rabbitbrush , salt grass (*Distichlis spicata*), annual weeds and grasses, and some cottonwood (*Populus* sp.) trees.

Villa – The Villa series consists of deep, moderately well-drained soils that have slow runoff and moderately rapid permeability. These soils formed in alluvium derived primarily from granitic rock and occur on river flood plains with slopes of 0 to 2 percent at elevations of 2,100 to 2,800 feet amsl. Villa soil is used mainly for irrigated crops such as alfalfa. Native vegetation consists of saltbush, mesquite, creosote bush, and annual grasses and forbs.

Wasco – The Wasco series consists of very deep, well-drained soils that have negligible or very low runoff and moderately rapid permeability. These soils formed in mixed alluvium derived mainly from igneous and/or sedimentary rock sources with slopes ranging from 0 to 5 percent at elevations of 225 to 1,000 feet amsl in the southern San Joaquin Valley and as high as 3,700 feet amsl in the Mojave Desert. Wasco soil is used primarily for growing field, forage, and row crops, and some areas are used for livestock grazing, wildlife habitat, recreation, and homesites. Native vegetation consists of *Atriplex* species and annual grasses and forbs.

As stated in the Arid West Supplement, RBC used the hydric soils list as a tool and made final hydric soils determinations based on field-collected data at representative wetland delineation sample points deemed appropriate on site as recorded on the attached Arid West Wetland Determination Data Forms (Appendix E) discussed further in Section 6.1.

4.2 HYDROLOGY

Per the review of on-line data sources, USGS NHD maps “Stream/River” (ephemeral), “Stream/River” (intermittent) (for the extent of the Mojave River), “Lake/Pond”, “Reservoir,” and “Wash” features in the review area as shown in Figure 2 (USGS 2021). USFWS NWI maps features with a designation of “Riverine,” “Freshwater Emergent Wetland,” “Freshwater Pond,” and

"Freshwater Forested/Shrub Wetland" in the review area as shown in Figure 4 (USFWS 2021).

Known hydrologic sources for the observed on-site drainages, discussed further below, are direct precipitation, upstream Mojave River flows, and runoff from surrounding roads and development. Based on field observations, features within the review area south of the railroad tracks generally drain southeast to northwest, following a slight change in topography towards the railroad tracks. The USGS NHD web map indicates flows from the Mojave River continue northeast and ultimately drain into Soda Dry Lake (USGS 2021).

4.3 VEGETATION

Table 3 provides vegetation community acreages within the review area based on vegetation mapping conducted by RBC biologists for the BNSF Lenwood Staging Track Component (BNSF Lenwood Component) during December 2018, August 2019, and June 2020 field visits, as well as constraints-level vegetation mapping conducted by RBC biologists on August 10, 2021 for portions of the review area that were not mapped as part of the BNSF Lenwood Component. Vegetation communities within the review area are shown on Figure 6. The review area primarily consists of active desert dunes and allscale scrub habitat. The vegetation community classifications generally follow *A Manual of California Vegetation* (Sawyer et al. 2009) and *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986).

Table 3. Vegetation Communities within Review Area

Vegetation Community/Land Cover Type	Acre(s)[1]
Active Desert Dunes	1,172.91
Active Desert Dunes – Disturbed	333.79
Agriculture	319.85
Allscale Scrub	1,065.88
Allscale Scrub – Disturbed	218.23
Creosote Bush Scrub	550.97
Creosote Bush Scrub – Disturbed	420.91
Developed	379.50
Disturbed Habitat	582.68
Ornamental	1.86
Pasture	16.07
Tamarisk Thickets	16.47
Unvegetated Channel	25.38
Total	5,104.49

[1] Acreages summed using raw numbers provided during GIS analysis (available upon request) and thus the sum of the total rounded numbers may not directly add up in this table.

Active Desert Dunes – Active desert dunes within the review area consist of generally barren expanses of actively moving sand with sparse to intermittent cover of seasonal annuals and scattered perennials, such as desert panicgrass (*Panicum urvilleanum*).

Active Desert Dunes – Disturbed – Active desert dunes – disturbed within the review area is similar to active desert dunes, though it has been substantially altered by human disturbance.

Agriculture – Agriculture within the review area supports large areas of monotypic crop plantings or disturbed, bare soils.

Allscale Scrub – Allscale scrub within the review area supports widely spaced stands of allscale (*Atriplex polycarpa*) with bare ground or weedy, non-native species including Bermuda grass (*Cynodon dactylon*) and tumbleweed (*Salsola australis*).

Allscale Scrub – Disturbed – Allscale scrub – disturbed within the review area is similar to allscale scrub, though it has been substantially altered by human disturbance.

Creosote Bush Scrub – Creosote bush scrub occurs on alluvial fans, bajadas, and upland slopes, and is dominated by widely spaced stands of creosote bush containing patches of open soil in between shrubs. Annual plant species and other various shrub species such as white bursage are also present.

Creosote Bush Scrub – Disturbed – Creosote bush scrub – disturbed within the review area is similar to creosote bush scrub, though it has been substantially altered by human disturbance.

Developed – Developed areas within the review area include the railroad tracks, roads, commercial buildings, residences, and storage yards. The high level of soil disturbance in these areas precludes native vegetation resulting in barren areas or sparse weedy vegetation.

Disturbed Habitat – Disturbed habitat within the review area has been graded, cleared, or used to the point where the land cannot support native vegetation. These areas consist of bare soils and non-native species.

Ornamental – Ornamental areas within the review area consist of non-native tree and grass species including Siberian elm (*Ulmus pumila*) and Bermuda grass.

Pasture – Pasture within the review area consists of a dense cover of grass species or row crops.

Tamarisk Thickets – Tamarisk thickets within the review area primarily consist of salt cedar (*Tamarix ramosissima*) with a few weedy species. Tamarisk thickets typically occur on sandy or gravelly soils within, or in close proximity to washes or streams and often become established in these areas following major disturbance. Tamarisk thickets observed within the review area appeared associated with road runoff rather than potentially jurisdictional aquatic resource areas/watercourses.

Unvegetated Channel – Unvegetated channel within the review area includes relatively large, well-defined waterways (including portions of the Mojave River) that are sandy, gravelly, and largely unvegetated. Vegetation within unvegetated channels is typically non-permanent and accounts for less than 10 percent total cover.

5 PRECIPITATION DATA AND ANALYSIS

RBC utilized the NRCS Agricultural Applied Climate Information System (AgACIS) database for the Barstow station (approximately 5 miles northeast from the review area's northeastern-most reach) to access pre-site visit precipitation data (NRCS 2022), as shown in Tables 4 and 5.

RBC also utilized the Corps' Antecedent Precipitation Tool (APT) to assess whether or not the delineation date occurred in a drier, average, or wetter than normal period for the review area (Corps 2020b). The Corps created the APT to assist with determining the normal periodic range of precipitation and other climate variables for the waterbody or waterbodies within a review area. Additionally, the APT can generally inform the regulatory agencies whether or not normal hydrologic/climatic conditions were on site at the time of the site visit and assist with completion of the Wetland Determination Data Forms (Appendix E).

5.1 PRECIPITATION SUMMARY

Tables 4 and 5 describe the estimated monthly total precipitation for the review area from October 2020 to July 2021 and August 2021 to May 2022 to provide the pertinent pre-site visit precipitation data from the NRCS database for the Barstow station (NRCS 2022).

Table 4. Precipitation Data for October 2020 – July 2021

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Monthly Total Precipitation (inch[es])	0.00	T[1]	0.17	0.39	0.01	M[1]	0.00	0.00	0.02	0.38

[1] Per AgACIS database: "Values of 'M' indicate missing data and 'T' indicates a trace."

Table 5. Precipitation Data for August 2021 – May 2022

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Monthly Total Precipitation (inch[es])	0.00	0.00	0.55	0.00	0.67	0.08	T[1]	T[1]	0.01	0.00

[1] Per AgACIS database: "Values of 'T' indicates a trace."

5.2 ANTECEDENT PRECIPITATION TOOL DATA

The APT provides three climatological parameters: Palmer Drought Severity Index (PDSI), season, and antecedent precipitation condition. The PDSI is a standardized index calculated on a monthly basis with PDSI value outputs ranging from -10 (extremely dry) to +10 (extremely wet) (National Oceanic and Atmospheric Administration [NOAA] 2020) to assess drought conditions (i.e., PDSI Class). The APT determines wet versus dry season based on related procedures provided in the applicable regional supplement for the review area (i.e., Arid West Supplement). The antecedent precipitation condition is classified as drier than normal with an antecedent runoff condition (ARC) score less than 10; normal with an ARC score between 10 to 14; or wetter than normal with an ARC score greater than 14 (Sprecher & Warne 2000).

Table 6 summarizes the key data extrapolated from the APT output to compare the current year 30-day rolling total to the averaged 30-year normal for the weather stations with comprehensive historical data within 30 miles of the review area: estimated drought conditions, wet or dry season determination, ARC score, and antecedent precipitation condition. The APT output provided in Appendix F and summarized in Table 6 noted a PDSI class of "severe drought" during the October 2021 and December 2021 field surveys and a PDI class of "extreme drought" during the August 2021, March 2022, April 2022, May 2022, and June 2022 field surveys. The precipitation and climatic conditions were classified as "normal conditions" for the review area during the October 2021, December 2021, April 12 and 13, 2022, May 2022, and June 2022 field surveys; "wetter than normal" for the review area during the August 2021 field survey; and "drier than normal" for the review area during the March 2022 and April 15, 2022 field surveys based on the 30-day rolling totals for the three months preceding the field survey dates. Field staff considered the "severe drought" and "extreme drought" conditions during the field delineation; evaluated how the drought conditions could affect the data collected on the Arid West Wetland Determination Data Forms and Ephemeral and Intermittent Streams OHWM Datasheets (Appendix E); and used recent and historic aerials to ensure appropriate representation of the extent of the on-site aquatic features for this ARDR considering the 2021 and 2022 drought conditions.

Table 6. Antecedent Precipitation Tool Data for Review Area

Field Survey Date	PDSI Value	PDSI Class	Season	ARC Score	Antecedent Precipitation Condition
8/10/2021	-4.11	Extreme drought	Dry season	17	Wetter than normal
10/20/2021	-3.54	Severe drought	Dry season	12	Normal conditions
12/01/2021	-3.95	Severe drought	Wet season	14	Normal conditions
3/16/2022	-4.45	Extreme drought	Dry season	7	Drier than normal
3/23/2022	-4.45	Extreme drought	Dry season	9	Drier than normal
3/24/2022	-4.45	Extreme drought	Dry season	8	Drier than normal
4/12/2022	-4.45	Extreme drought	Dry season	11	Normal conditions
4/13/2022	-4.45	Extreme drought	Dry season	11	Normal conditions
4/15/2022	-4.85	Extreme drought	Dry season	6	Drier than normal
5/17/2022	-4.85	Extreme drought	Dry season	11	Normal conditions
6/20/2022	-5.17	Extreme drought	Dry season	12	Normal conditions

6 DESCRIPTION OF OBSERVED POTENTIAL AQUATIC RESOURCES

The following descriptions of observed potential aquatic resources within the review area document the presence or absence of aquatic resource indicators per the methods discussed in Section 3. The subsections below are intended to be reviewed independently under each agency's purview unless otherwise directed in the text (i.e., the aquatic resource description is the same between two or more agencies) given the various regulatory definitions and standards per each

agency. Areas that were investigated but determined to not qualify as a potential aquatic resource are discussed briefly in Section 6.4.

Appendix G provides site photographs of the features within the review area; all figures in the Figure 5 series display representative photo points.

6.1 CORPS/RWQCB WETLAND WATERS OF THE U.S./STATE

RBC collected data at 11 representative Wetland Data Form Points (WDP) within the review area to determine the presence or absence of jurisdictional wetland waters of the U.S./State (WDP 1 through 11; Figures 5A and 5B; Appendix E). Note that data at WDP 1 through WDP 8 was originally collected by RBC regulatory specialists for the BNSF Lenwood Component during December 2018 and August 2019 field visits. RBC regulatory specialists verified the conditions at WDP 1 through WDP 8 and updated the associated datasheets accordingly during the April 2022 field visits. Overall, conditions at WDP 1 through WDP 8 remained consistent from 2018/2019 to 2022. The delineated aquatic features on site did not meet the appropriate wetland parameters to qualify as wetland waters of the U.S./State based on the data collected during the field delineation, as discussed further in Section 6.2.

6.2 CORPS/RWQCB NON-WETLAND WATERS OF THE U.S./STATE

RBC collected data at 29 representative OHWM Datasheet Points (ODPs) within the review area to determine the presence of potential waters of the U.S. (ODP 1 through 29; Figures 5A and 5B; Appendix E). RBC selected representative ODP locations as there were multiple dry washes (i.e., features) with similar hydrology or OHWM characteristics (Appendix E). Note that data at ODP 1 through ODP 22 was originally collected by RBC regulatory specialists for the BNSF Lenwood Component during December 2018 and August 2019 field visits. RBC regulatory specialists reverified the conditions at ODP 1 through ODP 22 and updated the associated datasheets accordingly during the April 2022 field visits. Overall, conditions at ODP 1 through ODP 22 remained consistent from 2018/2019 and 2022. Overall, the review area supports 109 features (Non-Wetland Water [NWW-] 1 through NWW-109 [Mojave River]) which vary from single-thread, small, unvegetated dry washes to large, braided, unvegetated dry wash systems to the larger Mojave River. The OHWMs for NWW-1 through NWW-108 varied in width from an average minimum of 4 feet and an average maximum of 9 feet; these features were primarily unvegetated and surrounded by allscale (FACU), four-wing saltbush/shadscale (*Atriplex canescens*; NL/UPL), creosote bush (NL/UPL), and white bursage (NL/UPL). The OHWM for the portions of the NWW-109 (Mojave River) within the review area ranged from approximately 500 feet to 1,400 feet; this feature was sparsely vegetated and generally composed of active desert dune habitat. See Appendix H, Table H-1 for the estimated OHWM and representative OHWM and wetland data for NWW-1 through NWW-109 (Mojave River).

All of the delineated features, except NWW-9, NWW-43, NWW-60, NWW-98, and NWW-109 (Mojave River), generally drain southeast to northwest (Figures 5A and 5B). Figures 5A and 5B display the limits of where OHWM indicators were observed within the review area. There are 19 sets of culvert/railroad crossings located along the railroad tracks within the review, which could allow for flows to continue north. NWW-9, NWW-43, and NWW-98 commence at the dirt road north of the railroad tracks before continuing northwest and off site. NWW-60 is a small, localized

feature north of the railroad tracks that receives flows off the dirt road north of the railroad tracks. NWW-109 (Mojave River) is a sparsely vegetated, dry, sandy wash that generally flows southwest to northeast before continuing off site.

Staff concluded based on field observations that NWW-1 through NWW-108 were ephemeral features that only receive flows from runoff in direct response to precipitation; NWW-109 (Mojave River) is an intermittent feature based on field observations and the USGS NHD database (USGS 2021). The general characteristics of each of the observed features within the review area are provided in Appendix H, Table H-1. Staff did not observe standing water at any of the features during the 2021 and 2022 field surveys.

Staff determined the presence of an OHWM at one location within each of the following features: NWW-20, NWW-36, NWW-44, NWW-45, NWW-60, NWW-68, NWW-69, NWW-70, NWW-73, NWW-76, NWW-82, NWW-85, NWW-87, NWW-90, NWW-91, NWW-92, NWW-94, NWW-95, and NWW-97 (Appendix E, ODP 1 – 4, 8 – 12, 14 – 19, 21, 24, 27, and 29). Staff determined the presence of an OHWM at two locations within NWW-80 (Appendix E, ODP 13 and 22) and five locations within NWW-89 (Appendix E, ODP 5 – 7, 23, and 25). Indicators of an OHWM for NWW-1 through NWW-108 generally included a change in average sediment texture and vegetation cover between the active floodplain and upland areas as well as a typically small break in slope along the active channel (Appendix E). The OHWMs present at these locations were representative of the OHWM within NWW-1 through NWW-19, NWW-21 through NWW-35, NWW-37 through NWW-43, NWW-46 through NWW-59, NWW-61 through NWW-67, NWW-71 through NWW-72, NWW-74, NWW-75, NWW-77 through NWW-79, NWW-81, NWW-83, NWW-84, NWW-86, NWW-88, NWW-93, NWW-93, and NWW-98 through NWW-108. Staff also determined the presence of an OHWM at two locations within NWW-109 (Mojave River) (Appendix E, ODP 26 and 28). Indicators of an OHWM for NWW-109 (Mojave River) included a break in bank slope, change in vegetation cover and species, and a change in average sediment texture between the active floodplain and upland/low terrace areas (Appendix E, ODP 26 and 28).

6.3 CDFW STREAMBED AND WATERCOURSE

Figure 5C displays the estimated extent of streambed and associated watercourse within the review area. The extent of streambed was delineated based on the top of the channel banks and the extent of the associated watercourse was delineated beyond the streambed, consisting of associated features such as low-flow, active, and braided channels and banks associated with islands, and secondary channels within the bounds of the larger channel complex (Vyverberg & Brady 2013).

Overall, the features observed within the review area (NWW-1 through NWW-109 [Mojave River]) vary from single-thread, small, unvegetated dry streambeds with a well-defined bed and bank to large watercourses with multiple tributaries and vegetated islands to the larger Mojave River. No associated riparian or wetland habitat occurs within the review area. NWW-1 through NWW-108 vary in width from an average minimum of 4 feet and an average maximum of 12 feet and were primarily unvegetated and surrounded by allscale (FACU), four-wing saltbush/shadscale (*Atriplex canescens*; NL/UPL), creosote bush (NL/UPL), and white bursage (NL/UPL). Portions of NWW-109 (Mojave River) within the review area varied in width from approximately 50 feet to 3,100 feet; this feature was sparsely vegetated and generally composed of active desert dune habitat. See

Appendix H, Table H-2 for the estimated extent of CDFW jurisdiction for NWW-1 through NWW-109 (Mojave River).

All of the delineated features, except NWW-9, NWW-43, NWW-60, NWW-98, and NWW-109 (Mojave River), generally drain southeast to northwest (Figure 5C). Figure 5C displays the limits of where streambed indicators were observed within the review area. There are 19 sets of culvert/railroad crossings located along the railroad tracks within the review area, which could allow for flows to continue north. NWW-9, NWW-43, and NWW-98 commence at the dirt road north of the railroad tracks before continuing northwest and off site. NWW-60 is a small, localized feature north of the railroad tracks that receives flows off the dirt road north of the railroad tracks.

The Mojave River (NWW-109) is a sparsely vegetated, dry, sandy wash that extends into active desert dune habitat and generally flows southwest to northeast before continuing off site. Overall, the mapped watercourses within the review area are associated with the following delineated streambed: NWW-27, NWW-28, NWW-32, NWW-36, NWW-37, NWW-40, NWW-45, NWW-49, NWW-59, NWW-68 – NWW-70, NWW-76, NWW-80, NWW-89, and NWW-106. Watercourse A was associated with a streambed that occurs off site and upstream, and as such, is labeled separately. The streambed bed and bank associated with Watercourse A was difficult to distinguish within the review area (i.e, no OHWM or well-defined bed and bank) and thus no streambed (NWW) was mapped within this on-site watercourse area; as such, this on-site watercourse area is labeled separately as Watercourse A. As further detailed in Section 3.2.3, the extent of the Mojave River was delineated based on the presence of field indicators, including evidence of ponding (e.g., mud cracks and moist soils) and secondary channels (Appendix G, Photo 43 and 44), as well as topography and 50- and 100-year floodplain modeling for the Mojave River; no field indicators of flows were observed within the agricultural fields just south of the Mojave River.

The general characteristics of each of the observed features within the review area are provided in Appendix H, Table H-2.

6.4 OTHER FEATURES

Field staff further investigated several areas with potential aquatic resource indicators, including a swale and two basins, as described below. Additionally, WDP 6 was taken adjacent to a dirt road and old concrete berm structure in a concave area mapped as containing hydric soils per the NRCS (Figures 5A – 5C; Figure 4; Appendix E, WDP 6; Appendix G, Photo 22); WDP 5, WDP 7, WDP 8, and WDP 9 were taken in areas dominated by salt cedar (FAC) (Figures 5A – 5C; Appendix E, WDP 5, 7, 8, and 9; Appendix G, Photos 15, 26, 31, and 34); and WDP 11 was taken in a concave area exhibiting surface soil cracks and some ponding on aerial imagery (Figures 5A – 5C; Appendix E, WDP 11; Appendix G, Photo 40). These areas did not meet all three federal wetland parameters, did not display an OHWM or exhibit bed and bank indicators, and did not appear to convey surface flows.

Furthermore, the features discussed in this section are not discussed further in this ARDR as they did not have aquatic resource field indicators and are not anticipated to be jurisdictional under Corps, RWQCB, or CDFW regulations, policy, and/or guidance based on the information provided in this section.

Swale 1

One roadside swale (S-1; Figures 5A – 5C) was observed during the field delineation. S-1 is a slightly concave drainage area adjacent to National Trails Highway within the southwest portion of the review area that did not display an observable OHWM or bed and bank and instead appeared to convey surface flows as runoff from National Trails Highway. ODP 20, taken in an area of disturbed habitat, contained a slight change in vegetation cover between the swale and the adjacent upland area; however, ODP 20 did not show evidence of a break in slope or a defined bed and bank between the swale and adjacent uplands. Additionally, ODP 20 did not contain a change in average sediment texture, change in upland vegetation species, or any additional OHWM indicators between the swale and the adjacent upland area (Figures 5A – 5C; Attachment E, ODP 20; Appendix G, Photo 25). Thus, this swale was determined to not have an OHWM or defined bed and bank and did not appear to convey flows to downstream aquatic resources via observed flow patterns, culverts, or other flow paths and thus does not provide/has no impact on downstream beneficial uses and/or aquatic resource functions.

Basin 1 and 2

Two basins (B-1 and B-2; Figures 5A – 5C) that occur within the northwestern portion of the review area displayed some concavity within the otherwise flat landscape. Note that RBC was not allowed to access B-1 or B-2; as such, these areas were assessed based on a review of current and historic aerial imagery (Appendix D). B-1 consisted of an unvegetated, artificially excavated basin used for recreational purposes (Figures 5A – 5C; Google Earth Pro 2022; C. Stevens, personal communication, May 26, 2022). As discussed previously in Section 4, construction of B-1 began around May 2009 along with installation of the nearby basketball court, fishing docks, and playground (Google Earth Pro 2022; Appendix D; C. Stevens, personal communication, May 26, 2022). Based upon the absence of vegetation within B-1 in aerial imagery from 2009 through 2020 and the similar conditions observed at WDP 11 (concavity and ponding visible on aerial imagery), B-1 did not meet all three wetland parameters.

B-2 consisted of a sparsely vegetated, artifically excavated basin used for irrigation purposes (UCSB n.d.; NetrOnline 2022; Appendix D; C. Stevens, personal communication, May 26, 2022). As discussed previously in Section 4, B-2 was constructed between July 1973 and December 1984 (UCSB n.d.; NetrOnline 2022; Appendix D; C. Stevens, personal communication, May 26, 2022). The conditions observed at WDP 7 (slight concavity and area dominated by salt cedar) and WDP 11 (concavity and ponding visible on aerial imagery) were representative of the conditions within B-2; as such, B-2 did not meet all three wetland parameters.

Both basins do not convey flows to downstream aquatic resources via observed flow patterns, culverts, or other flow paths. As such, B-1 and B-2 would not qualify as aquatic resources jurisdictional per the Corps or RWQCB, as they are maintained artificial structures with no downstream connectivity and which do not provide/have no impact on downstream beneficial uses and/or aquatic resource functions. B-1 and B-2 would also not qualify as streambed jurisdictional per the CDFW, as B-1 and B-2 lacked association with a natural feature/streambed and did not support wildlife habitat.

Field staff did not observe additional areas with potential aquatic resource indicators, including other areas showing evidence of drainage, ponding, or flow patterns. Data collected for the

features discussed in Sections 6.1, 6.2, and 6.3 defined the extent of aquatic resource and upland areas within the review area.

7 DEVIATION FROM NWI AND NHD

The delineated extent of several of the non-wetland water/dry wash features generally occur within the features mapped by the USFWS NWI as "Riverine" (Figure 4) and by the USGS as "Stream/River" (Figure 2). The delineated extent of B-1 generally occurs within the feature mapped by the USFWS NWI as "Freshwater Pond" (Figure 4) and by the USGS NHD as "Reservoir" (Figure 2). The delineated extent of B-2 generally occurs within the feature mapped by the USGS NHD as "Lake/Pond" (Figure 2). The delineated extent of the Mojave River (NWW-109) generally occurs within the feature mapped by the USFWS NWI as "Riverine" (Figure 4) and by the USGS NHD as "Wash" and "Riverine" (Figure 2).

8 RESULTS AND CONCLUSIONS

The results provided in this section include the extent of delineated aquatic resources within the review area based on observed field indicators of potential waters of the U.S., waters of the State, and CDFW streambed and associated wetland and/or riparian habitat per the methodologies discussed in Section 3. Table 7 provides a summary of the aquatic resources delineated within the review area per agency. Further details for each aquatic resource (NWW-1 through NWW-109, as well as Watercourse A for CDFW) are provided in Appendix H.

This section, however, does not analyze the Corps' jurisdictional status of the delineated features per the current regulations, guidance, and standard operating procedures. A request for the Corps to complete a PJD based on the information provided in this report is included as Appendix B.

Table 7. Total Acreages of Delineated Aquatic Resources within Review Area

Agency	Aquatic Resource Type	Acres	Linear Feet
Corps	Non-Wetland Waters of the U.S.	125.58	177,864
	Total Corps Aquatic Resources	***125.58***	***177,864***
RWQCB	Non-Wetland Waters of the State	125.58	177,864
	Total RWQCB Aquatic Resources	***125.58***	***177,864***
CDFW	Unvegetated Streambed	34.49	195,124
	Vegetated Streambed	580.30	
	Watercourse	55.18	N/A[1]
	Total CDFW Aquatic Resources[2]	***669.96***	***195,124***

[1] Linear feet not calculated for watercourse to avoid redundant linear foot calculation where such areas overlap with streambed.
[2] Acreages and linear feet totals were summed using raw numbers provided during GIS analysis (available upon request) and thus, the sum of the total rounded numbers may not directly add up in this table.

8.1 CORPS

NWW-1 through NWW-109 (Mojave River) displayed clear indicators of an OHWM, such as a break in bank slope, change in average sediment texture, and change in vegetation cover between the drainage and adjacent uplands (Appendix E); however, these features did not meet the three wetland parameters.

As such, NWW-1 through NWW-109 (Mojave River) may be considered non-wetland waters of the U.S. Approximately 125.58 acres (177,864 linear feet) of potential non-wetland waters of the U.S. associated with NWW-1 through NWW-109 (Mojave River) occur within the review area as further detailed in Appendix H, Table H-1 and as shown on Figure 5A. The ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet is included as Appendix I.

8.2 RWQCB

NWW-1 through NWW-109 (Mojave River) displayed clear indicators of an OHWM, such as a break in bank slope, change in average sediment texture, and change in vegetation cover between the drainage and adjacent uplands (Appendix E); however, these features did not meet the three wetland parameters.

As such, NWW-1 through NWW-109 (Mojave River) may be considered non-wetland waters of the State. Approximately 125.58 acres (177,864 linear feet) of potential non-wetland waters of the U.S. associated with NWW-1 through NWW-109 (Mojave River) occur within the review area, as further detailed in Appendix H, Table H-1 and as shown on Figure 5B.

8.3 CDFW

NWW-1 through NWW-108 and the Mojave River (NWW-109) qualify as CDFW streambed; NWW-27, NWW-28, NWW-32, NWW-36, NWW-37, NWW-40, NWW-45, NWW-49, NWW-59, NWW-68 – NWW-70, NWW-76, NWW-80, NWW-89, NWW-106, and Watercourse A include associated CDFW watercourse (Figure 5C).

Approximately 580.29 acres (17,982 linear feet) of vegetated streambed, 34.49 acres (177,143 linear feet) of unvegetated streambed, and 55.18 acres of associated watercourse occur within the review area, as further detailed in Appendix H, Table H-2 and as shown on Figure 5C.

8.4 DISCLAIMER STATEMENT

The aquatic resources acreages and linear feet estimated in this section represent the existing conditions during the time of the field surveys. Please note that the applicable agencies will make final jurisdictional determinations. RBC recommends early coordination with the resource agencies to determine the final jurisdictional boundaries, applicable permitting processes, compensatory mitigation requirements, and other potential permitting issues specific to the proposed work within the review area. Agency representatives may request to access the site to field-verify the results of this ARDR with the applicant, or a designated representative.

The information provided in this report should remain valid for up to five years from the date of the field effort for the jurisdictional delineation unless site conditions change substantially, or a regulatory agency requires an updated report.

9 CONTACT INFORMATION

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Agent:

Sarah Krejca

Rocks Biological Consulting

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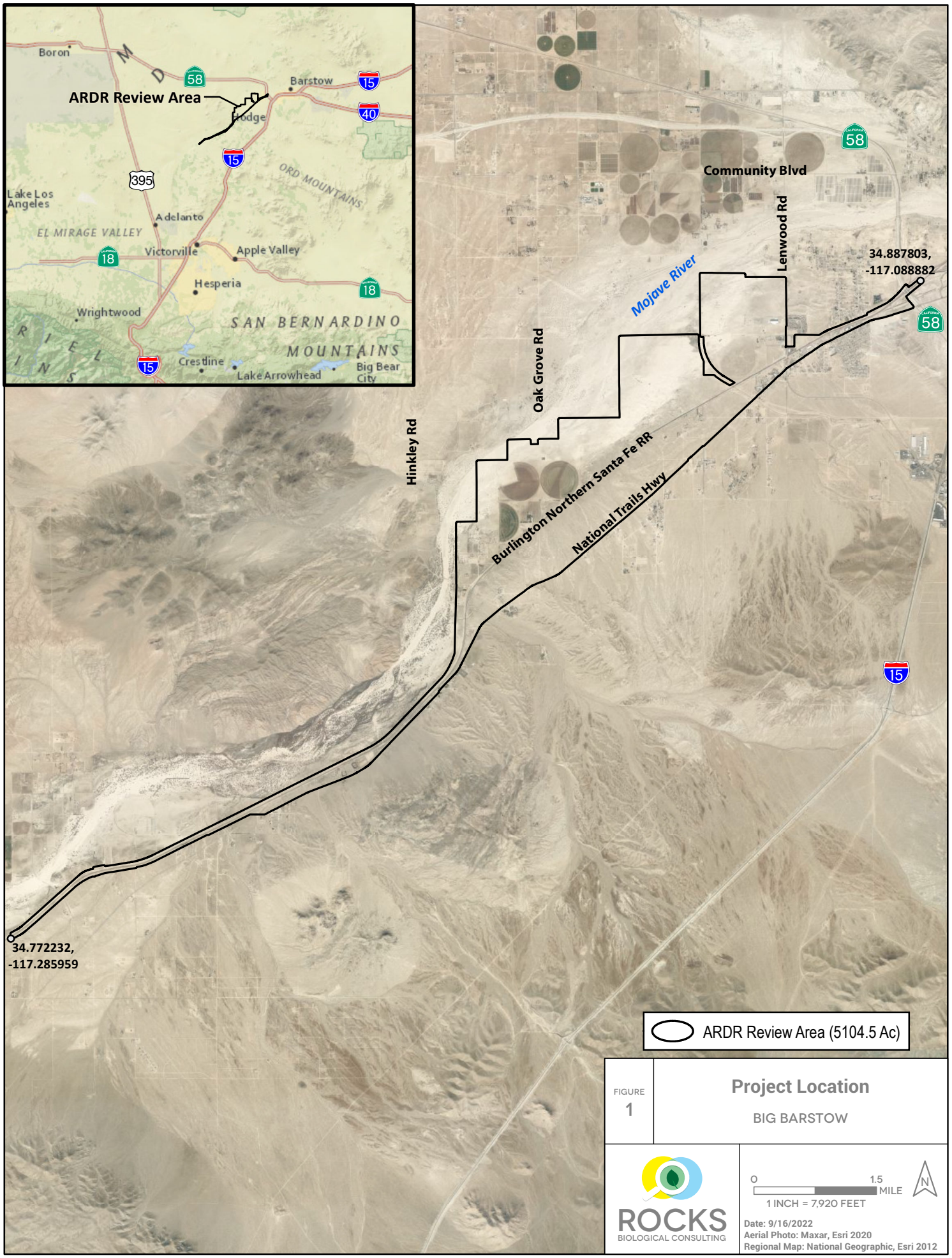
San Diego, CA 92107

sarah@rocksbio.com

619-813-8790

Agency access to the review area can be coordinated with the applicant and/or agent upon request.


ARDR Review Area
Boron
Barstow
Lodge
Lake Los Angeles
Adelanto
EL MIRAGE VALLEY
Victorville
Apple Valley
Hesperia
Wrightwood
SAN BERNARDINO MOUNTAINS
Crestline
Lake Arrowhead
Big Bear City
ORD MOUNTAINS
Community Blvd
Lenwood Rd
Mojave River
34.887803,
-117.088882
Oak Grove Rd
Hinkley Rd
Burlington Northern Santa Fe RR
National Trails Hwy
34.772232,
-117.285959
ARDR Review Area (5104.5 Ac)
FIGURE
1
Project Location
BIG BARSTOW
ROCKS
BIOLOGICAL CONSULTING
0
1.5
MILE
1 INCH = 7,920 FEET
N
Date: 9/16/2022
Aerial Photo: Maxar, Esri 2020
Regional Map: National Geographic, Esri 2012

ARDR Review Area (5104.5 Ac)
Township, Range and Section
USGS National Hydrography Dataset (NHD)
Wash
Lake/Pond
Reservoir
Stream/River

09N 02W 9
34.887803, -117.088882
09N 02W 7
09N 03W 12
09N 02W 8
09N 02W 18
09N 02W 17
09N 03W 14
09N 03W 13
09N 02W 19
09N 03W 22
09N 03W 23
09N 03W 24
09N 03W 25
09N 03W 28
09N 03W 27
09N 03W 26
09N 03W 35
09N 03W 33
09N 03W 34
08N 03W 3
08N 03W 4
08N 03W 5
08N 03W 9
08N 03W 7
08N 03W 8
08N 04W 12
08N 04W 14
08N 04W 13
08N 04W 15
34.772232, -117.285959
08N 04W 22

Mojave River
Oak Grove Rd
Burlington Northern Santa Fe RR
National Trails Hwy
Grandview
Lenwood
15

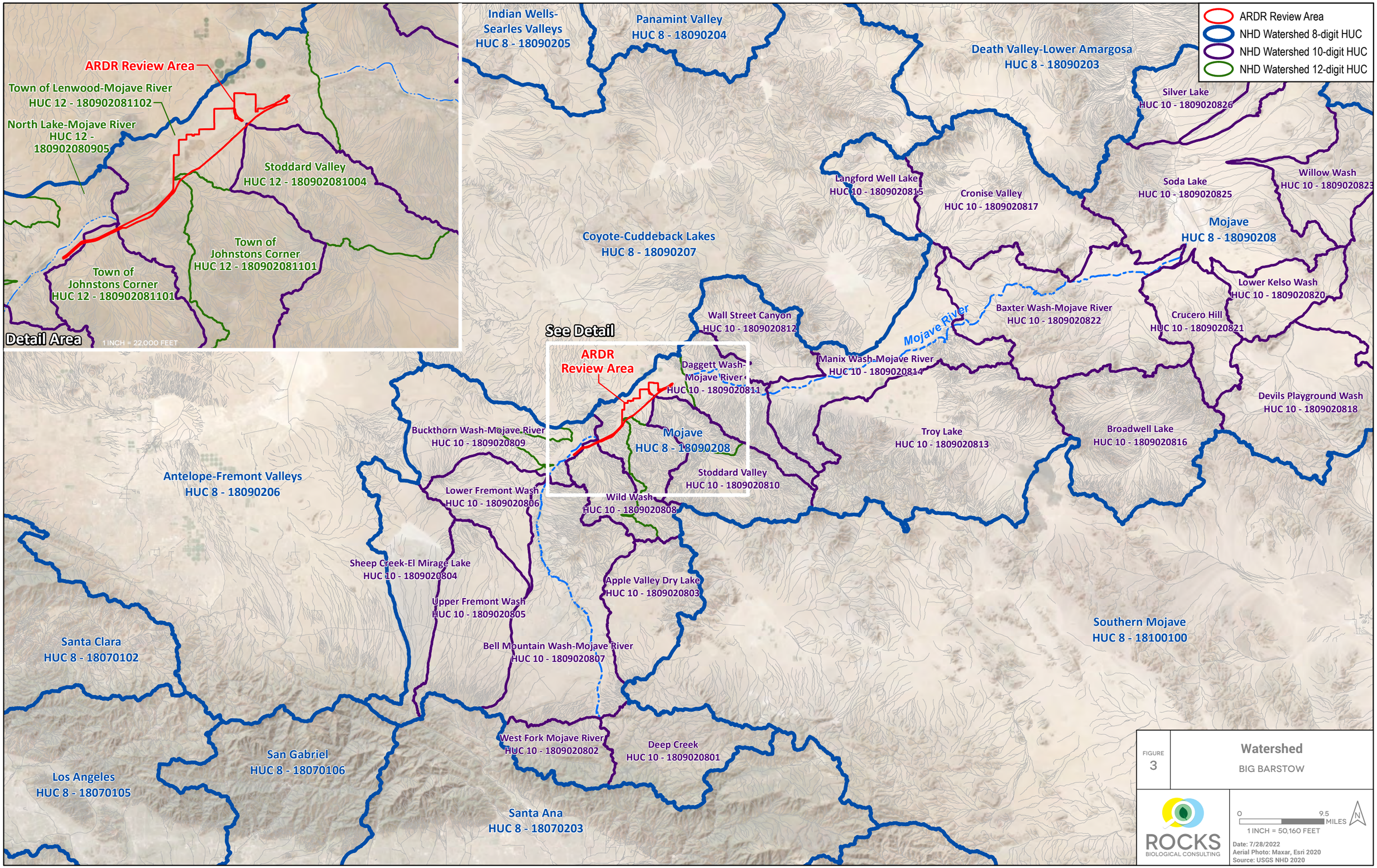
FIGURE 2

USGS Topo and NHD

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 4,500 FEET
1 INCH = 4,500 FEET
Date: 9/16/2022
Source: USGS NHD 2020
USGS 7.5' Quadrangles (Hodge; Hinkley; Barstow SE; Barstow)


ARDR Review Area
NHD Watershed 8-digit HUC
NHD Watershed 10-digit HUC
NHD Watershed 12-digit HUC
Indian Wells-Searles Valleys HUC 8 - 18090205
Panamint Valley HUC 8 - 18090204
Death Valley-Lower Amargosa HUC 8 - 18090203
Silver Lake HUC 10 - 1809020826
Willow Wash HUC 10 - 1809020823
Soda Lake HUC 10 - 1809020825
Langford Well Lake HUC 10 - 1809020815
Cronise Valley HUC 10 - 1809020817
Mojave HUC 8 - 18090208
Coyote-Cuddeback Lakes HUC 8 - 18090207
Lower Kelso Wash HUC 10 - 1809020820
Baxter Wash-Mojave River HUC 10 - 1809020822
Crucero Hill HUC 10 - 1809020821
Mojave River
Wall Street Canyon HUC 10 - 1809020812
Manix Wash-Mojave River HUC 10 - 1809020814
Devils Playground Wash HUC 10 - 1809020818
Broadwell Lake HUC 10 - 1809020816
Troy Lake HUC 10 - 1809020813
Buckthorn Wash-Mojave River HUC 10 - 1809020809
Antelope-Fremont Valleys HUC 8 - 18090206
Lower Fremont Wash HUC 10 - 1809020806
Wild Wash HUC 10 - 1809020808
Stoddard Valley HUC 10 - 1809020810
Sheep Creek-El Mirage Lake HUC 10 - 1809020804
Upper Fremont Wash HUC 10 - 1809020805
Apple Valley Dry Lake HUC 10 - 1809020803
Bell Mountain Wash-Mojave River HUC 10 - 1809020807
Southern Mojave HUC 8 - 18100100
Santa Clara HUC 8 - 18070102
West Fork Mojave River HUC 10 - 1809020802
Deep Creek HUC 10 - 1809020801
San Gabriel HUC 8 - 18070106
Los Angeles HUC 8 - 18070105
Santa Ana HUC 8 - 18070203
See Detail
ARDR Review Area
Daggett Wash-Mojave River HUC 10 - 1809020811
Mojave HUC 8 - 18090208
Stoddard Valley HUC 10 - 1809020810
Wild Wash HUC 10 - 1809020808
Detail Area
1 INCH = 22,000 FEET
ARDR Review Area
Town of Lenwood-Mojave River HUC 12 - 180902081102
North Lake-Mojave River HUC 12 - 180902080905
Stoddard Valley HUC 12 - 180902081004
Town of Johnstons Corner HUC 12 - 180902081101
Town of Johnstons Corner HUC 12 - 180902081101
FIGURE 3
Watershed
BIG BARSTOW
ROCKS BIOLOGICAL CONSULTING
0 9.5 MILES
1 INCH = 50,160 FEET
N
Date: 7/28/2022
Aerial Photo: Maxar, Esri 2020
Source: USGS NHD 2020

ARDR Review Area (5104.5 ac)

Wetland Data Form Point (WDP)

National Wetlands Inventory (NWI)

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Riverine
- Freshwater Pond

NRCS Soils

- Bryman Loamy Fine Sand, 2 to 5 Percent Slopes
- Cajon Gravelly Sand, 2 to 15 Percent Slopes
- Cajon Loamy Sand, 5 to 9 Percent Slopes
- Cajon Sand, 0 to 2 Percent Slopes*
- Cajon Sand, 2 to 9 Percent Slopes
- Cajon-Arizo Complex, 2 to 15 Percent Slopes
- Cajon-Wasco, Cool Complex, 2 to 9 Percent Slopes*
- Cave Loam, Dry, 0 to 2 Percent Slopes*
- Dune Land*
- Helendale Loamy Sand, 0 to 2 Percent Slopes
- Helendale Loamy Sand, 2 to 5 Percent Slopes
- Joshua Loam, 2 to 5 Percent Slopes
- Nebona-Cuddeback Complex, 2 to 9 Percent Slopes*
- Norob-Halloran Complex, 0 to 5 Percent Slopes*
- Riverwash*
- Rock Outcrop-Lithic Torriorthents Complex, 15 to 50 Percent Slopes
- Rosamond Loam, Saline-Alkali*
- Victorville Sandy Loam*
- Villa Loamy Sand*
- Villa Loamy Sand, Hummocky*

*Soils rated as hydric per the NRCS.

34.887803, -117.088882

34.772232, -117.285959

WDP 1
WDP 2
WDP 3
WDP 4
WDP 5
WDP 6
WDP 7
WDP 8
WDP 9
WDP 10
WDP 11

Mojave River

Oak Grove Rd

Burlington Northern Santa Fe RR

National Trails Hwy

Lenwood Rd

58

15

FIGURE 4

NRCS Soils Survey Data and NWI

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 4,500 FEET

1 INCH = 4,500 FEET

N

Date: 9/16/2022

Aerial Photo: San Bernardino County 2020, Esri

Source: USFWS NWI 2019; USDA NRCS 2018



ARDR Review Area (5104.5 ac)[1]

Culvert

Flow Direction

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

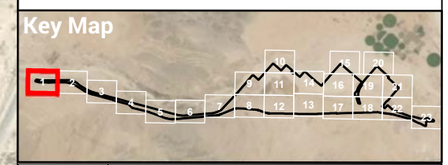


FIGURE 5A

PAGE 1 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Railroad Crossing

Flow Direction

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

11'-15'

24'-30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

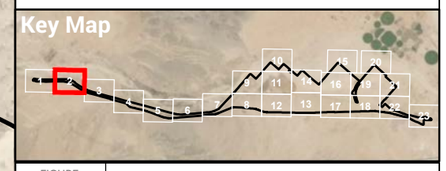


FIGURE 5A

PAGE 2 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Flow Direction

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'
4'-6'
24'-30'
>30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

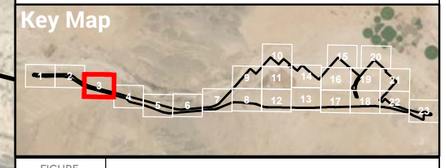


FIGURE 5A

PAGE 3 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

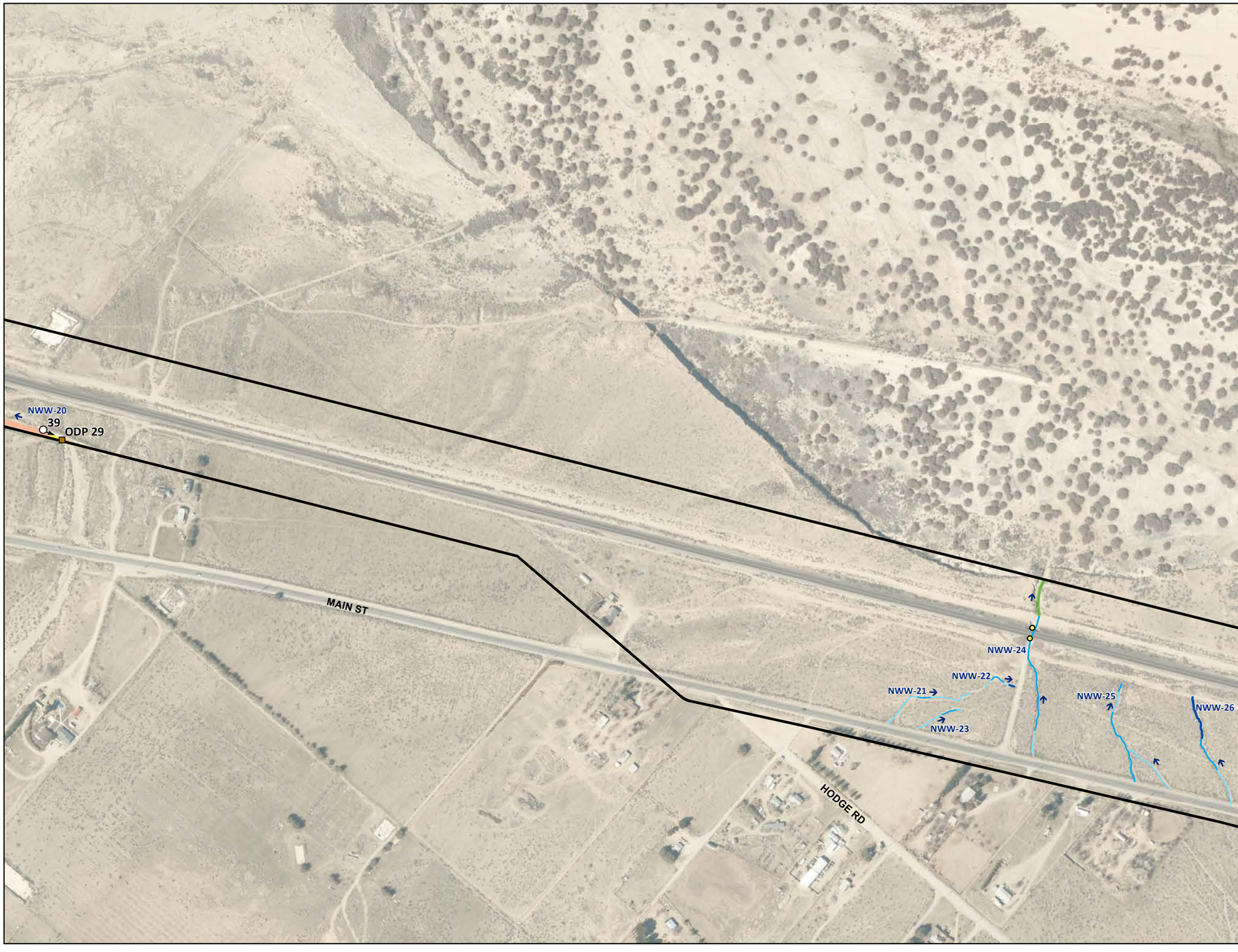
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Railroad Crossing

OHWM Datasheet Point (ODP)

Flow Direction

Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

16'-21'

24'-30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5A

PAGE 4 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Railroad Crossing

Wetland Data Form Point (WDP)

Flow Direction

Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

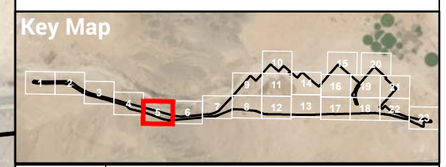


FIGURE 5A

PAGE 5 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

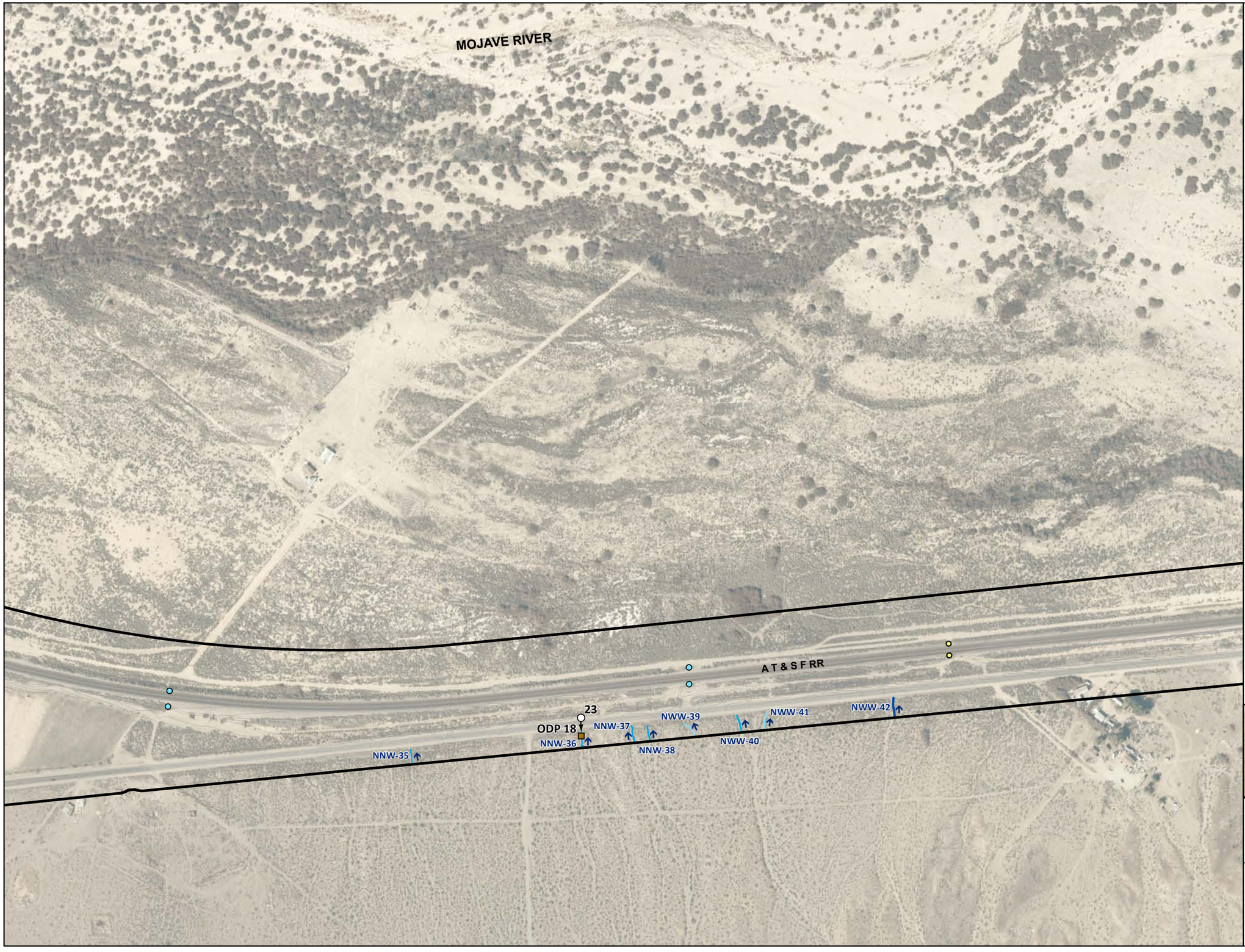
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Culvert

Railroad Crossing

OHWM Datasheet Point (ODP)

Flow Direction

Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

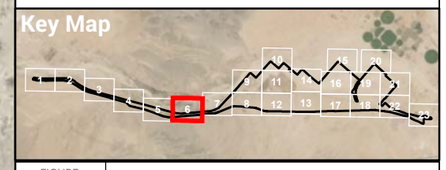


FIGURE 5A

PAGE 6 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

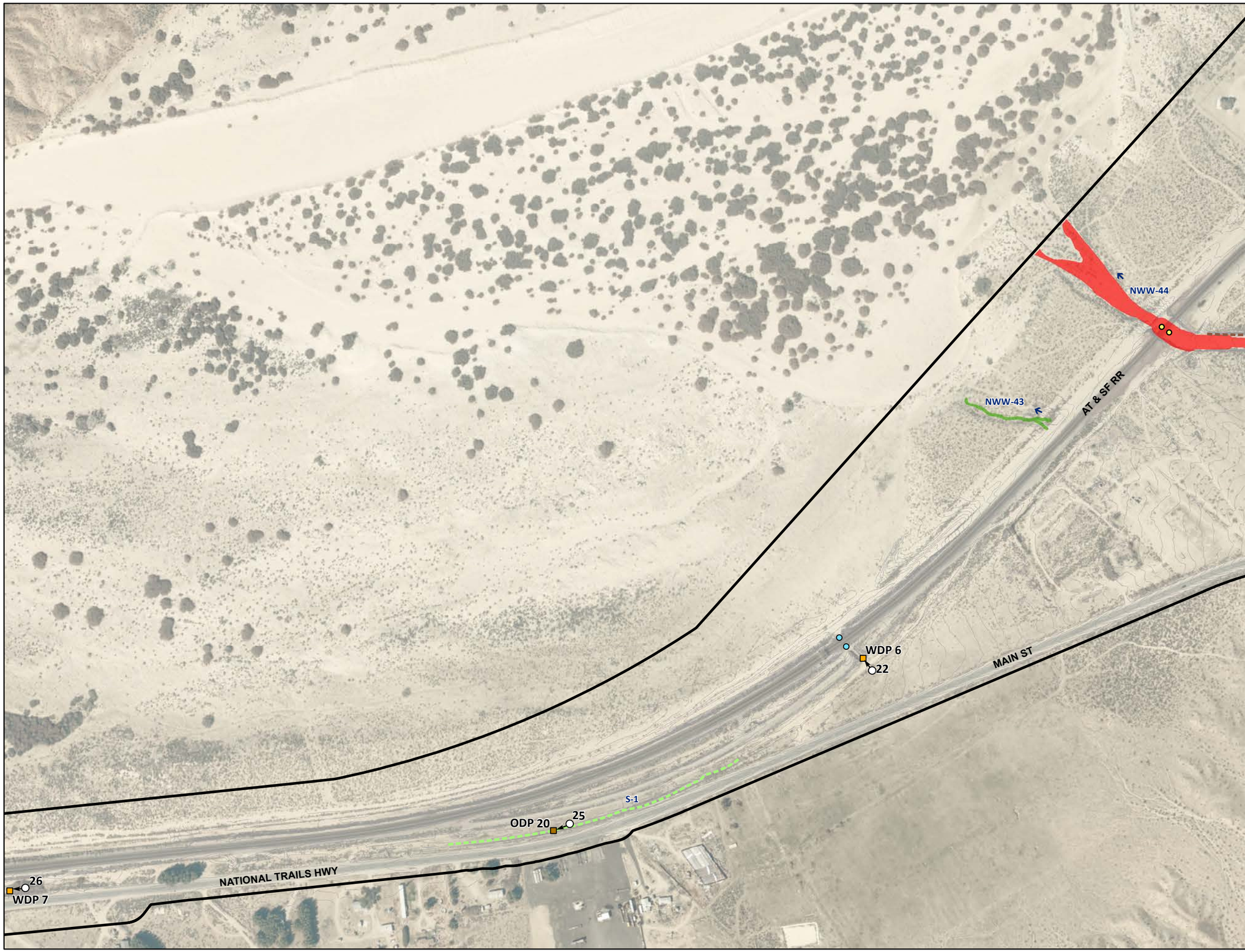
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Berm - Earthen Lined
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

11'-15'
>30'

Other Features[3]

Swale

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking OHWM or three-parameter wetland, and thus anticipated to be non-jurisdictional.

Key Map

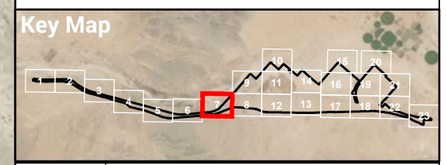


FIGURE 5A

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Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

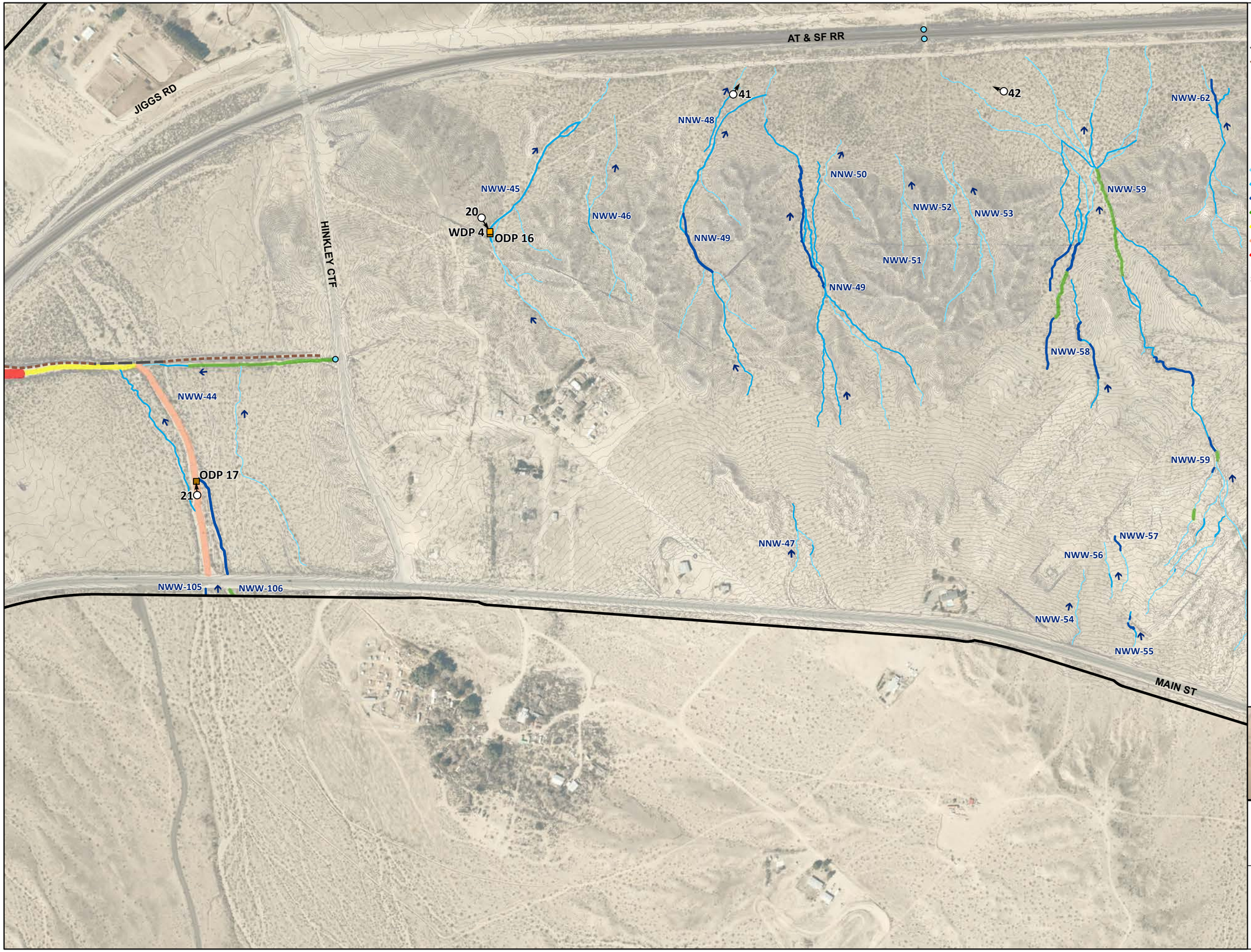
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Berm - Concrete Slab
Berm - Earthen Lined
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

- 1'-3'
- 4'-6'
- 7'-10'
- 11'-15'
- 16'-21'
- 24'-30'
- >30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

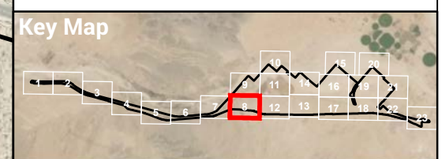


FIGURE 5A

PAGE 8 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

4'-6'
11'-15'
>30'

Other Features[3]

Basin

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking OHWM or three-parameter wetland, and thus anticipated to be non-jurisdictional.

Key Map

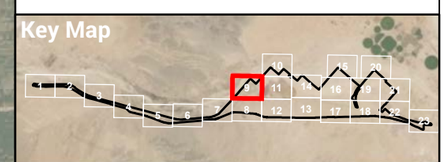


FIGURE 5A

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Corps Aquatic Resources

BIG BARSTOW

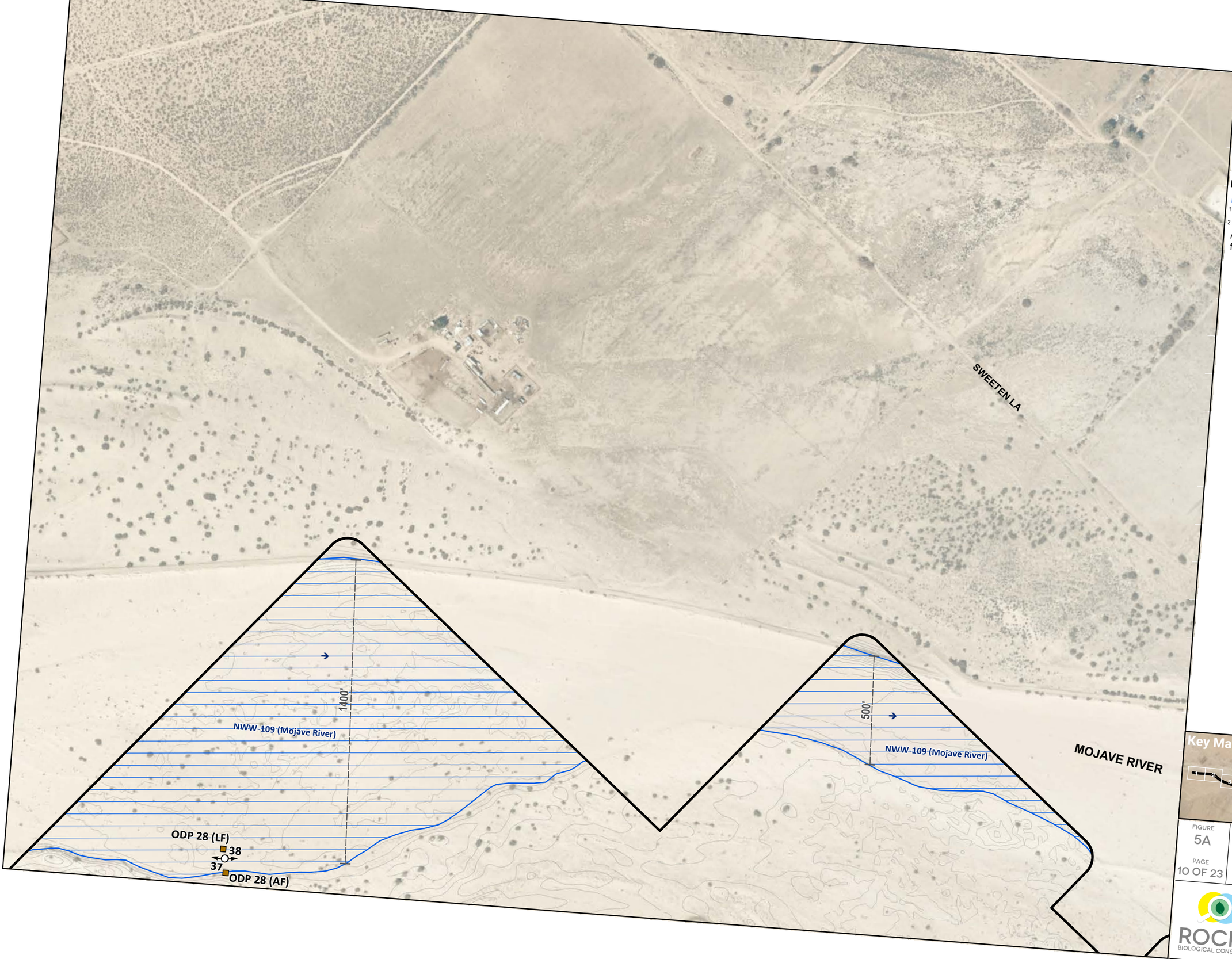
ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

OHWM Datasheet Point (ODP)

AF = Active Floodplain

LF = Low-Flow Channel

Flow Direction

Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1]

Mojave River Extent

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.



FIGURE 5A

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Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022



ARDR Review Area (5104.5 ac)[1]

Photo Location

[1] Represents total acreage for ARDR review area.

Key Map

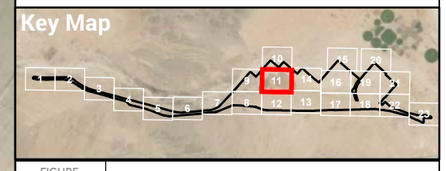


FIGURE 5A

PAGE 11 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

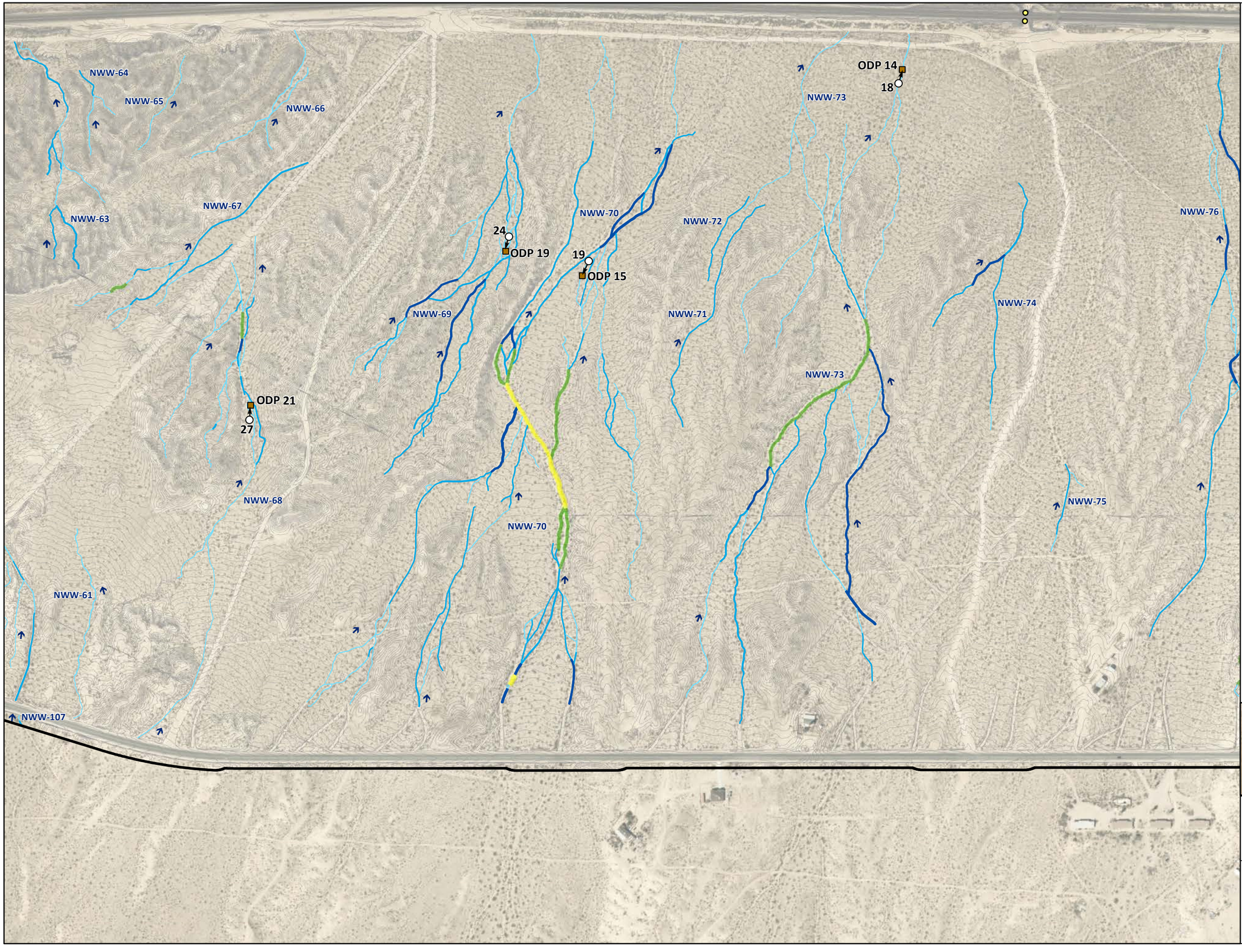
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Railroad Crossing
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

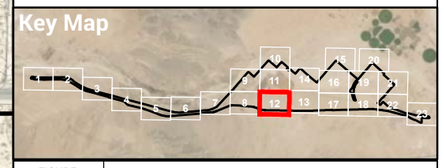


FIGURE 5A

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Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

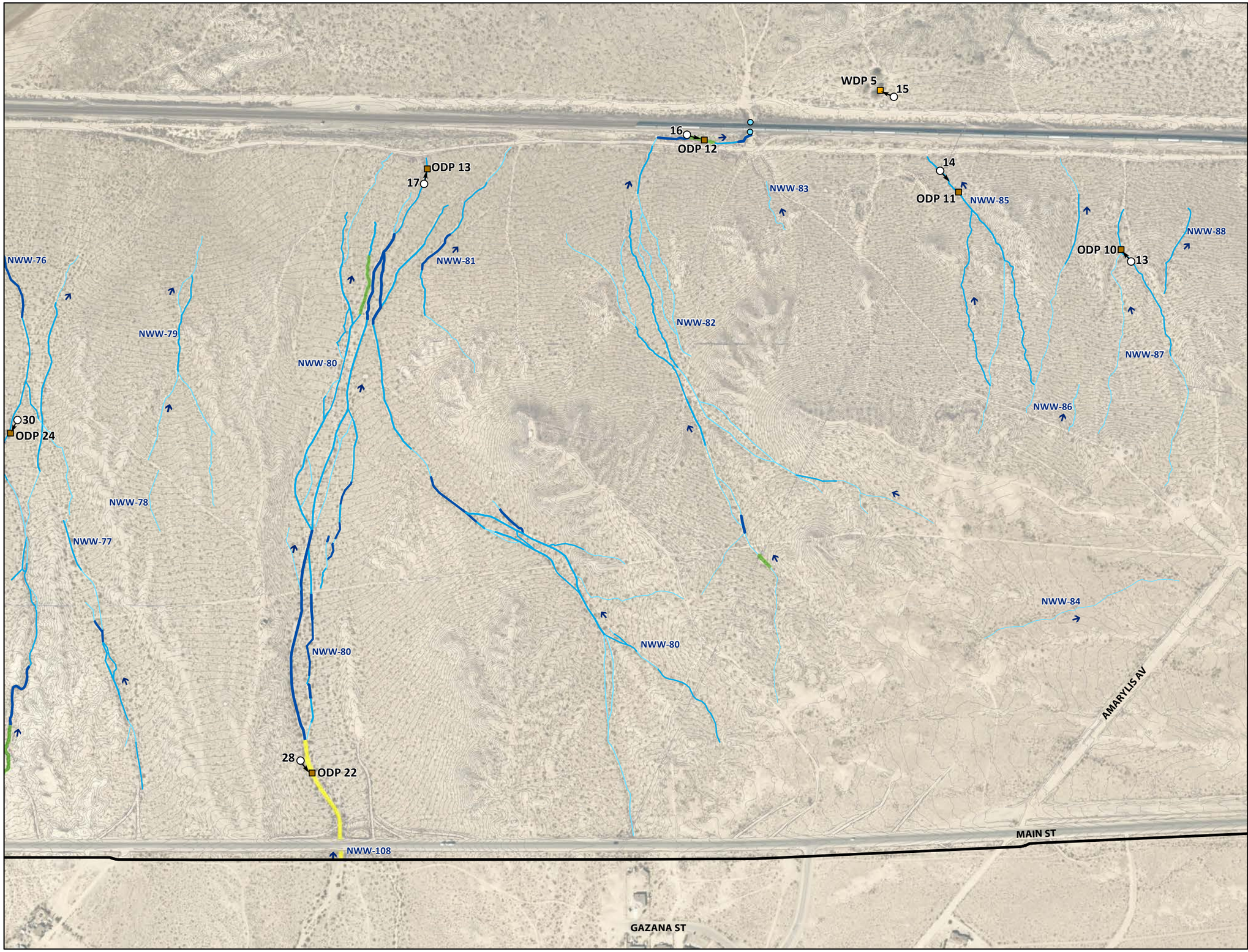
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

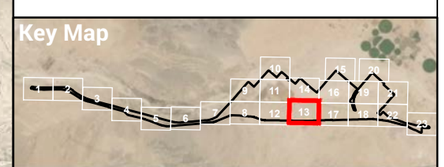


FIGURE 5A

PAGE 13 OF 23

Corps Aquatic Resources

BIG BARSTOW

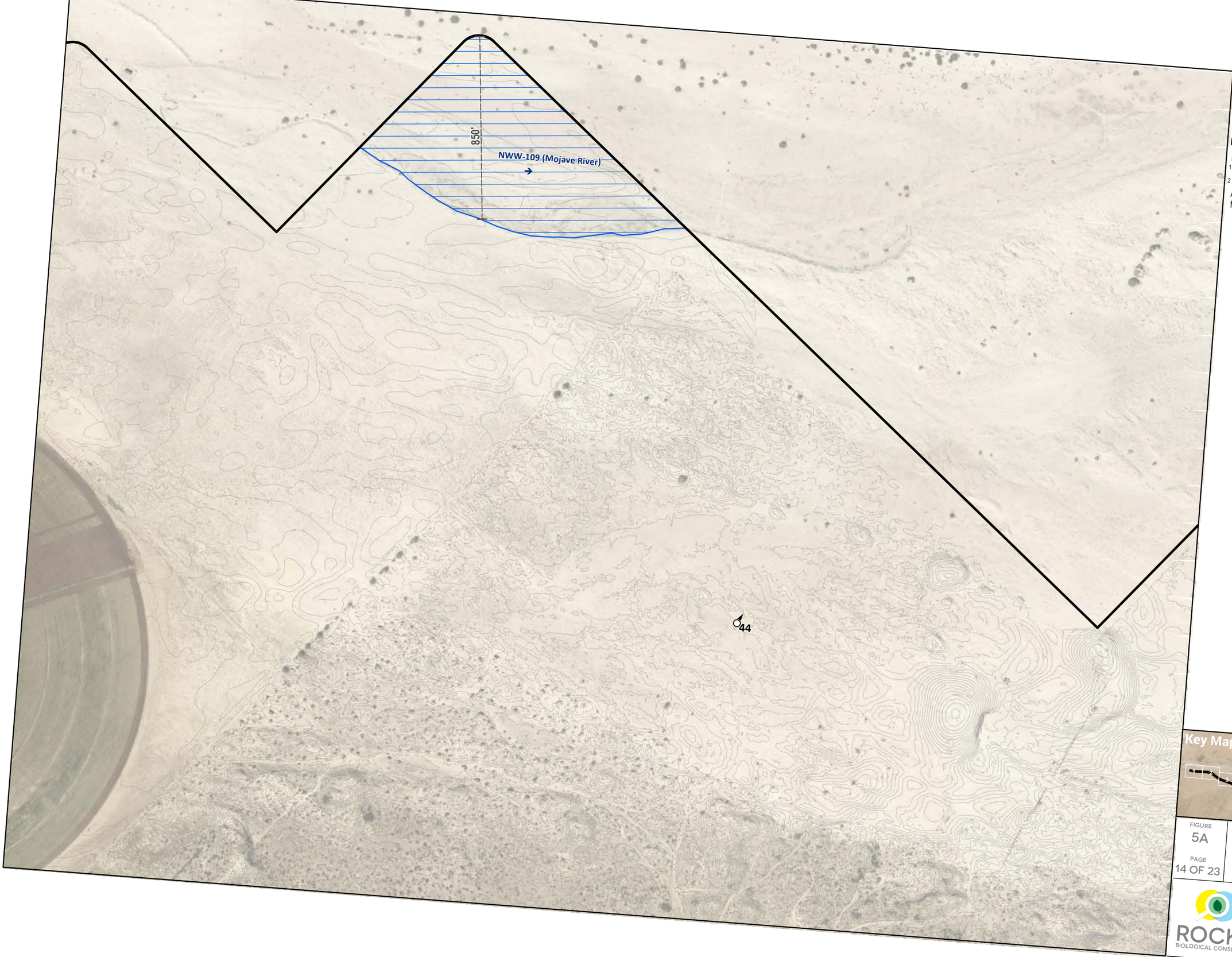
ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1]

Mojave River Extent

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map



FIGURE 5A

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Corps Aquatic Resources

BIG BARSTOW

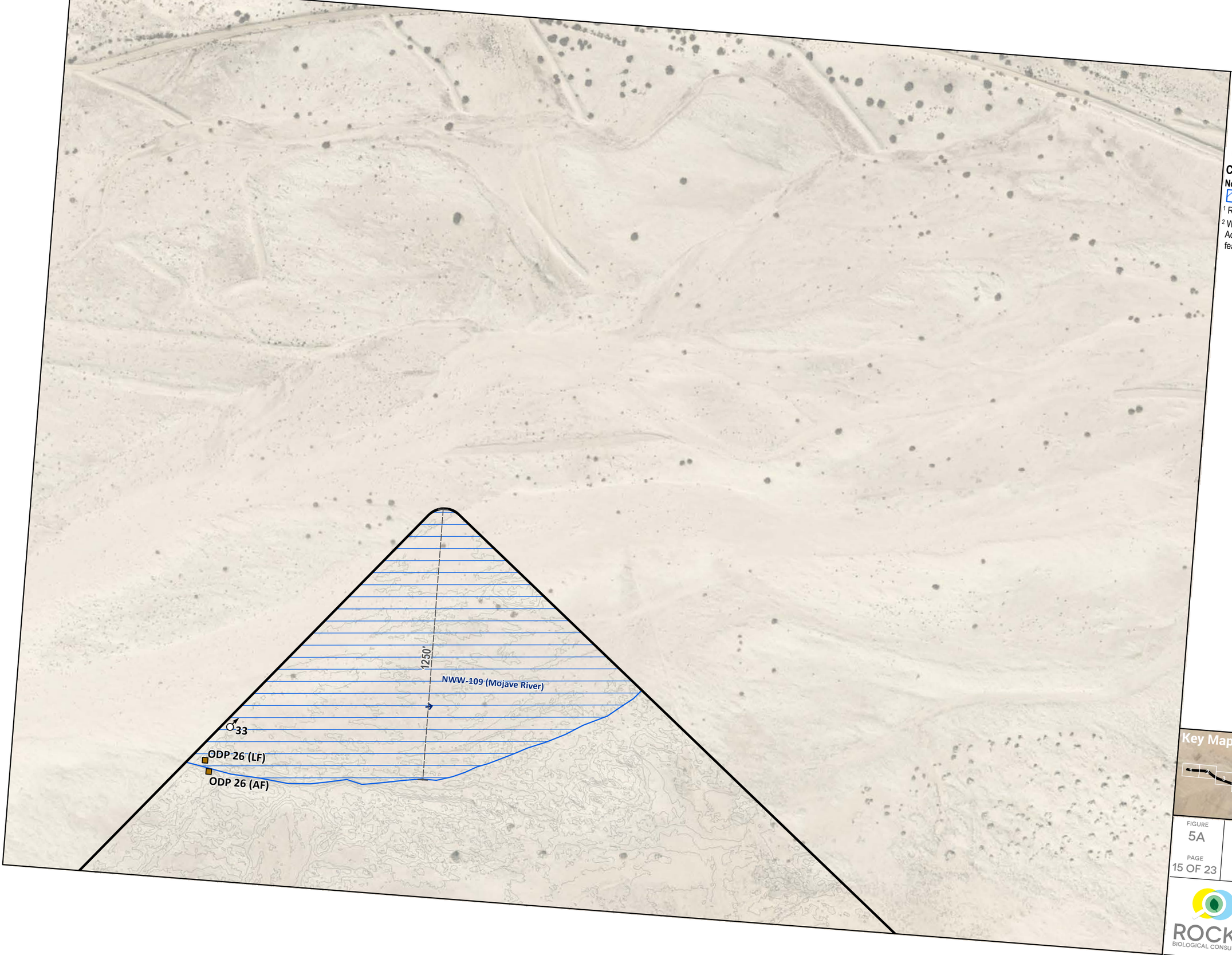
ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022



ARDR Review Area (5104.5 ac)[1]
OHWM Datasheet Point (ODP)
AF = Active Floodplain
LF = Low-Flow Channel
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1]
Mojave River Extent

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

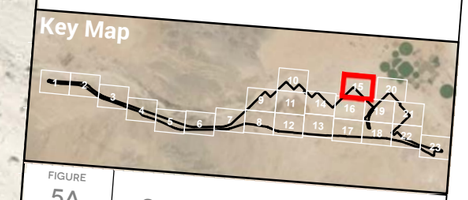


FIGURE 5A
PAGE 15 OF 23

Corps Aquatic Resources
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 9/22/2022



ARDR Review Area (5104.5 ac)[1]

Photo Location

[1] Represents total acreage for ARDR review area.

Key Map

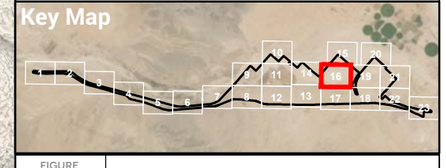


FIGURE
5A

PAGE
16 OF 23

Corps Aquatic Resources

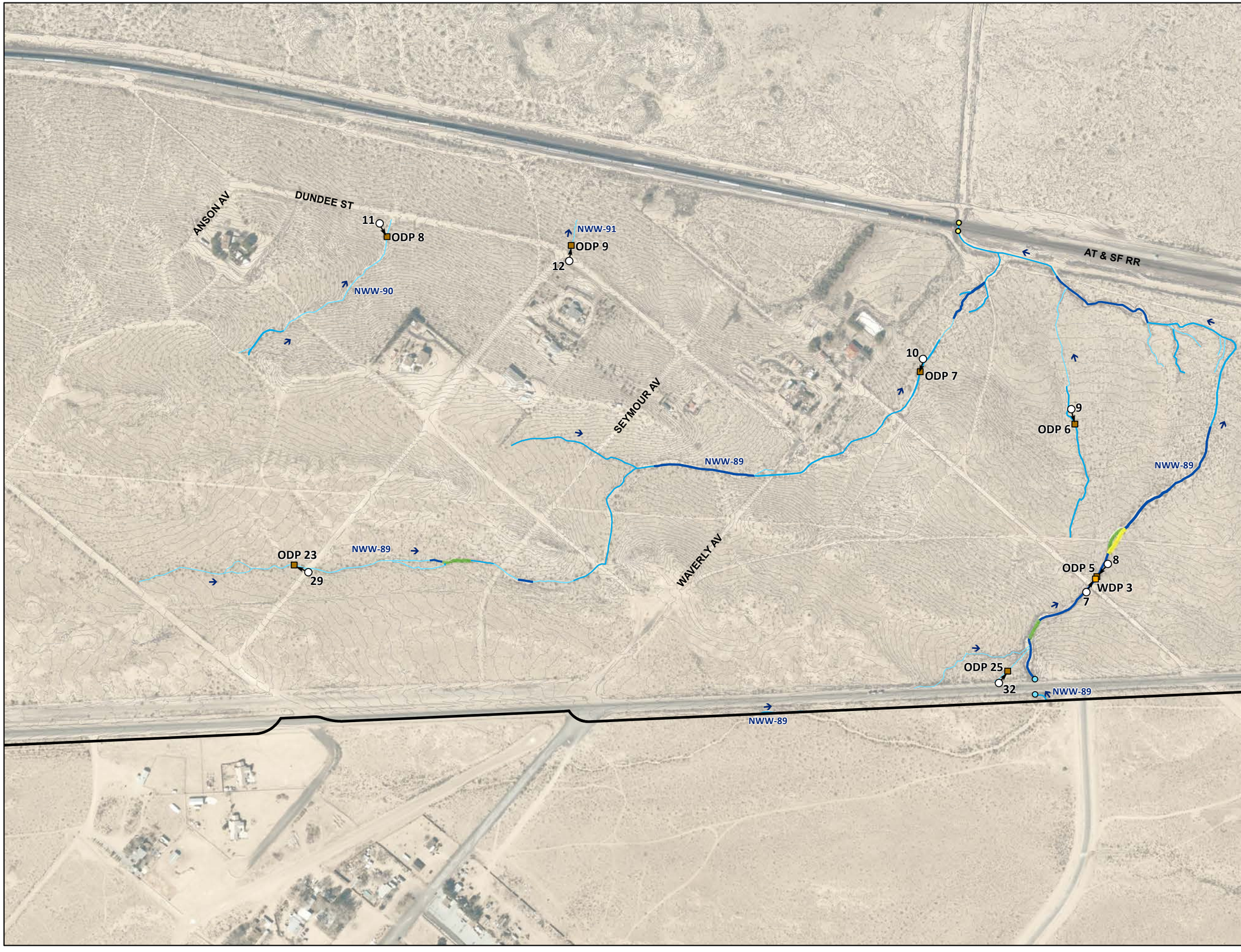
BIG BARSTOW

ROCKS
BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

N

Date: 9/22/2022
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

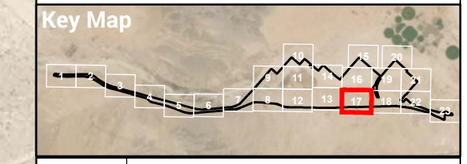


FIGURE 5A

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Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location
Off-site Flow Path

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])
4'-6'
11'-15'
16'-21'
>30'

Non-Wetland Waters - Rip-rap (0.06 ac)[1] (widths[2])
3'
20'

Non-Wetland Waters - Concrete (0.02 ac)[1] (widths[2])
6'

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5A
PAGE 18 OF 23

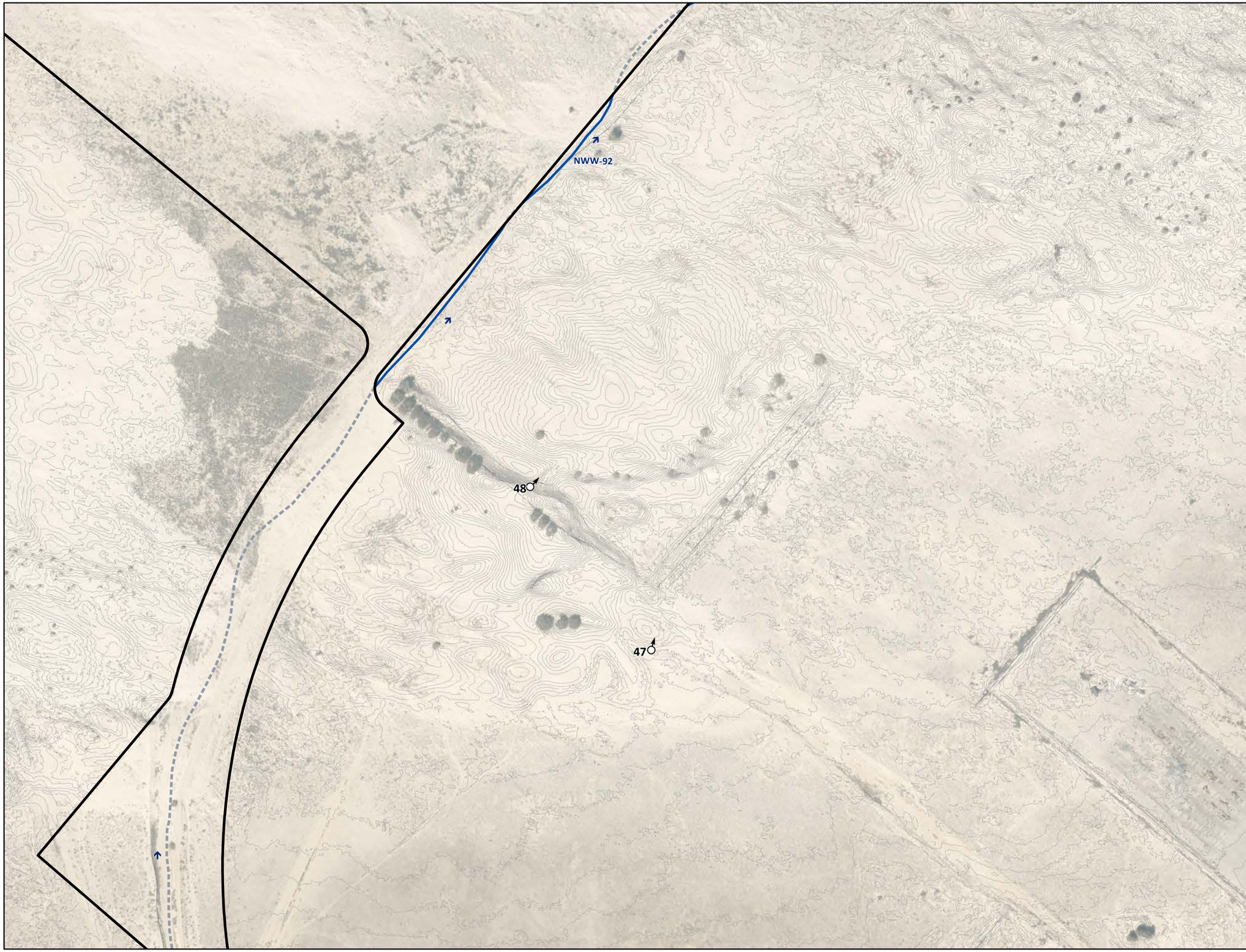
Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 9/22/2022
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

Photo Location

Off-site Flow Path

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

7'-10'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

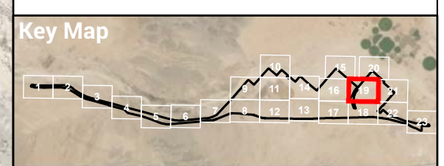


FIGURE 5A

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Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

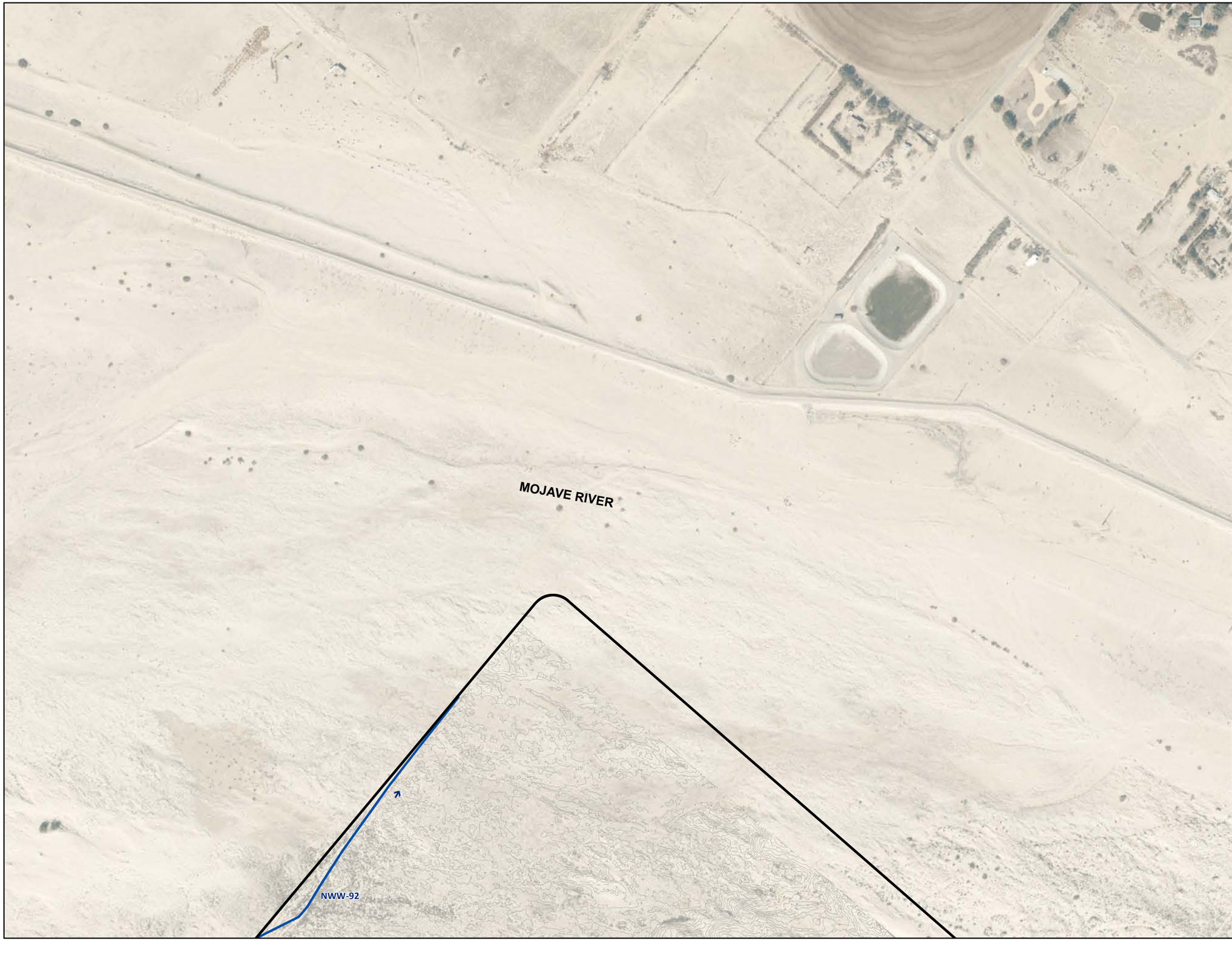
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

7'-10'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

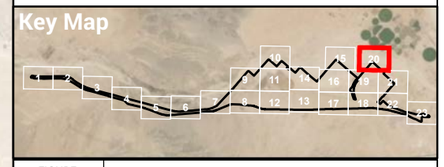


FIGURE 5A

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Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

[1] Represents total acreage for ARDR review area.

Key Map

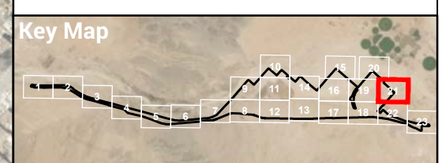


FIGURE
5A

PAGE
21 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS
BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

N

Date: 9/22/2022
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Culvert

Wetland Data Form Point (WDP)

OHWM Datasheet Point (ODP)

Flow Direction

Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

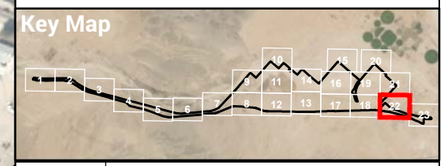


FIGURE 5A

PAGE 22 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

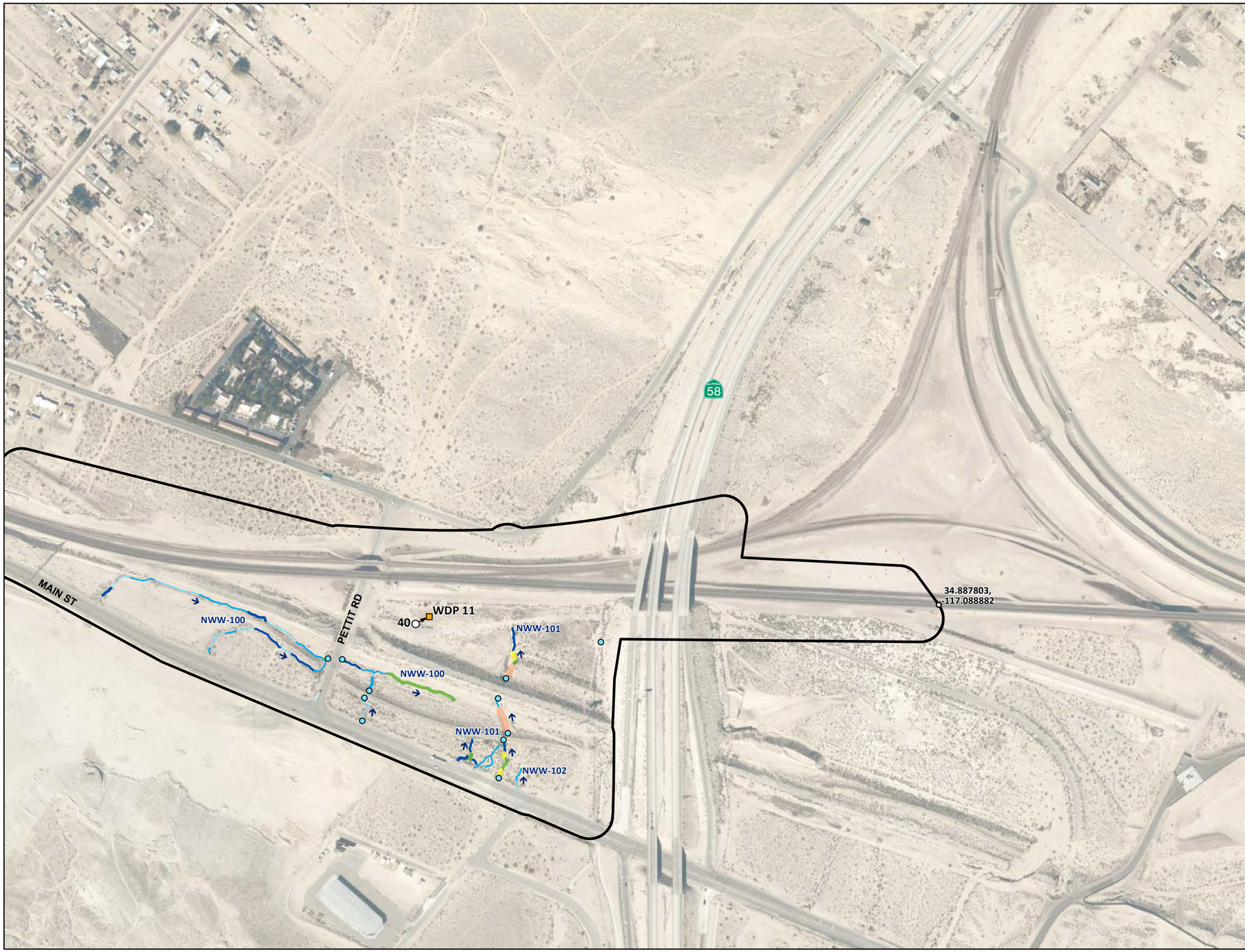
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Culvert

Wetland Data Form Point (WDP)

Flow Direction

Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

16'-21'

24'-30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5A

PAGE 23 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri

LORDS RD

AT & SF RR

34.772232,
-117.285959

NWW-1
NWW-2
NWW-3
NWW-4
NWW-5
NWW-6
NWW-7
NWW-8
NWW-9
NWW-10
NWW-11
NWW-12
NWW-13
NWW-14
NWW-15

ARDR Review Area (5104.5 ac)[1]
Culvert
Flow Direction

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE
5B

PAGE
1 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS
BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

N

Date: 9/22/2022
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Railroad Crossing

Flow Direction

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

11'-15'

24'-30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

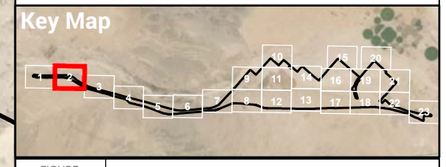


FIGURE 5B

PAGE 2 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Culvert

Railroad Crossing

Flow Direction

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

24'-30'

>30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

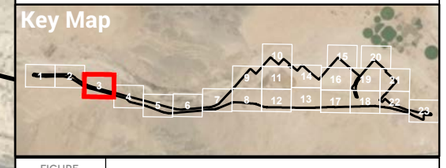


FIGURE 5B

PAGE 3 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

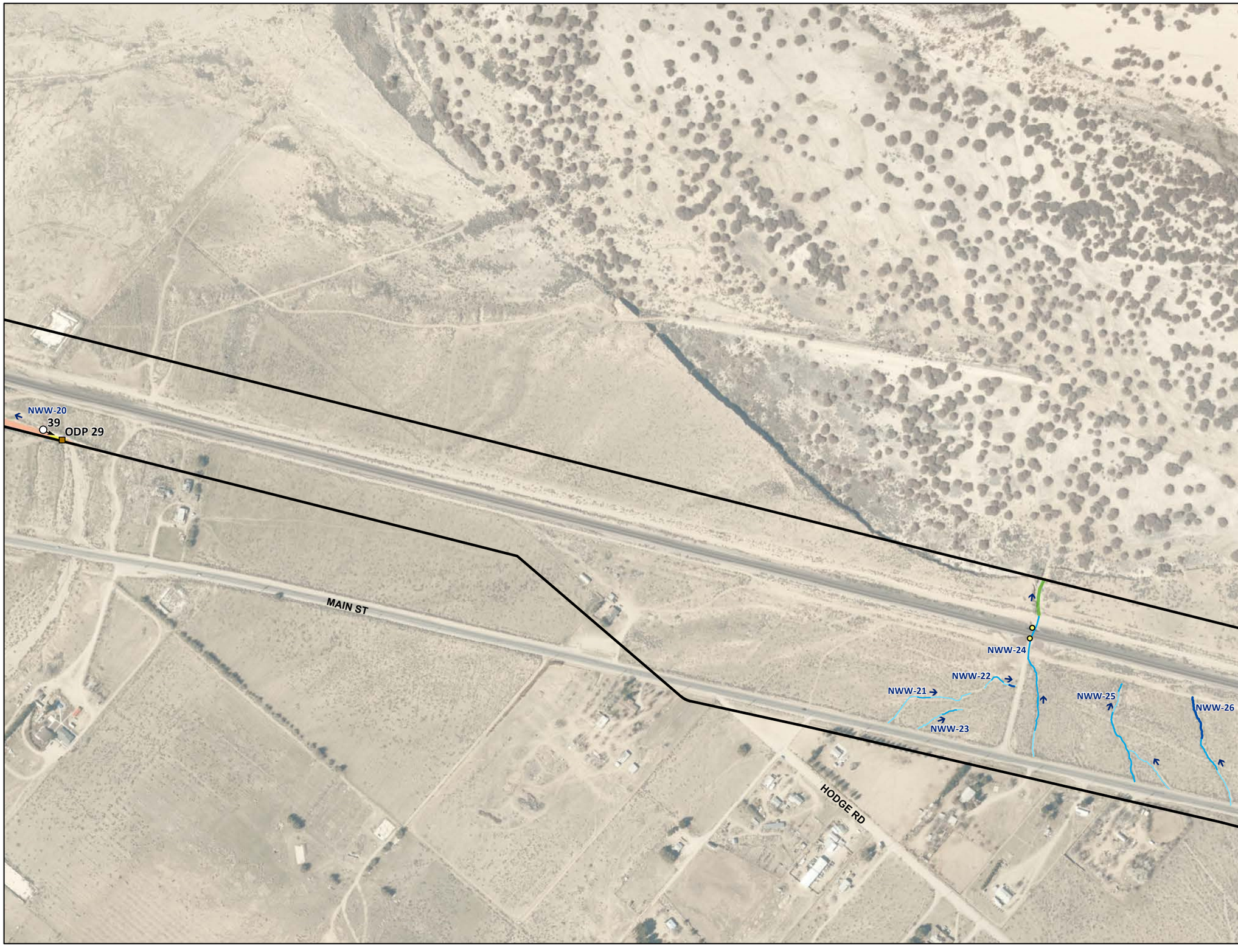
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Railroad Crossing

OHWM Datasheet Point (ODP)

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

16'-21'

24'-30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5B

PAGE 4 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Railroad Crossing

Wetland Data Form Point (WDP)

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

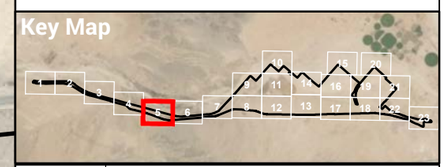


FIGURE 5B

PAGE 5 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

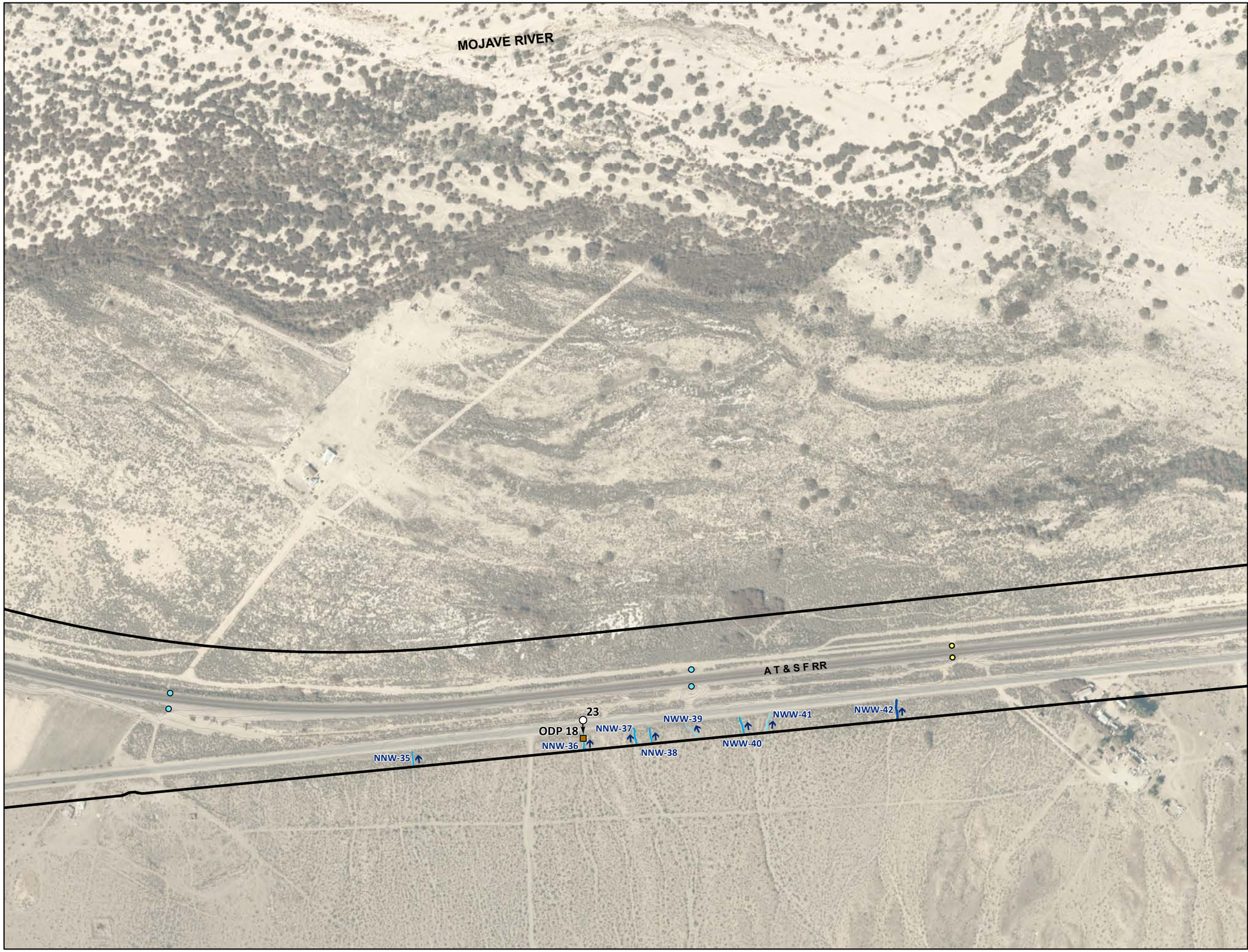
ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Culvert

Railroad Crossing

OHWM Datasheet Point (ODP)

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

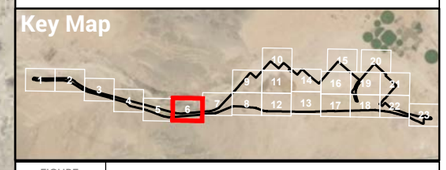


FIGURE 5B

PAGE 6 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

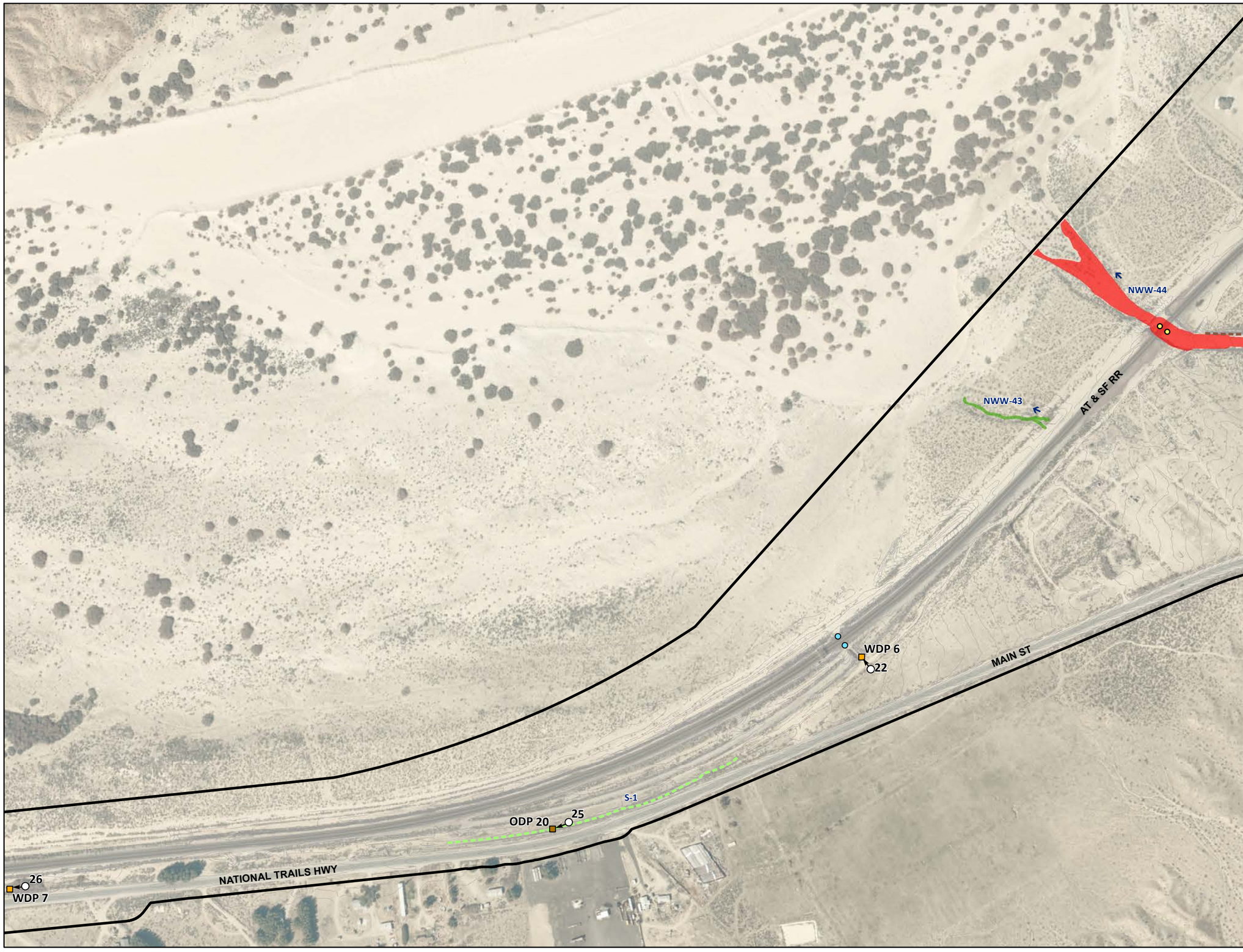
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Berm - Earthen Lined
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

11'-15'
>30'

Other Features[3]

Swale

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking OHWM or three-parameter wetland, and thus anticipated to be non-jurisdictional.

Key Map

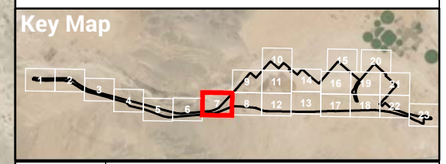


FIGURE 5B

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RWQCB Aquatic Resources

BIG BARSTOW

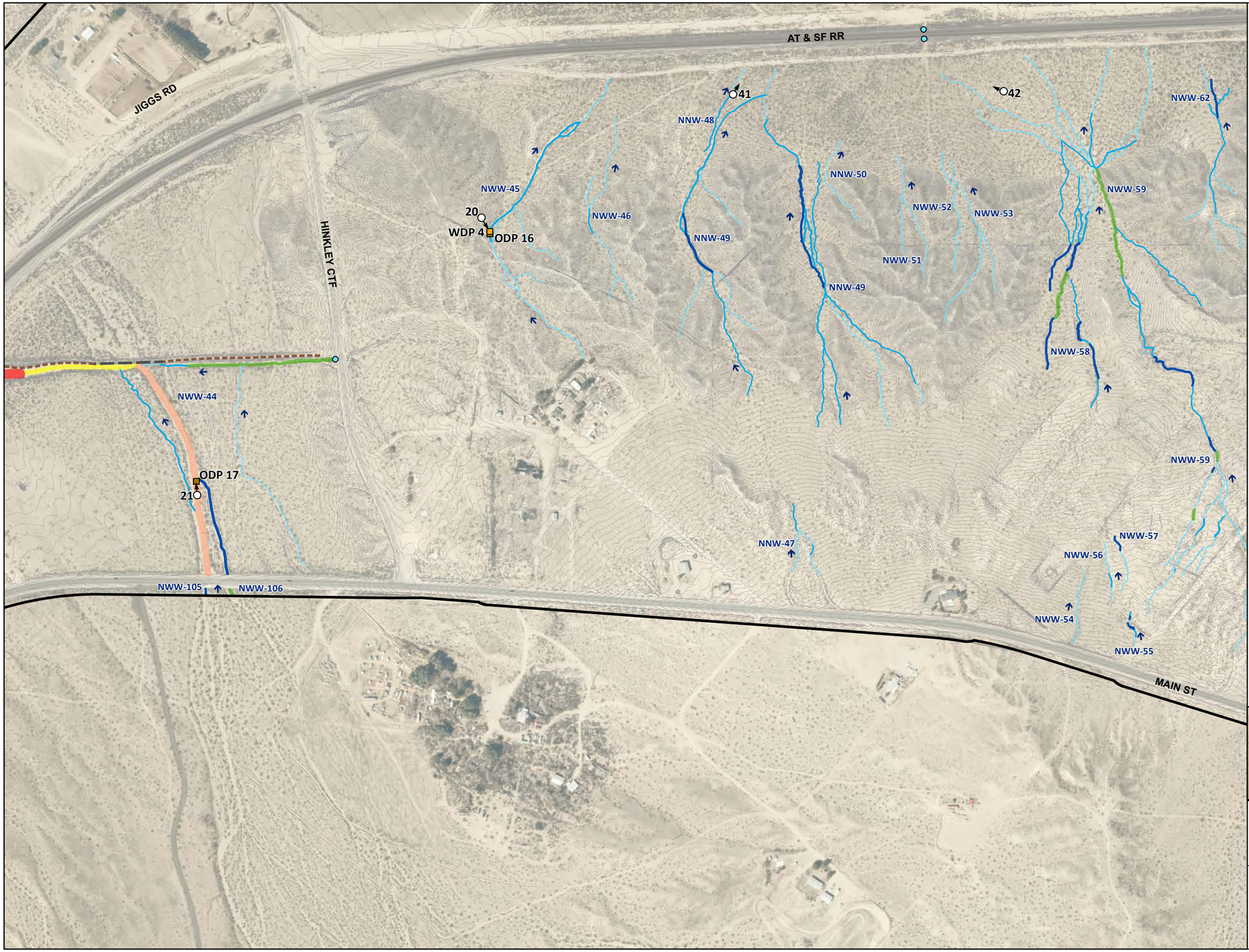
ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Berm - Concrete Slab
Berm - Earthen Lined
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

- 1'-3'
- 4'-6'
- 7'-10'
- 11'-15'
- 16'-21'
- 24'-30'
- >30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

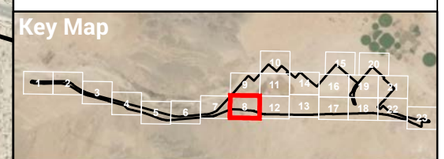


FIGURE 5B

PAGE 8 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Wetland Data Form Point (WDP)

OHWM Datasheet Point (ODP)

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

4'-6'

11'-15'

>30'

Other Features[3]

Basin

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking OHWM or three-parameter wetland, and thus anticipated to be non-jurisdictional.

Key Map

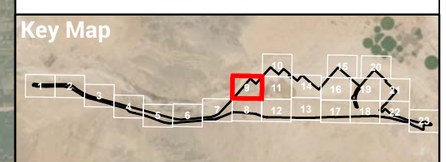


FIGURE 5B

PAGE 9 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri

ARDR Review Area (5104.5 ac)[1]

OHWM Datasheet Point (ODP)

AF = Active Floodplain

LF = Low-Flow Channel

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1]

Mojave River Extent

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

SWEETEN LA

1400'

NWW-109 (Mojave River)

500'

NWW-109 (Mojave River)

MOJAVE RIVER

ODP 28 (LF)

38

37

ODP 28 (AF)

Key Map

FIGURE 5B

PAGE 10 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022



ARDR Review Area (5104.5 ac)[1]

Photo Location

[1] Represents total acreage for ARDR review area.

Key Map

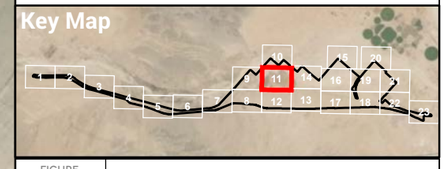


FIGURE 5B

PAGE 11 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

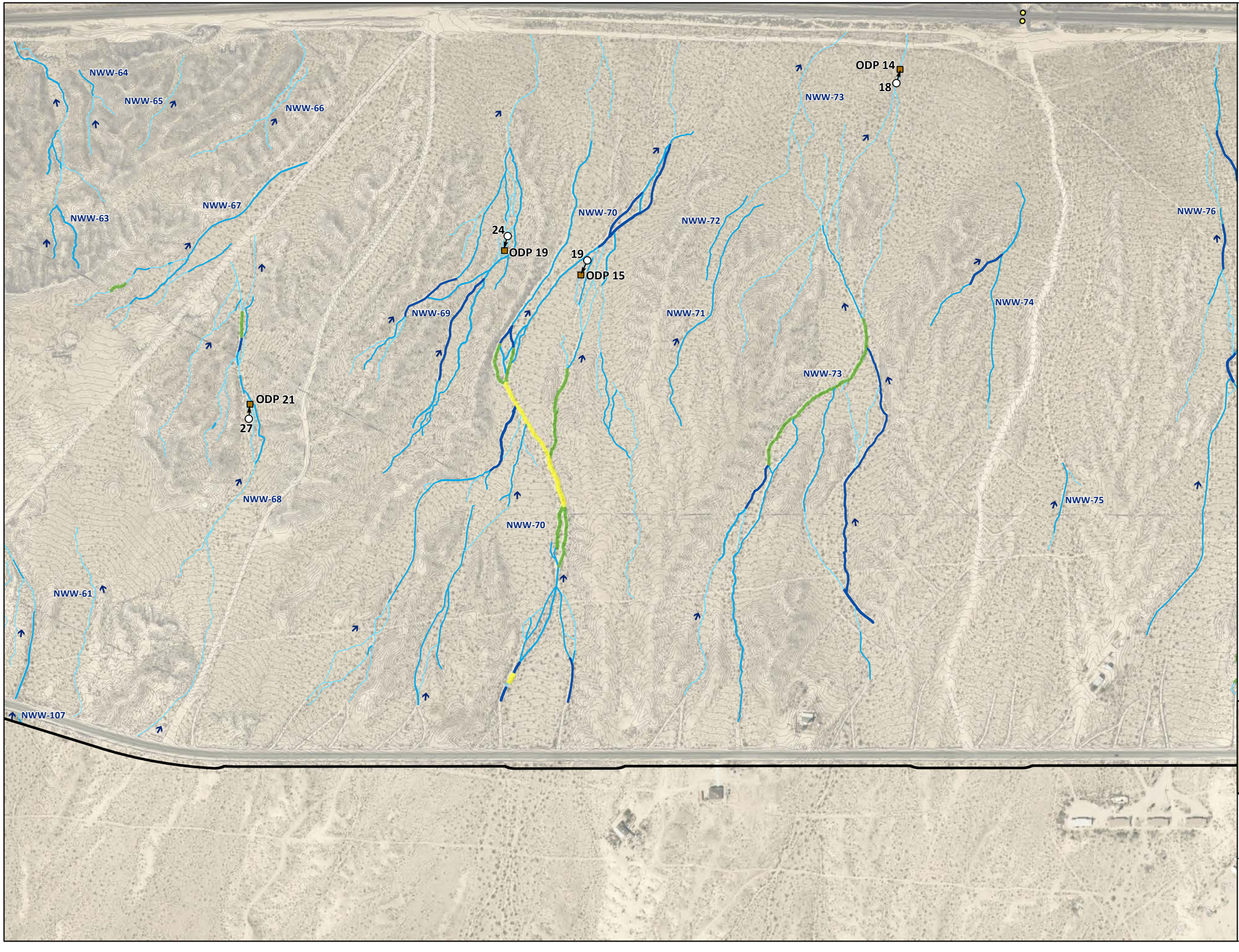
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Railroad Crossing

OHWM Datasheet Point (ODP)

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

16'-21'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

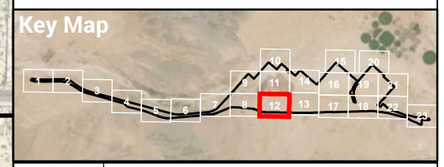


FIGURE 5B

PAGE 12 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

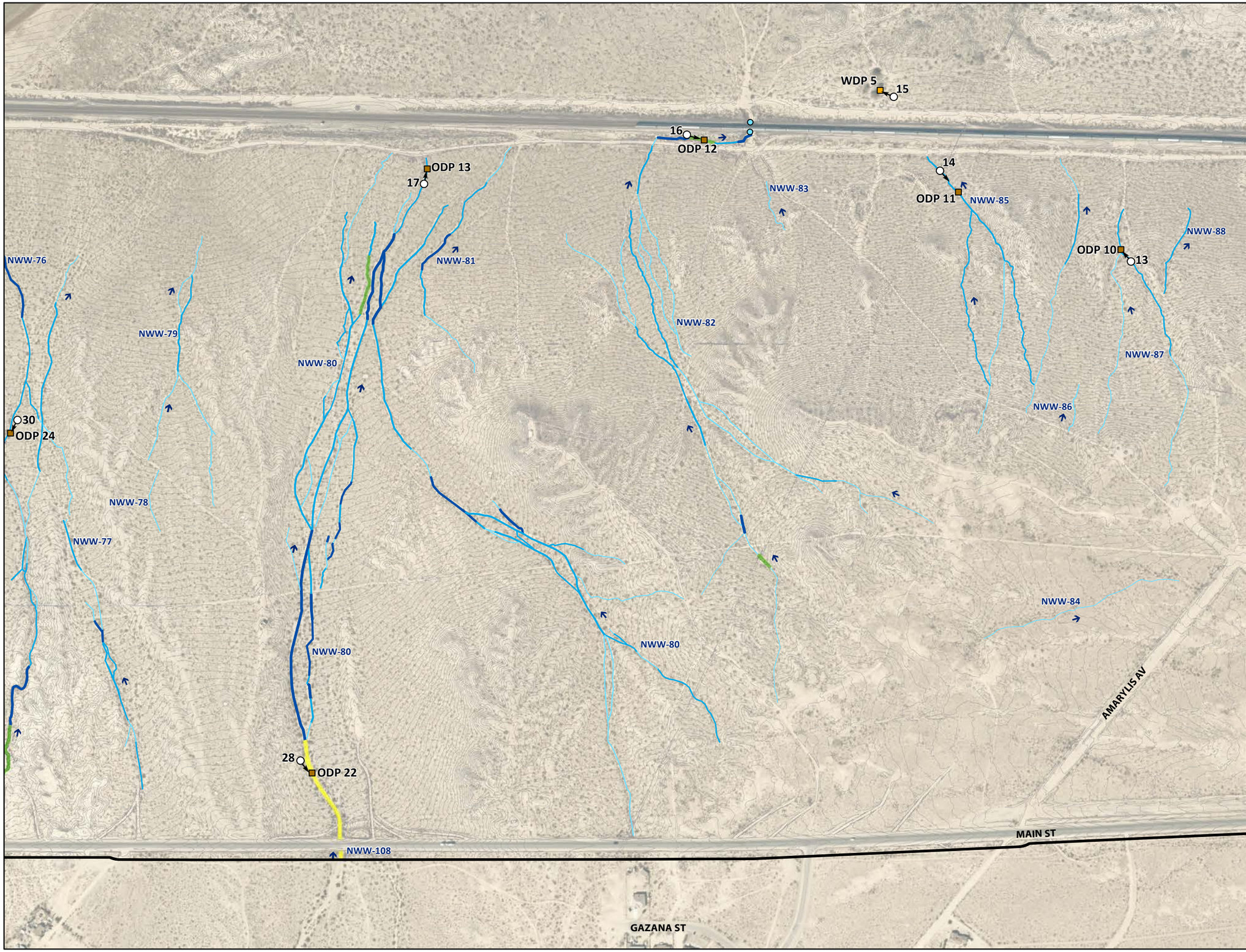
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5B

PAGE 13 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

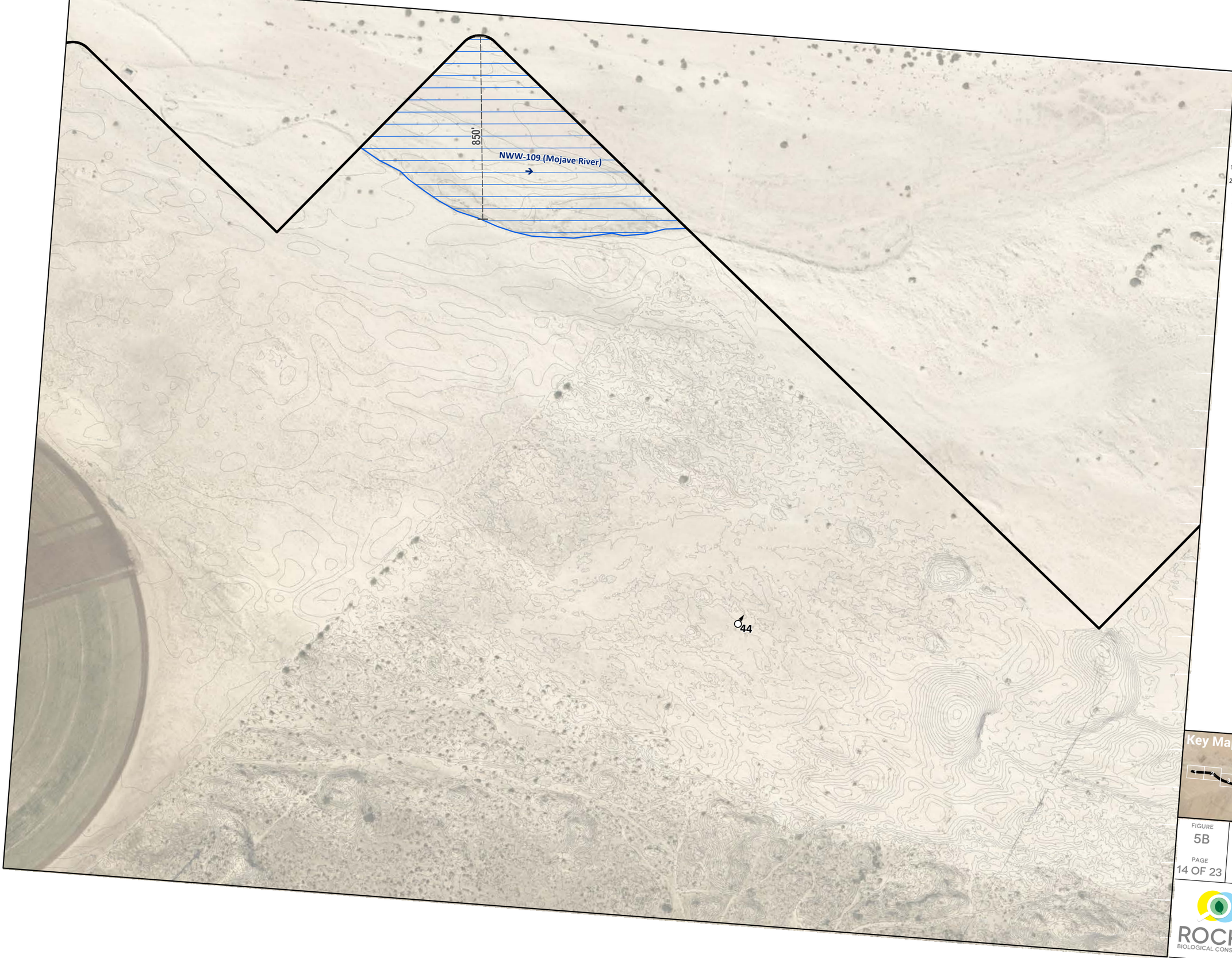
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1]

Mojave River Extent

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map



FIGURE 5B

PAGE 14 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

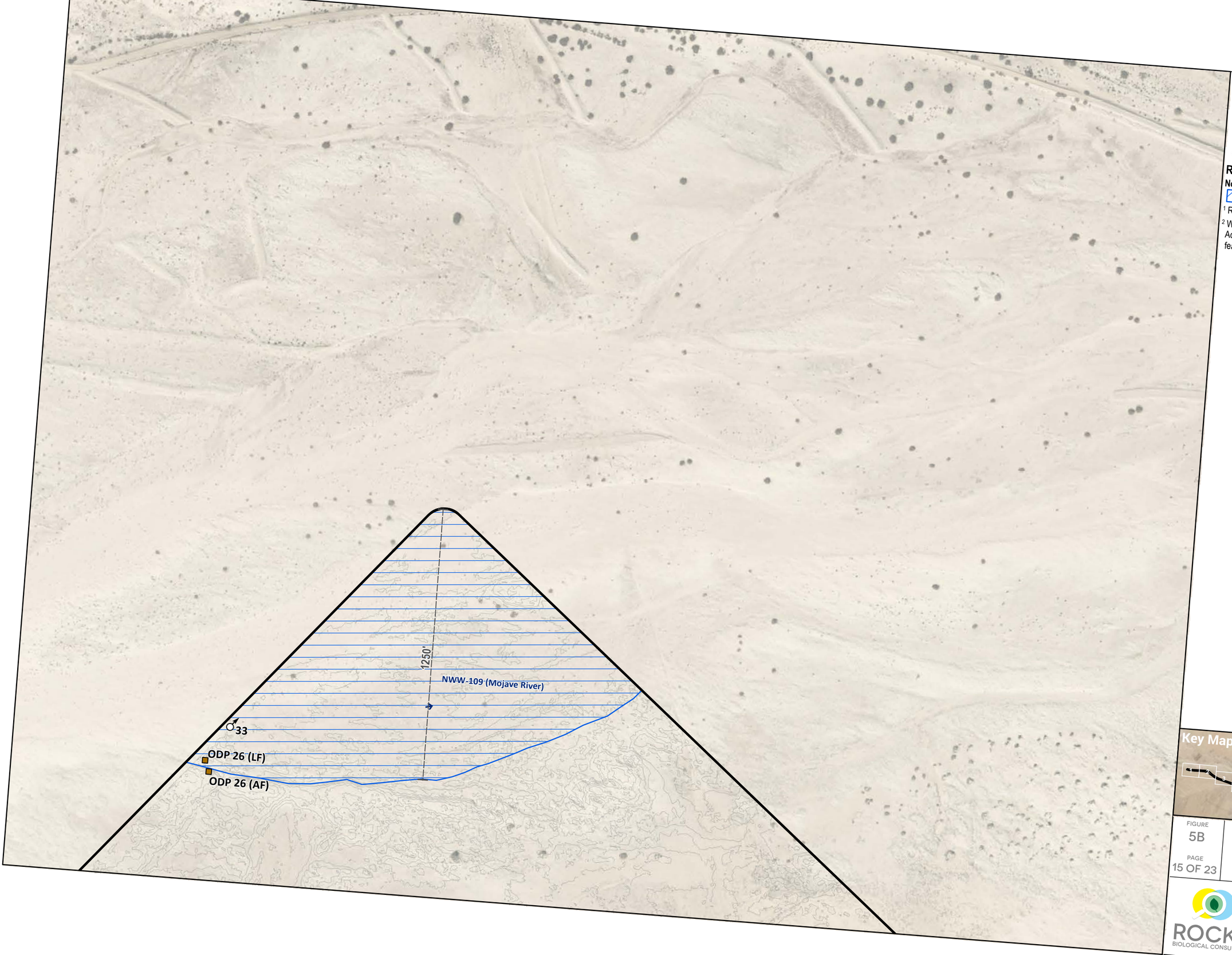
ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022



ARDR Review Area (5104.5 ac)[1]

OHWM Datasheet Point (ODP)

AF = Active Floodplain

LF = Low-Flow Channel

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1]

Mojave River Extent

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

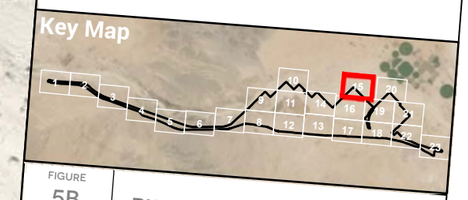


FIGURE 5B

PAGE 15 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022



ARDR Review Area (5104.5 ac)[1]

Photo Location

[1] Represents total acreage for ARDR review area.

Key Map

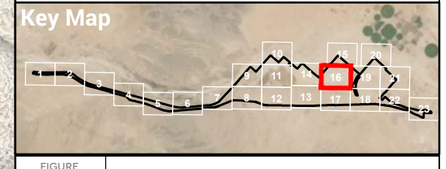


FIGURE
5B

PAGE
16 OF 23

RWQCB Aquatic Resources

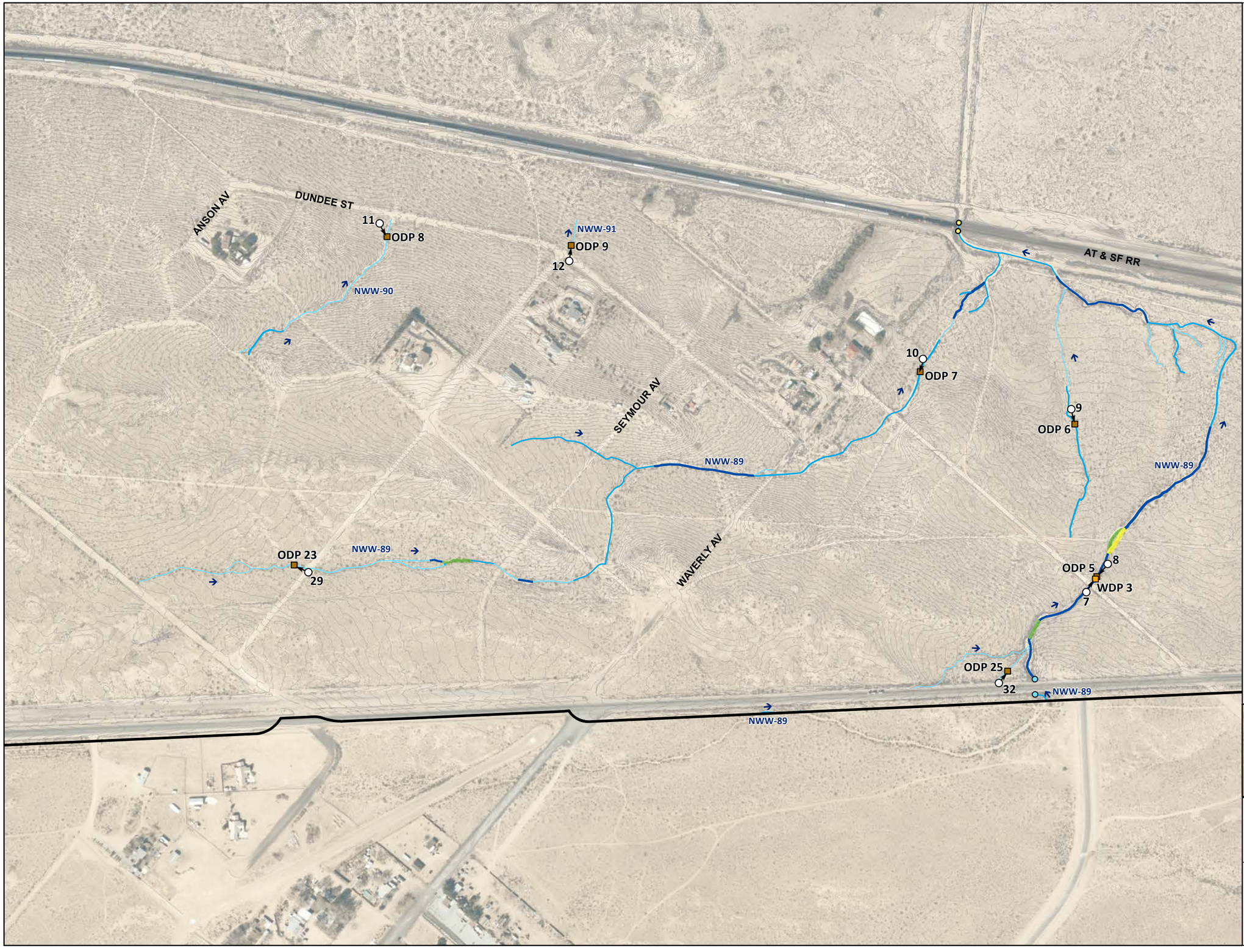
BIG BARSTOW

ROCKS
BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

N

Date: 9/22/2022
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5B

PAGE 17 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location
Off-site Flow Path

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])
4'-6'
11'-15'
16'-21'
>30'

Non-Wetland Waters - Rip-rap (0.06 ac)[1] (widths[2])
3'
20'

Non-Wetland Waters - Concrete (0.02 ac)[1] (widths[2])
6'

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

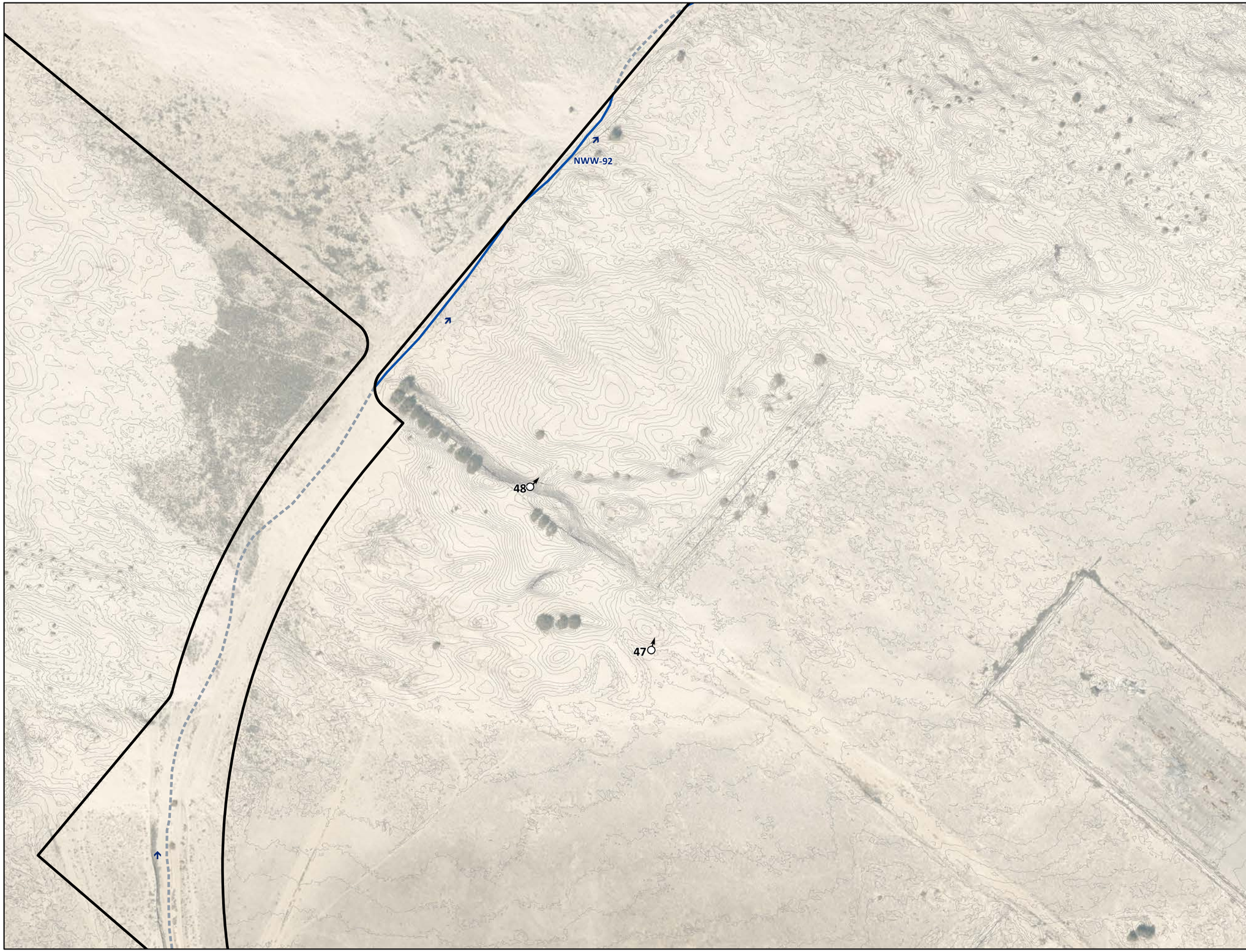
FIGURE 5B
PAGE 18 OF 23

RWQCB Aquatic Resources
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 9/22/2022
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

Photo Location

Off-site Flow Path

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

7'-10'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map



FIGURE 5B

PAGE 19 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

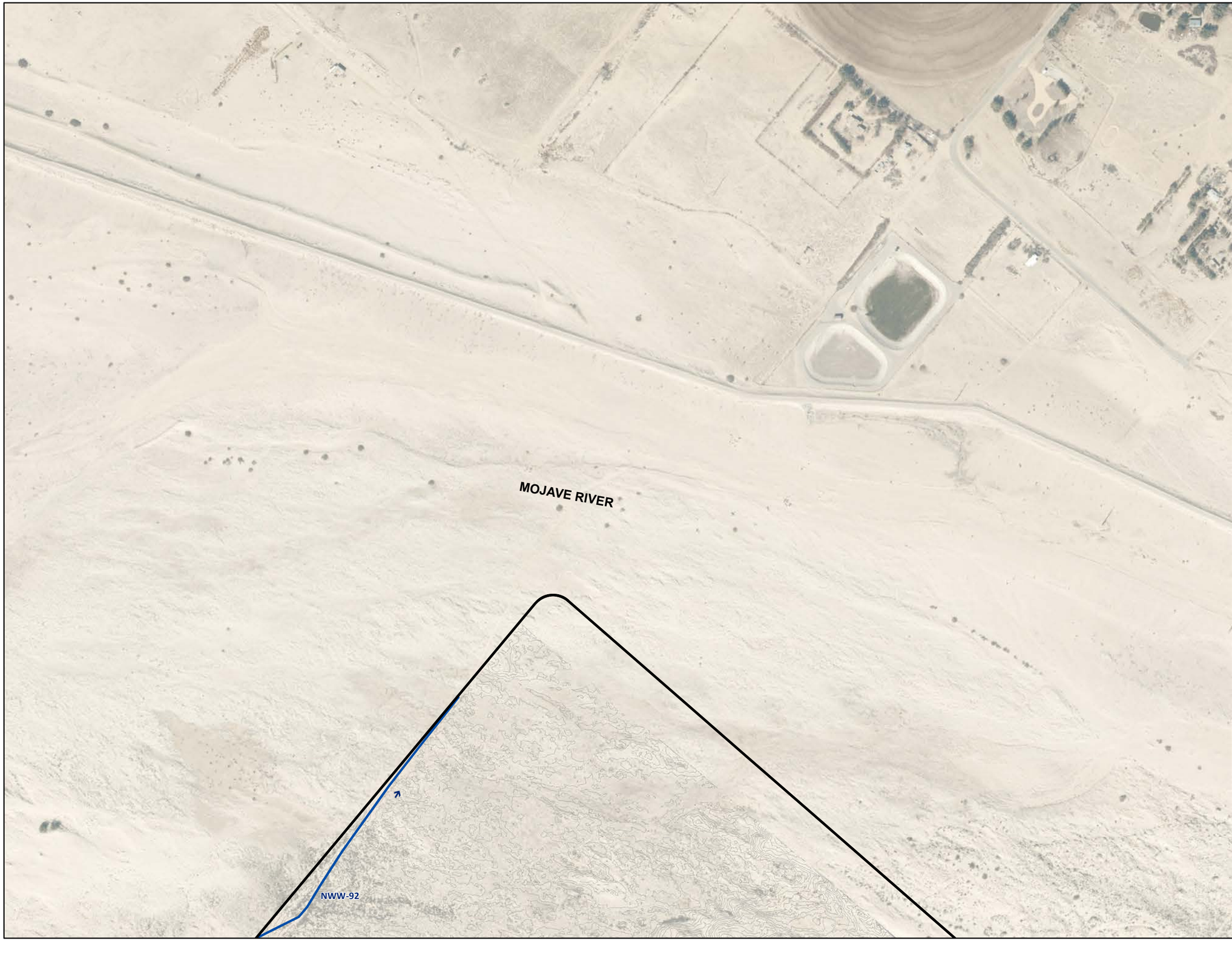
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

7'-10'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

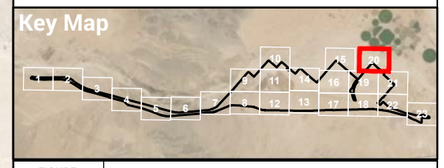


FIGURE 5B

PAGE 20 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

[1] Represents total acreage for ARDR review area.

Key Map

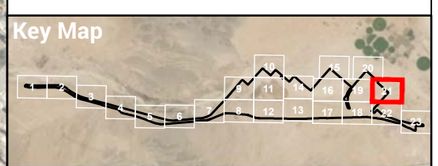


FIGURE
5B

PAGE
21 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS
BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

N

Date: 9/22/2022
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Culvert

Wetland Data Form Point (WDP)

OHWM Datasheet Point (ODP)

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

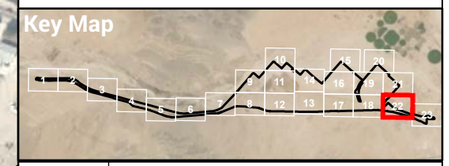


FIGURE 5B

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RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

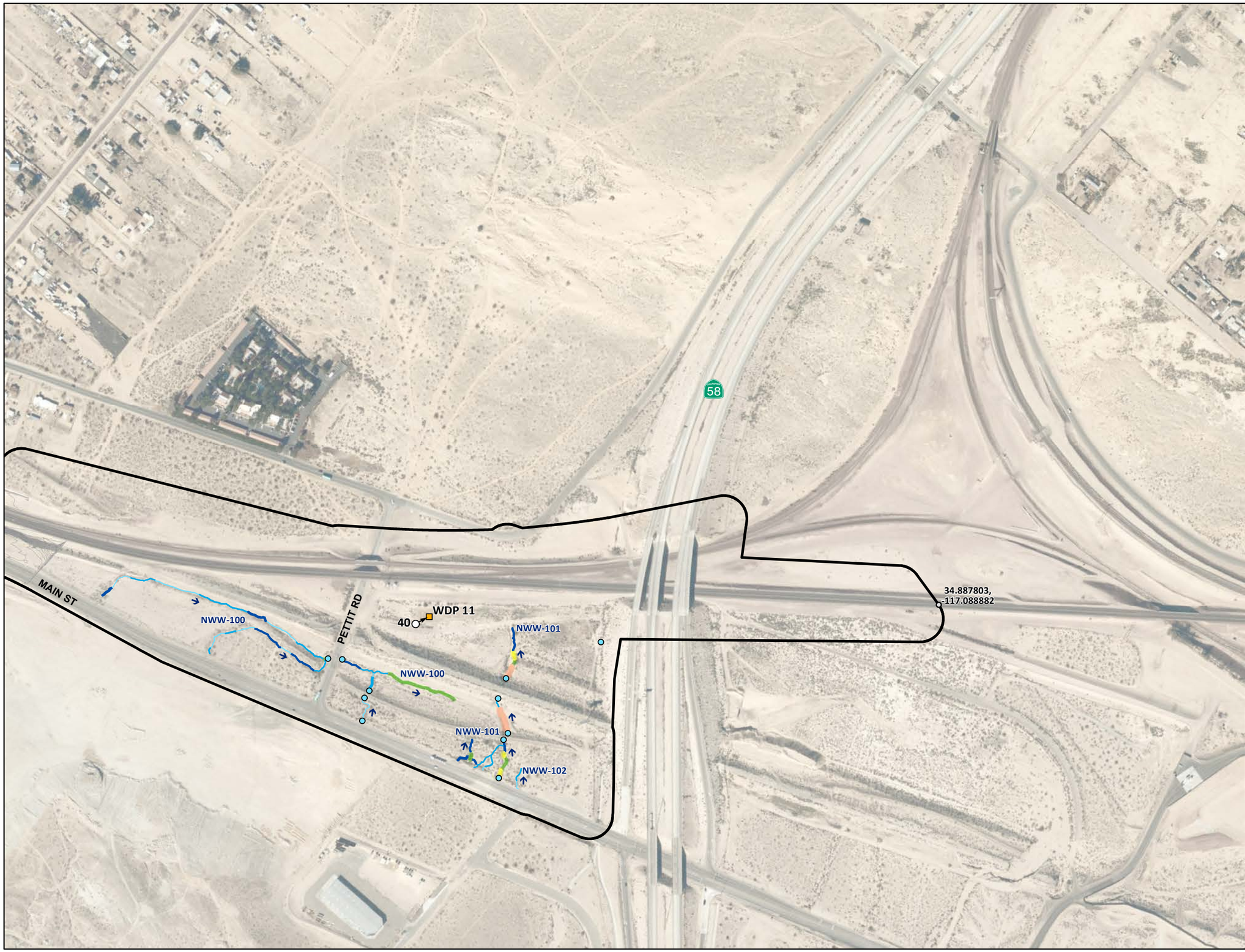
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Culvert

Wetland Data Form Point (WDP)

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

16'-21'

24'-30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5B

PAGE 23 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

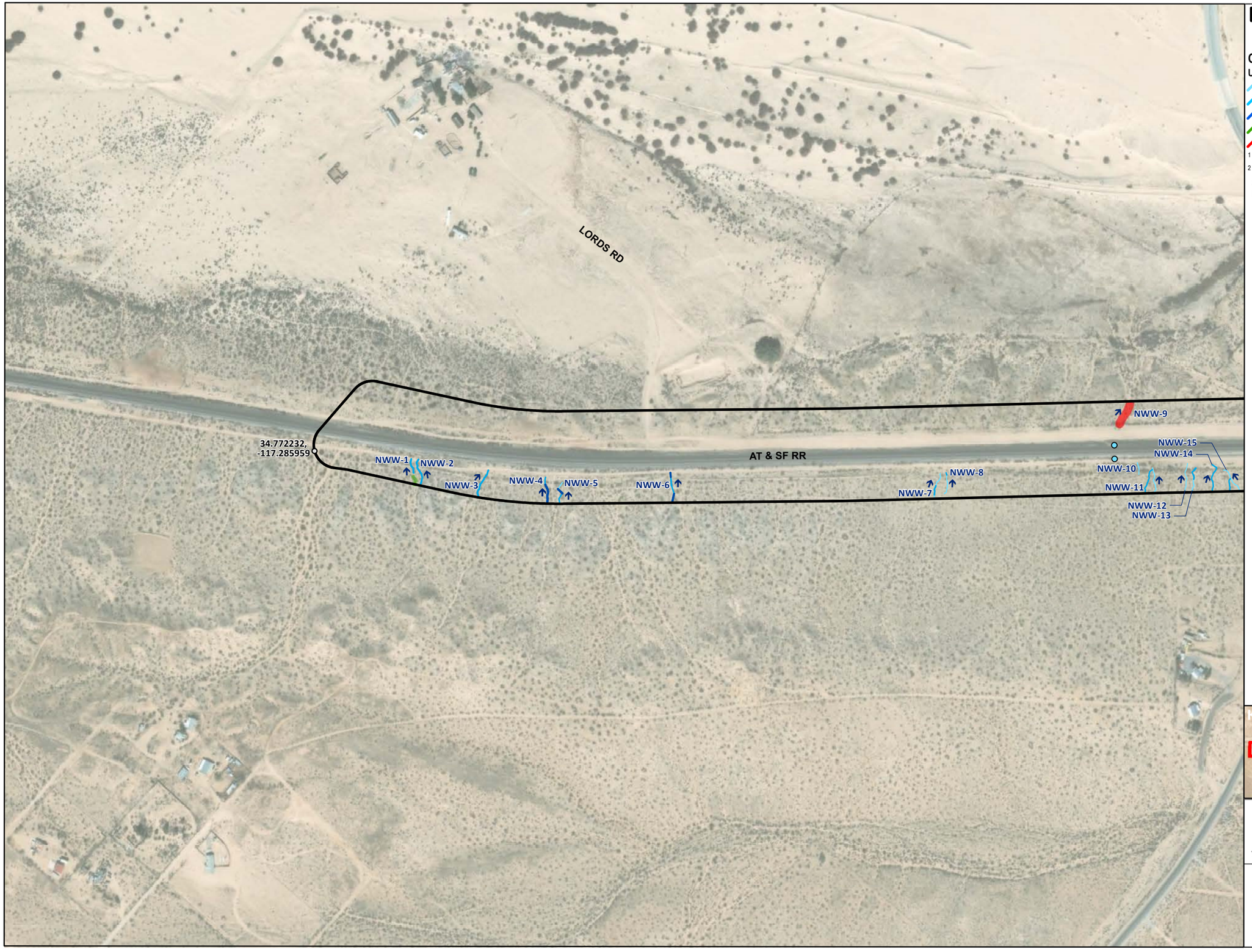
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Culvert

Flow Direction

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

>30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

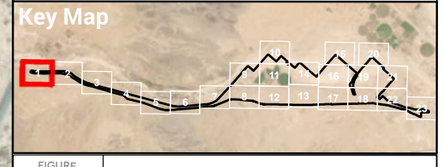


FIGURE 5C

PAGE 1 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Railroad Crossing
Flow Direction

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

16'-21'
22'-30'

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

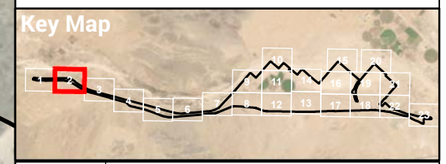


FIGURE 5C

PAGE 2 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Flow Direction

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])
1'-3'
4'-6'
>30'

Watercourse (55.18 ac)[1]
Watercourse

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

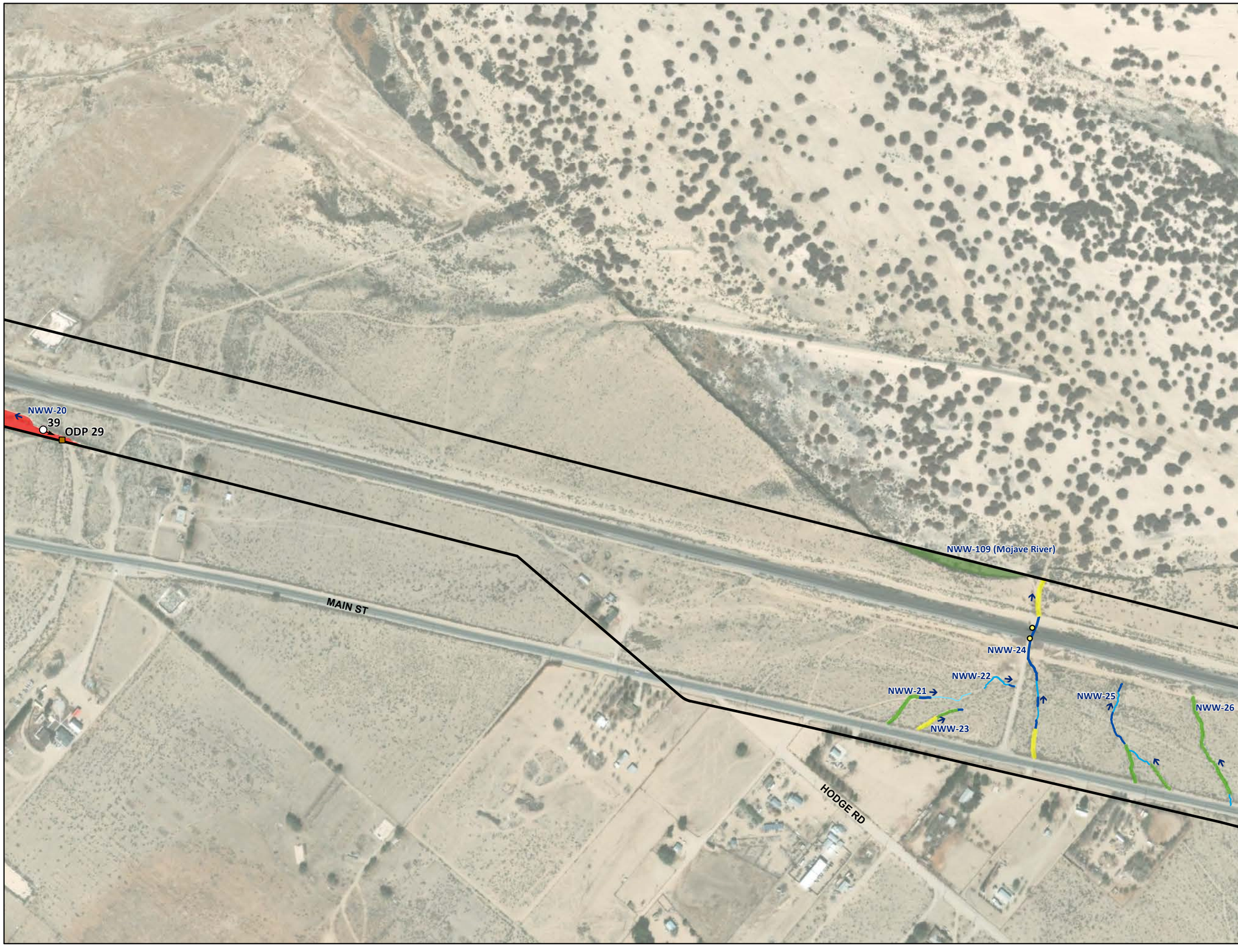
FIGURE 5C
PAGE 3 OF 23

CDFW
Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Railroad Crossing
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])
1'-3'
4'-6'
7'-10'
11'-15'
16'-21'
>30'

Mojave River Extent (590.34 ac)[1]
Vegetated Streambed

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5C
PAGE 4 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Railroad Crossing
Wetland Data Form Point (WDP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])
1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

Watercourse (55.18 ac)[1]
Watercourse

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5C
PAGE 5 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'

Watercourse (55.18 ac)[1]

Watercourse

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

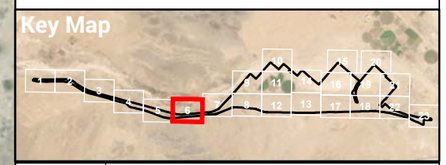


FIGURE 5C
PAGE 6 OF 23

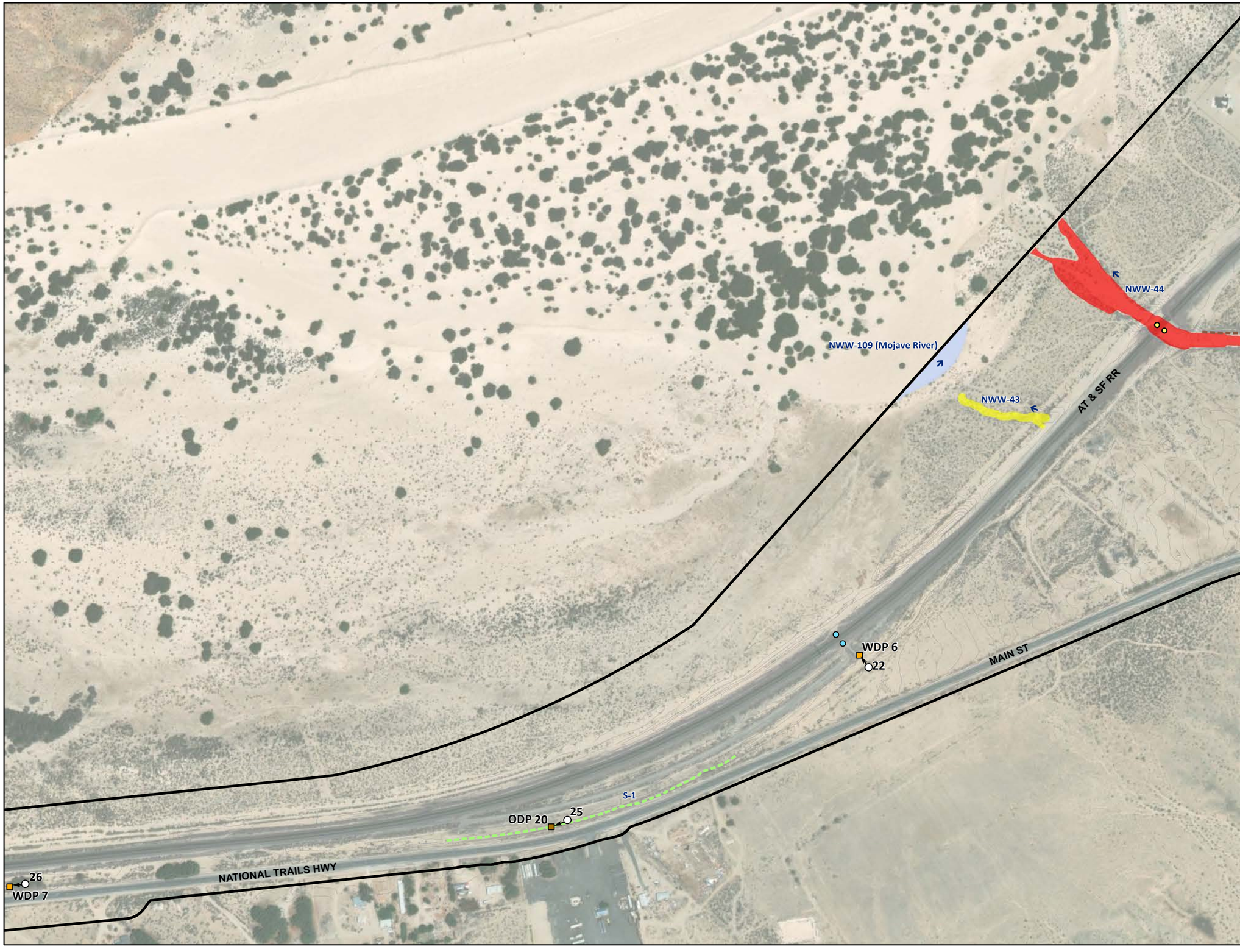
CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Berm - Earthen Lined
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

16'-21'

>30'

Mojave River Extent (590.34 ac)[1]

Unvegetated Streambed

Other Features[3]

Swale

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking a defined lake or streambed, and thus anticipated to be non-jurisdictional.

Key Map

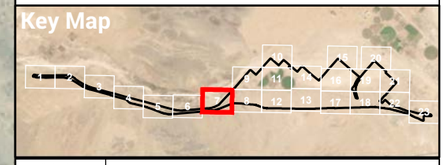


FIGURE 5C

PAGE 7 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

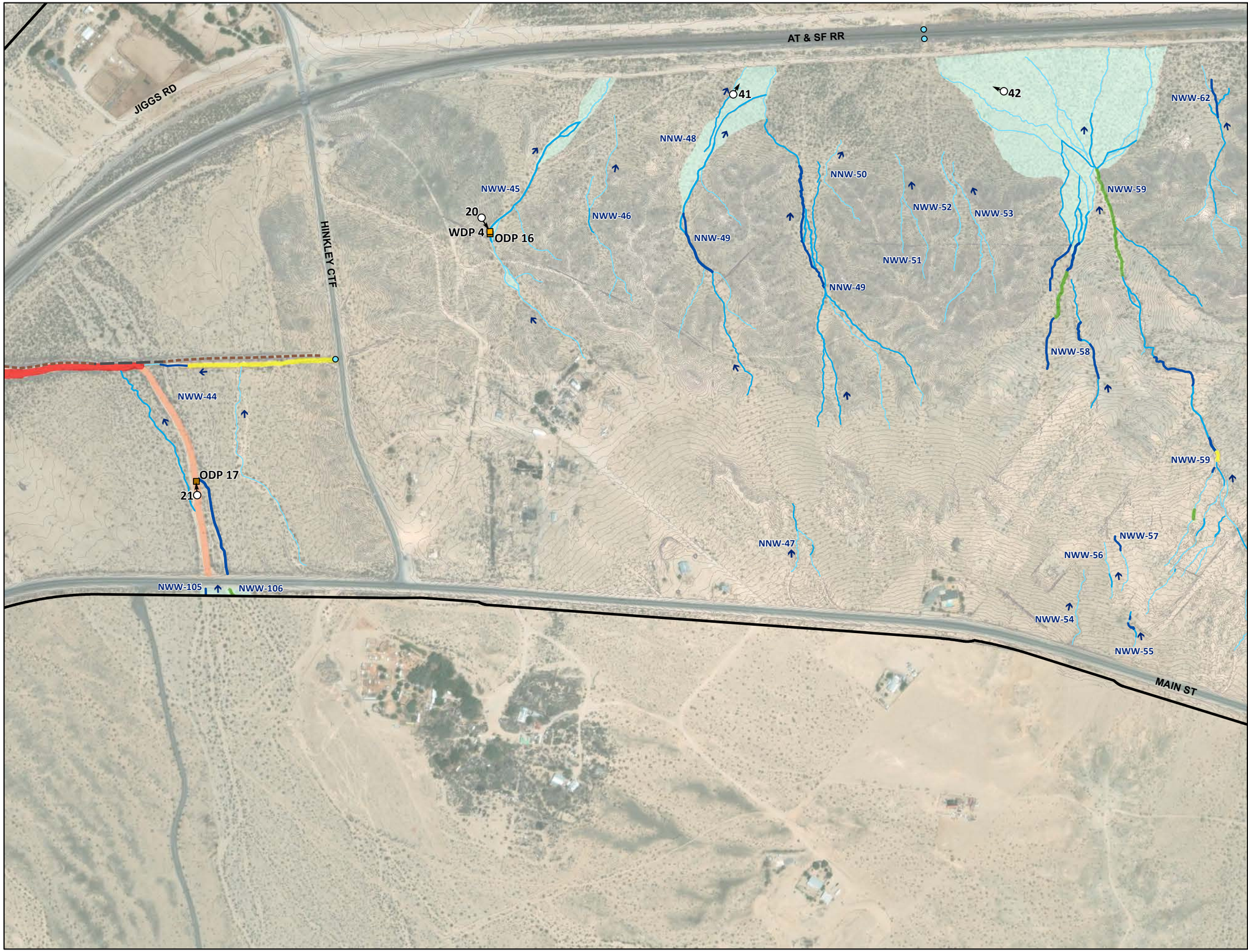
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Berm - Concrete Slab
Berm - Earthen Lined
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'
22'-30'
>30'

Watercourse (55.18 ac)[1]

Watercourse

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

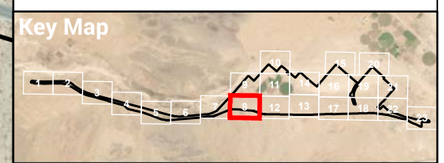


FIGURE 5C

PAGE 8 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Vegetated Streambed (0.28 ac)[1] (widths[2])
4'-6'
11'-15'
>30'

Mojave River Extent (590.34 ac)[1]
Vegetated Streambed
Unvegetated Streambed

Other Features[3]
Basin

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.
[3] Features lacking a defined lake or streambed, and thus anticipated to be non-jurisdictional.

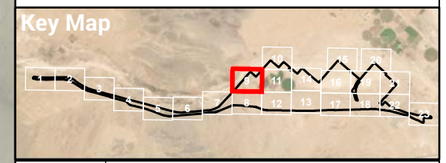


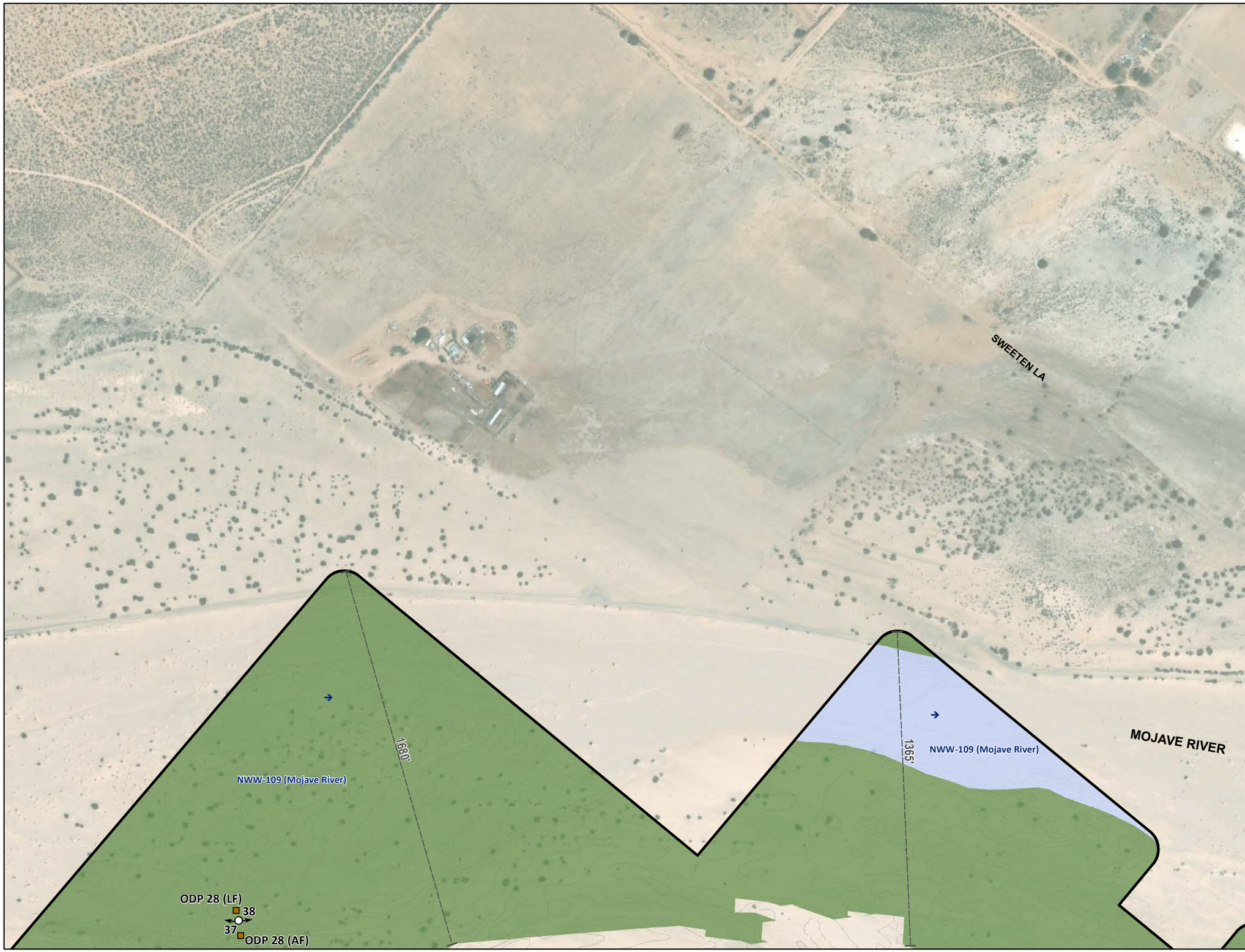
FIGURE 5C
PAGE 9 OF 23

CDFW Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
OHWM Datasheet Point (ODP)
AF = Active Floodplain
LF = Low-Flow Channel
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Mojave River Extent (590.34 ac)[1]

Vegetated Streambed
Unvegetated Streambed

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

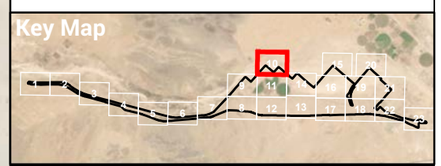


FIGURE 5C
PAGE 10 OF 23

CDFW Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

Photo Location

CDFW Streambed and Watercourse

Mojave River Extent (590.34 ac)[1]

Vegetated Streambed

[1] Represents total acreage for ARDR review area.



FIGURE 5C

PAGE 11 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

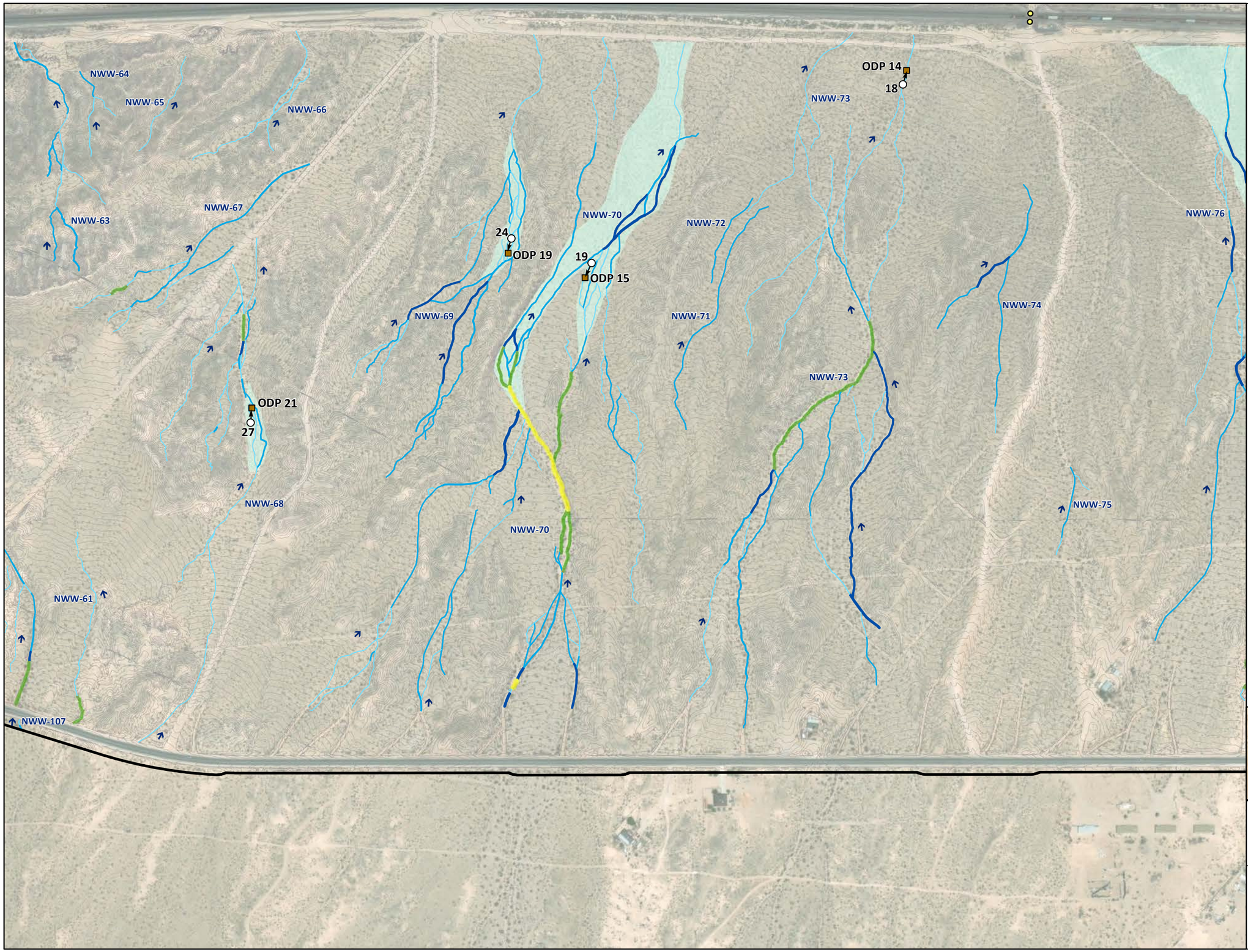
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Railroad Crossing
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

Watercourse (55.18 ac)[1]

Watercourse

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

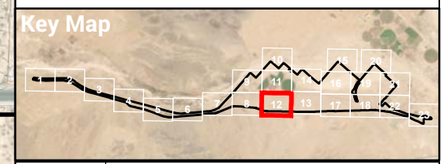


FIGURE 5C

PAGE 12 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri

WDP 5
15
16
ODP 12
ODP 13
17
14
ODP 11
NWW-83
NWW-85
NWW-88
ODP 10
13
NWW-76
NWW-81
NWW-82
NWW-79
NWW-80
NWW-87
NWW-86
30
ODP 24
NWW-78
NWW-77
NWW-80
NWW-84
NWW-80
AMARYLIS AV
28
ODP 22
NWW-108
MAIN ST
GAZANA ST

ARDR Review Area (5104.5 ac)[1]
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])
1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

Watercourse (55.18 ac)[1]
Watercourse

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

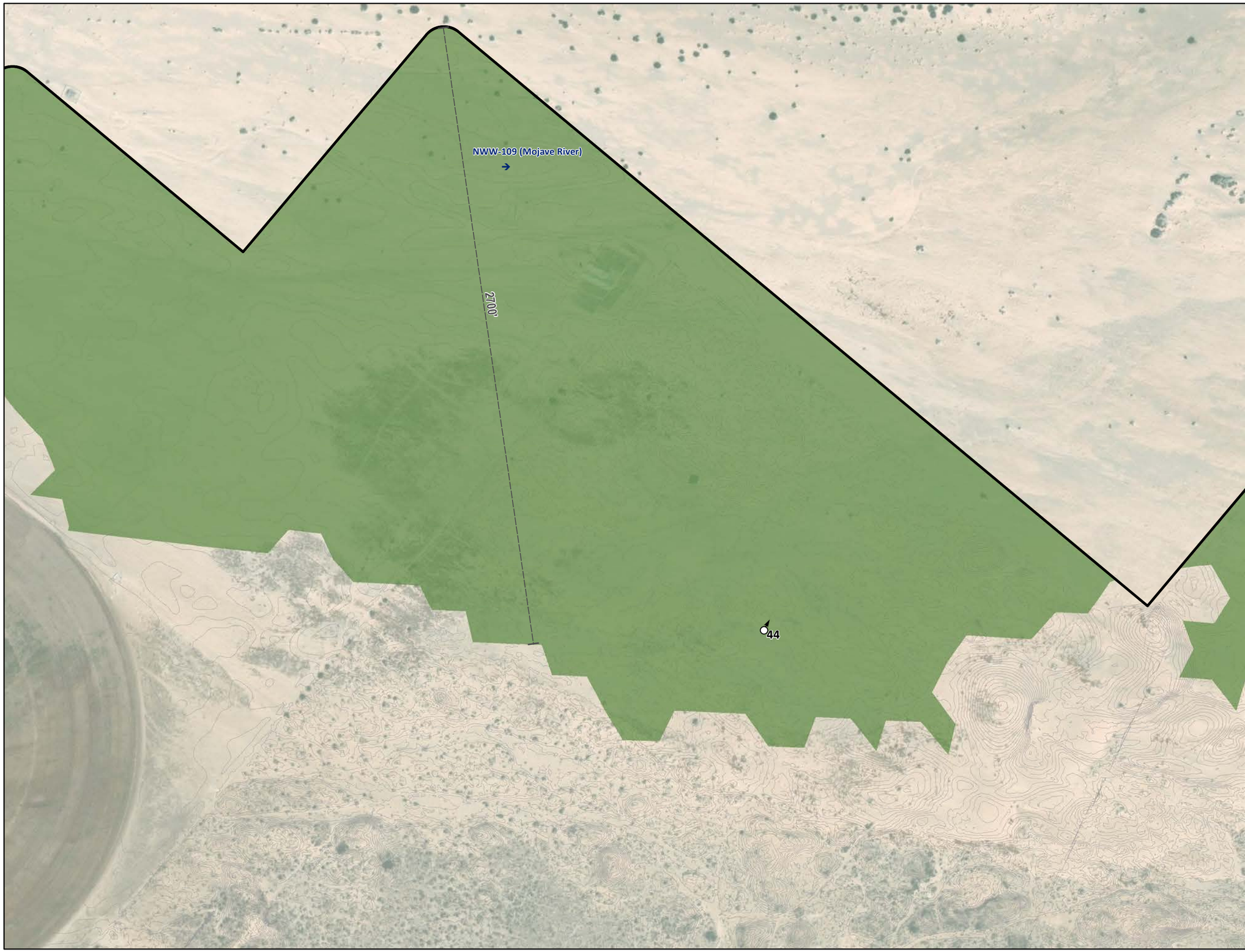
FIGURE 5C
PAGE 13 OF 23

CDFW Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

Photo Location

CDFW Streambed and Watercourse

Mojave River Extent (590.34 ac)[1]

Vegetated Streambed

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

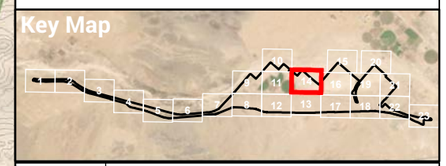


FIGURE 5C

PAGE 14 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

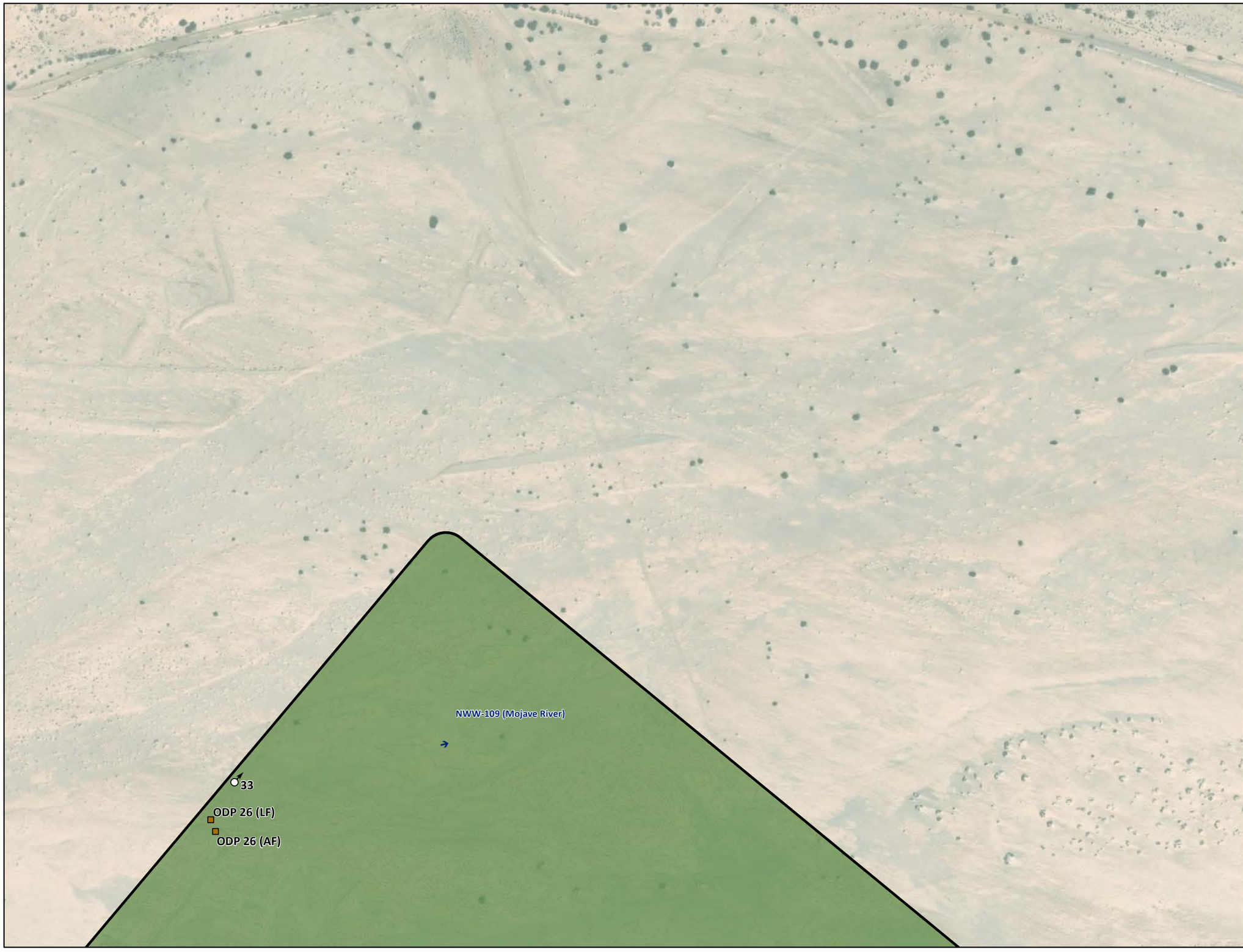
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

OHWM Datasheet Point (ODP)

AF = Active Floodplain

LF = Low-Flow Channel

Flow Direction

Photo Location

CDFW Streambed and Watercourse

Mojave River Extent (590.34 ac)[1]

Vegetated Streambed

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

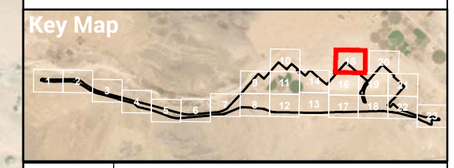


FIGURE 5C

PAGE 15 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

Photo Location

CDFW Streambed and Watercourse

Mojave River Extent (590.34 ac)[1]

Vegetated Streambed

[1] Represents total acreage for ARDR review area.

Key Map

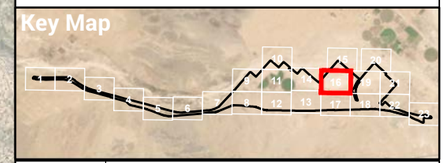


FIGURE 5C

PAGE 16 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'
22'-30'

Watercourse (55.18 ac)[1]

Watercourse

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5C
PAGE 17 OF 23

CDFW Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location
Off-site Flow Path

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])
7'-10'
16'-21'
>30'

Unvegetated Streambed - Rip-Rap (0.06 ac)[1] (widths[2])
3'
20'

Unvegetated Streambed - Concrete (0.04 ac)[1] (widths[2])
10'

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5C
PAGE 18 OF 23

CDFW Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Flow Direction
Photo Location
Off-site Flow Path

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])
7'-10'

Mojave River Extent (590.34 ac)[1]
Vegetated Streambed

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5C
PAGE 19 OF 23

CDFW
Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

7'-10'

Mojave River Extent (590.34 ac)[1]

Vegetated Streambed

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

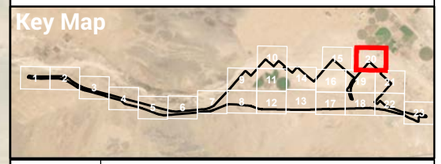


FIGURE 5C

PAGE 20 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

[1] Represents total acreage for ARDR review area.

Key Map

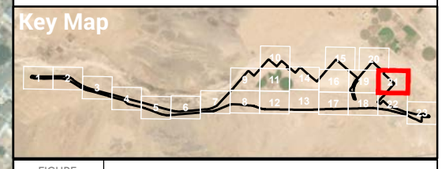


FIGURE
5C

PAGE
21 OF 23

CDFW
Streambed and Watercourse
BIG BARSTOW

ROCKS
BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Vegetated Streambed (0.28 ac)[1] (widths[2])
4'-6'
7'-10'
11'-15'

Unvegetated Streambed (24.06 ac)[1] (widths[2])
1'-3'
4'-6'
7'-10'

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

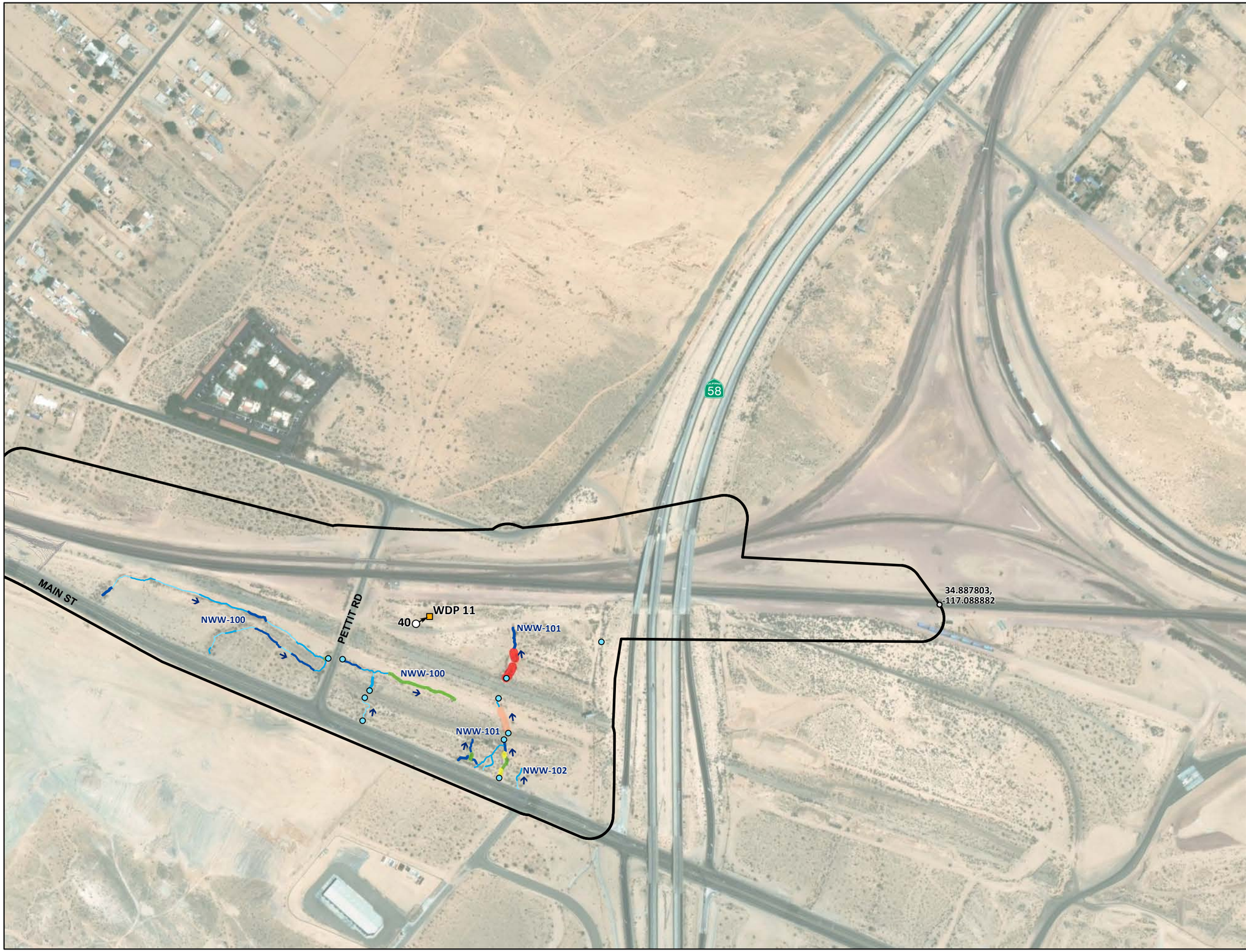
FIGURE 5C
PAGE 22 OF 23

CDFW Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Wetland Data Form Point (WDP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'
22'-30'
>30'

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5C
PAGE 23 OF 23

CDFW
Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Developed
- Disturbed Habitat

Key Map

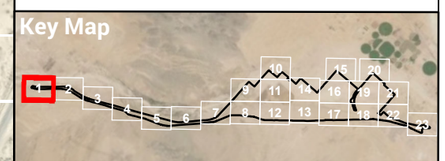


FIGURE 6

PAGE 1 OF 23

Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Developed
- Disturbed Habitat

Key Map

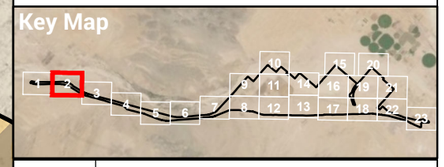


FIGURE 6

PAGE 2 OF 23

Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Developed
- Disturbed Habitat

Key Map

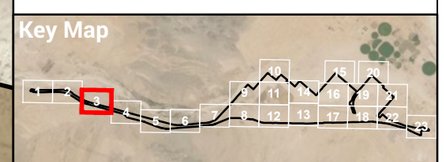


FIGURE 6

PAGE 3 OF 23

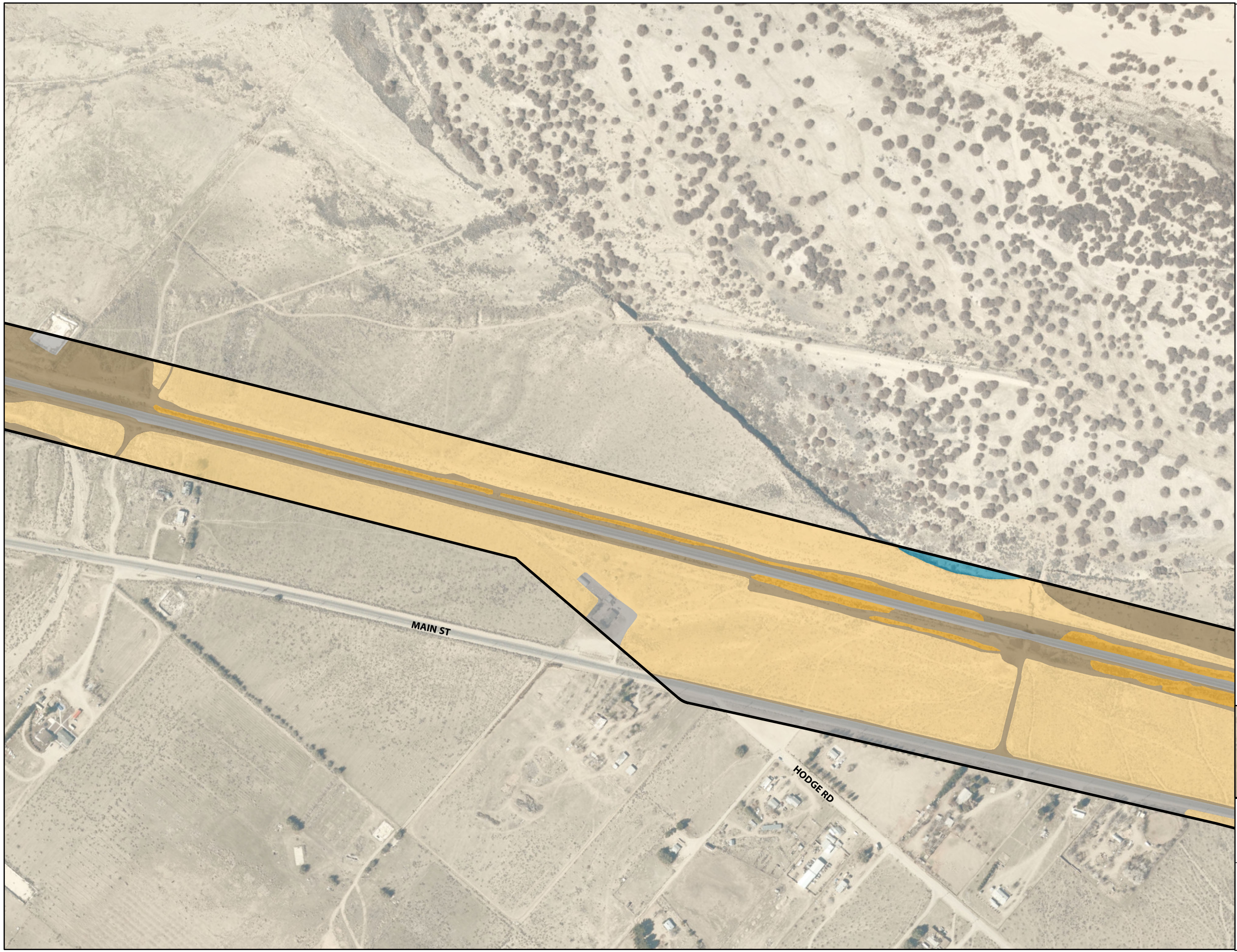
Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Developed
- Disturbed Habitat
- Tamarisk Thickets

Key Map



FIGURE 6

PAGE 4 OF 23

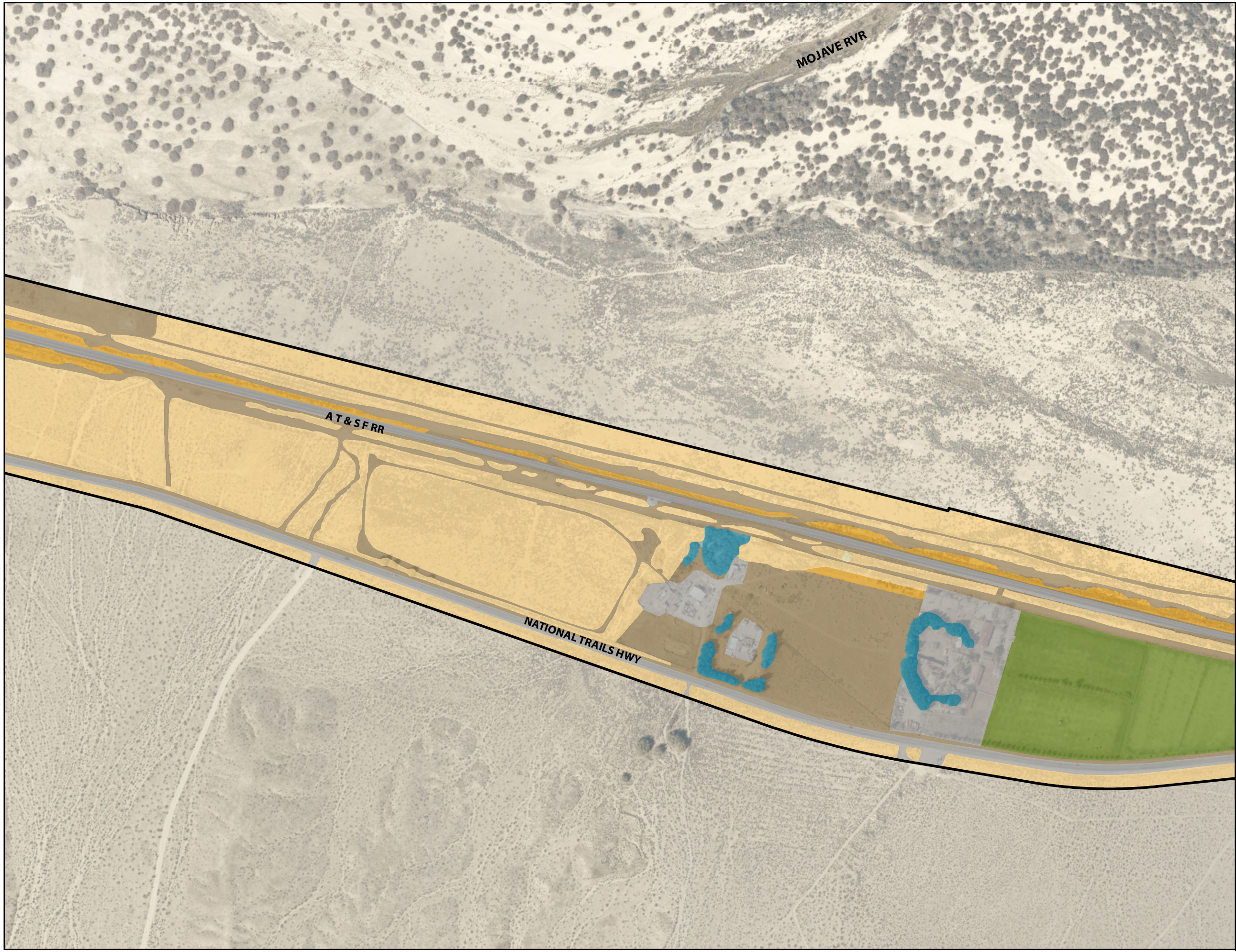
Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Developed
- Disturbed Habitat
- Pasture
- Tamarisk Thickets

Key Map

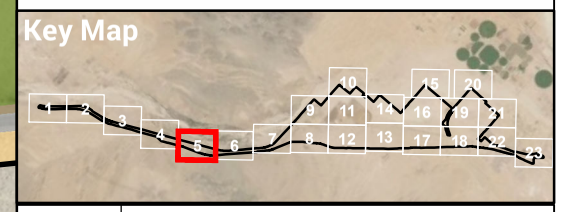


FIGURE 6

PAGE 5 OF 23

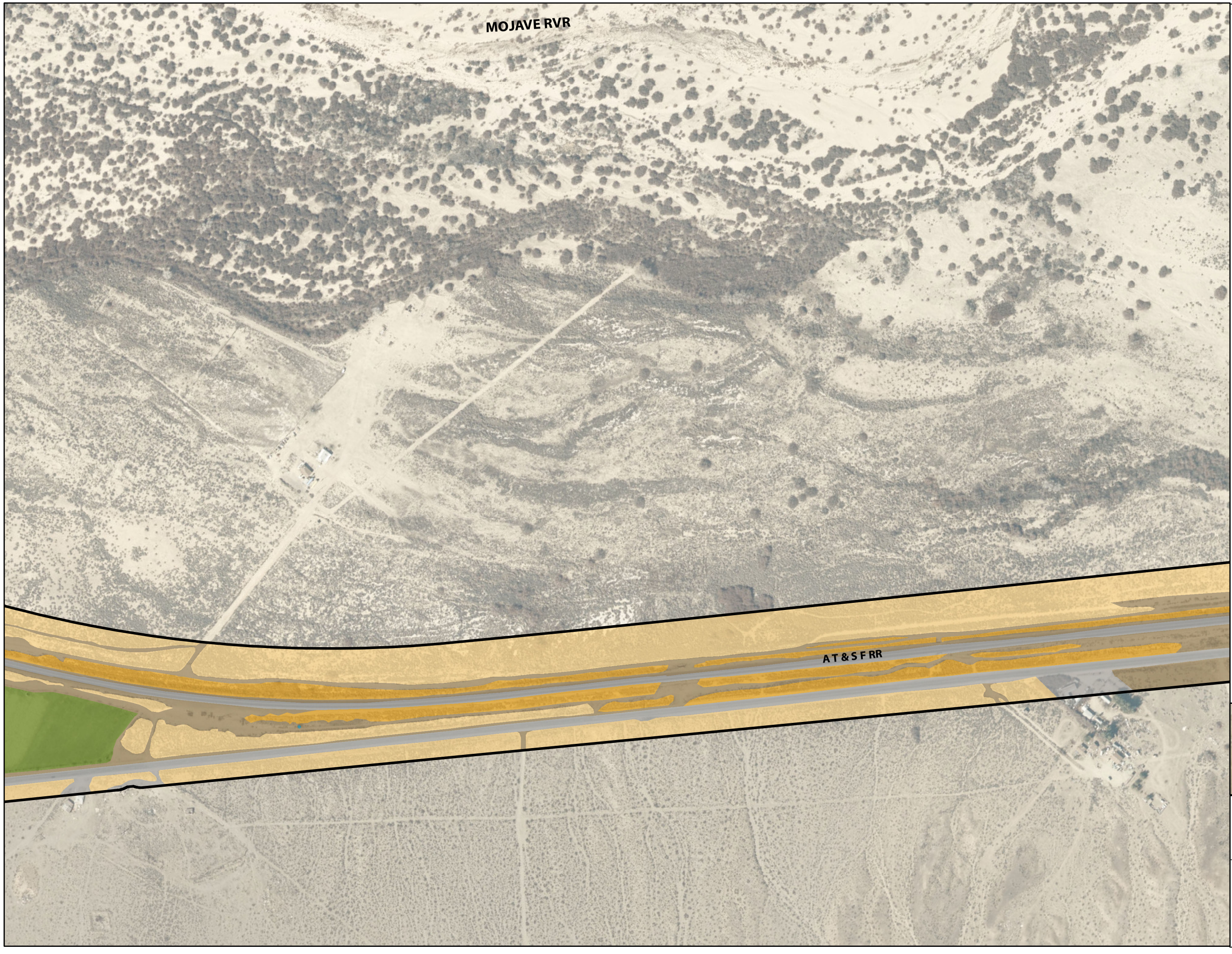
Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Developed
- Disturbed Habitat
- Pasture
- Tamarisk Thickets

Key Map

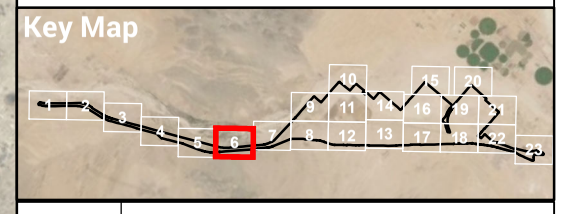


FIGURE 6

PAGE 6 OF 23

Vegetation

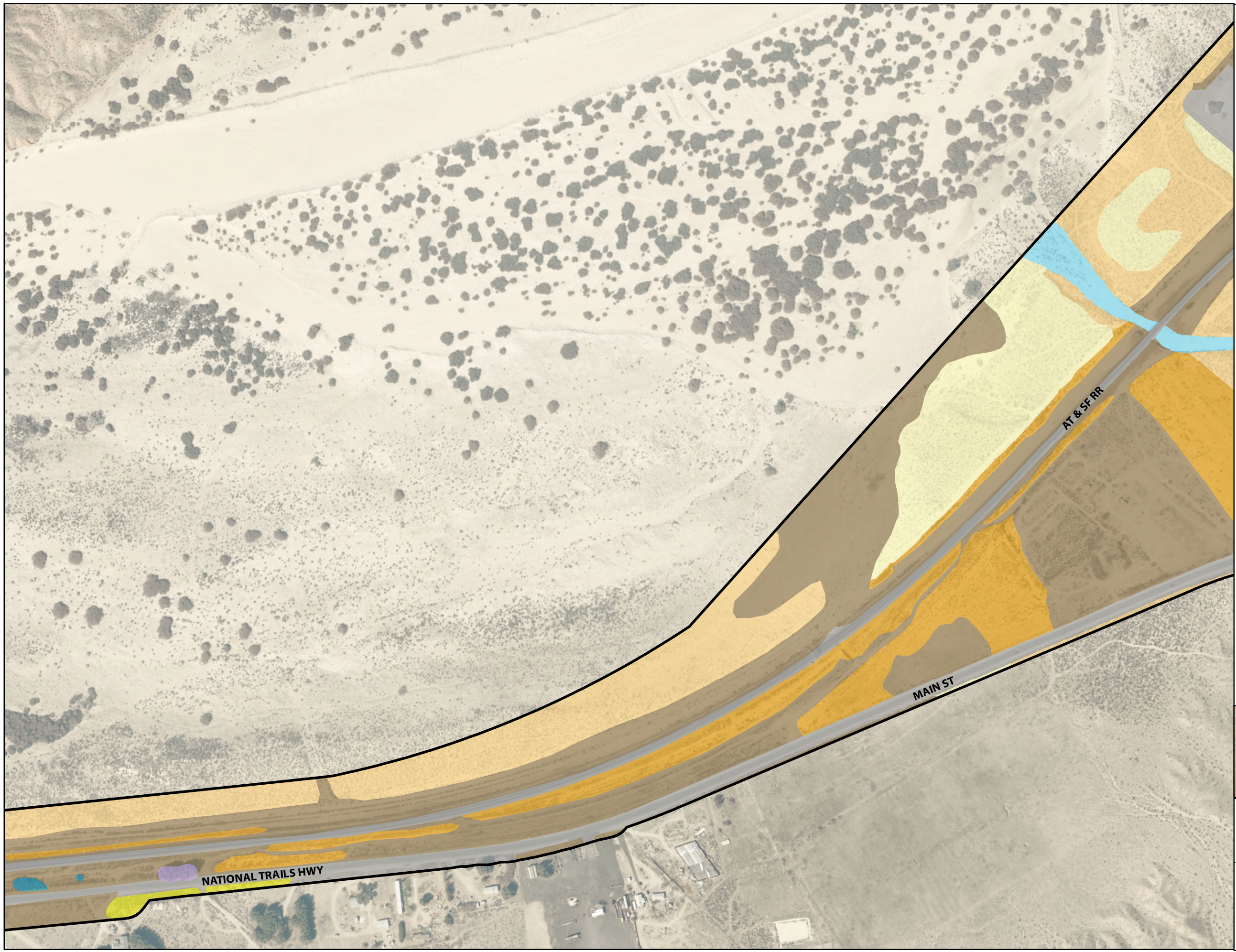
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Ornamental
- Tamarisk Thickets
- Unvegetated Channel

Key Map

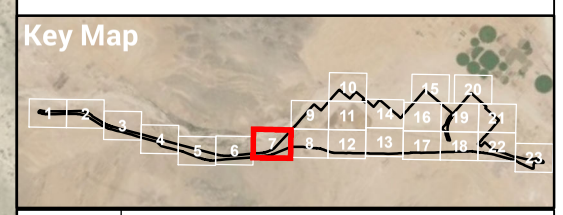


FIGURE 6

PAGE 7 OF 23

Vegetation

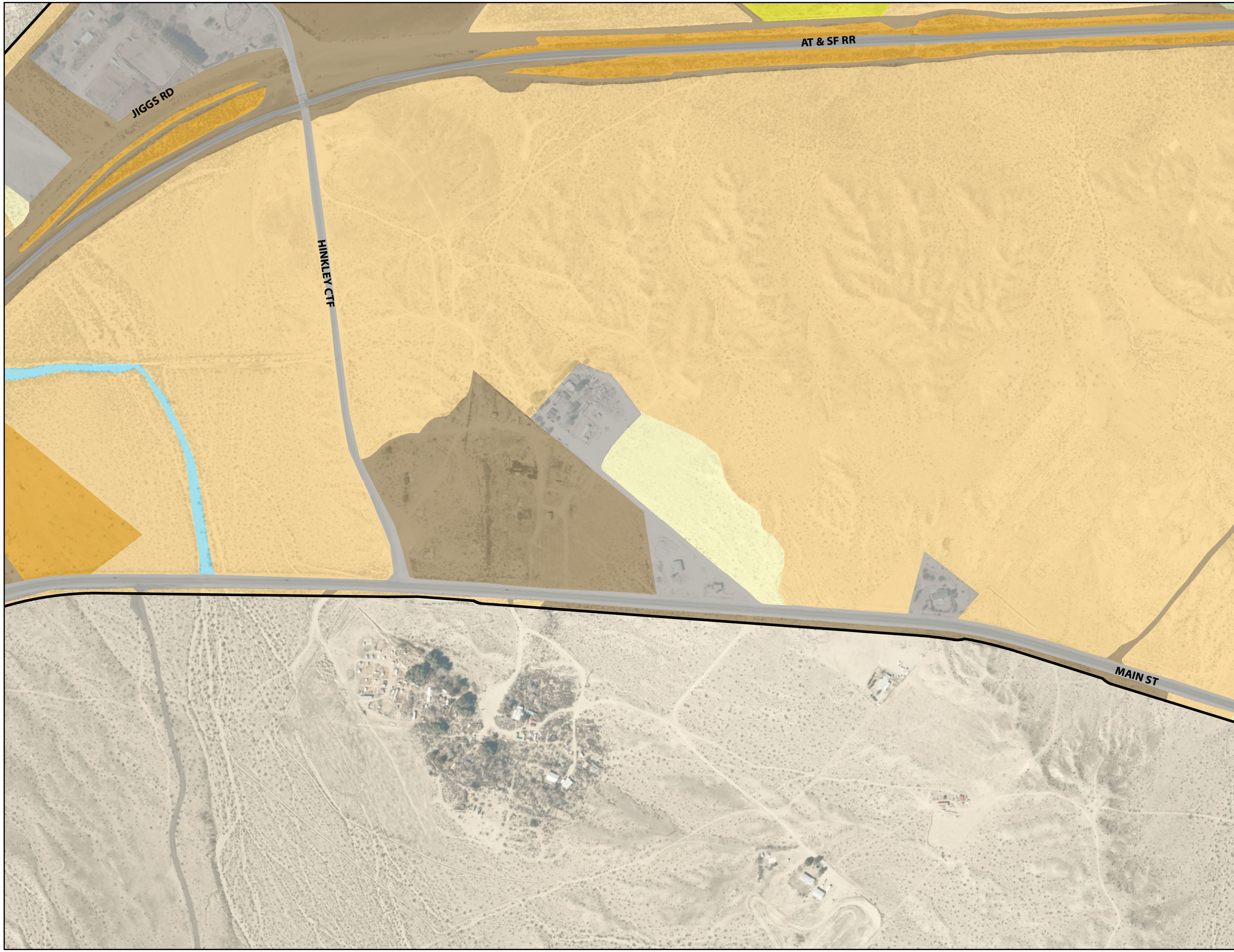
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Agriculture
- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Unvegetated Channel

Key Map

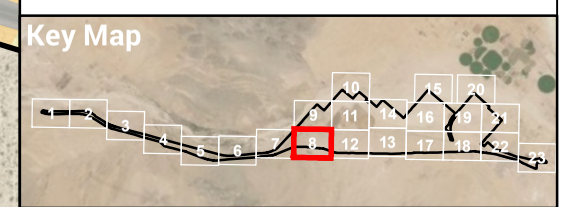


FIGURE 6

PAGE 8 OF 23

Vegetation

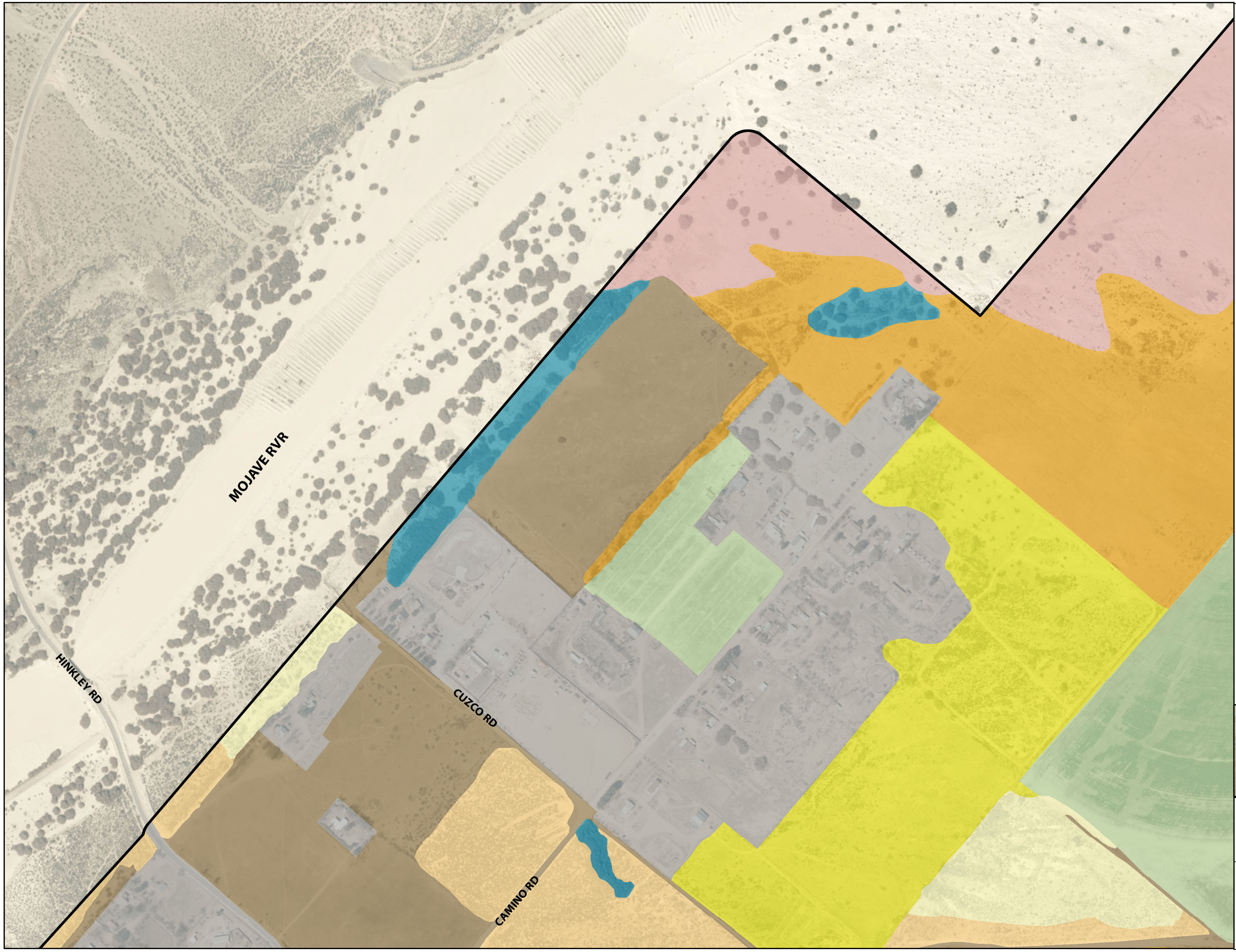
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes
- Agriculture
- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Tamarisk Thickets

Key Map

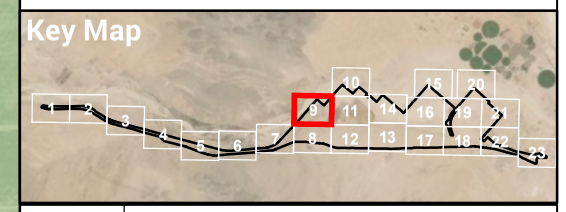


FIGURE 6

PAGE 9 OF 23

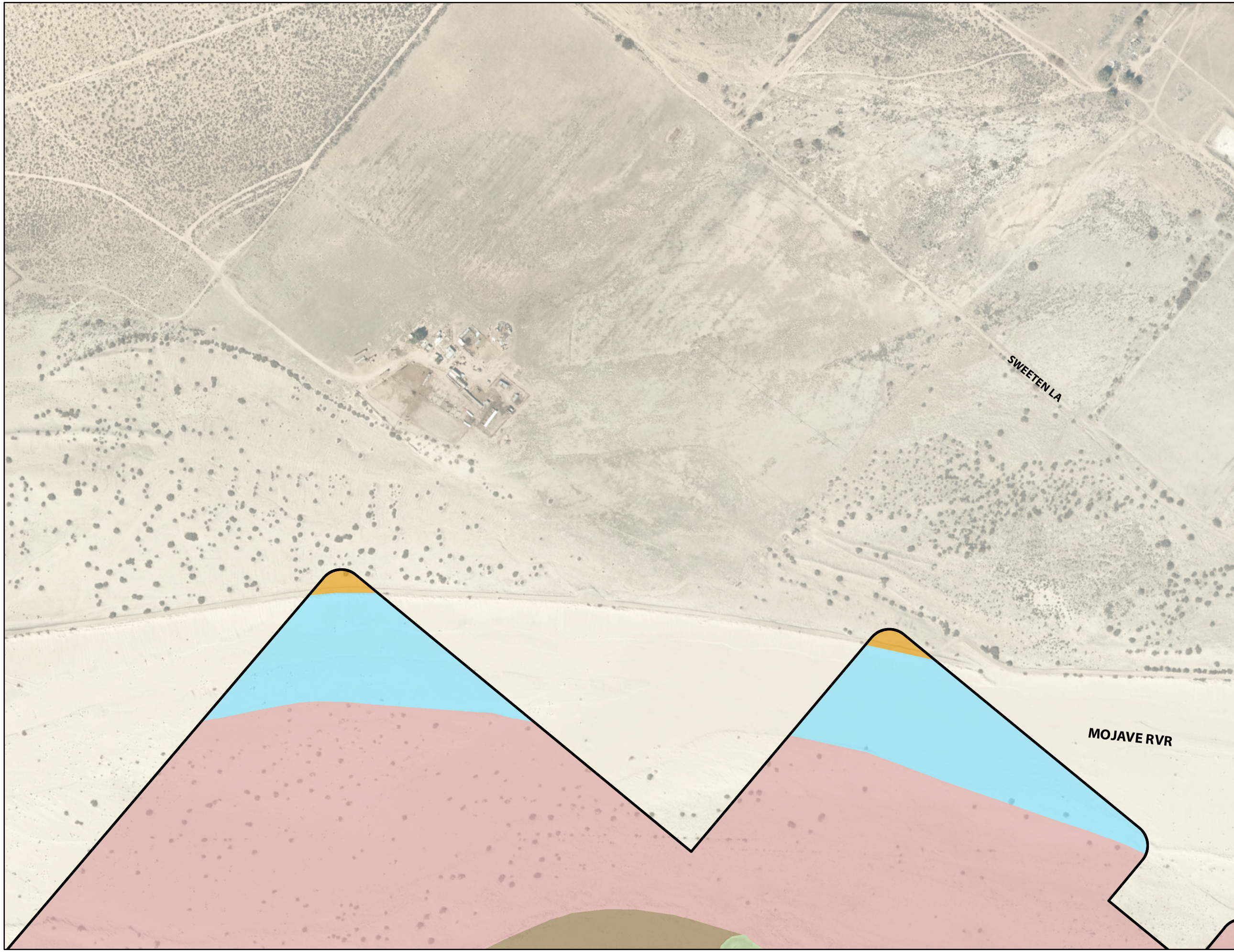
Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes
- Agriculture
- Allscale Scrub - Disturbed
- Disturbed Habitat
- Unvegetated Channel

Key Map

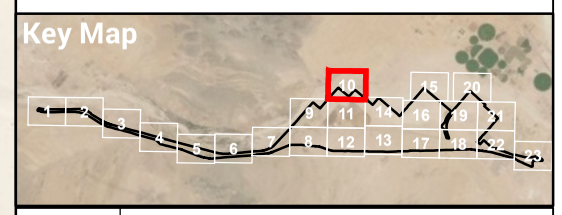


FIGURE 6

PAGE 10 OF 23

Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri

ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes
- Agriculture
- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Tamarisk Thickets

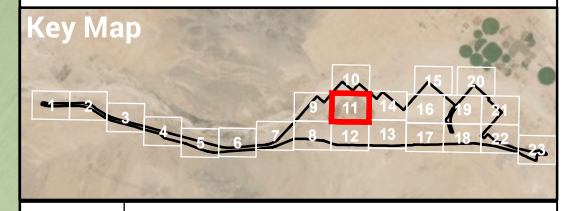


FIGURE 6

PAGE 11 OF 23

Vegetation

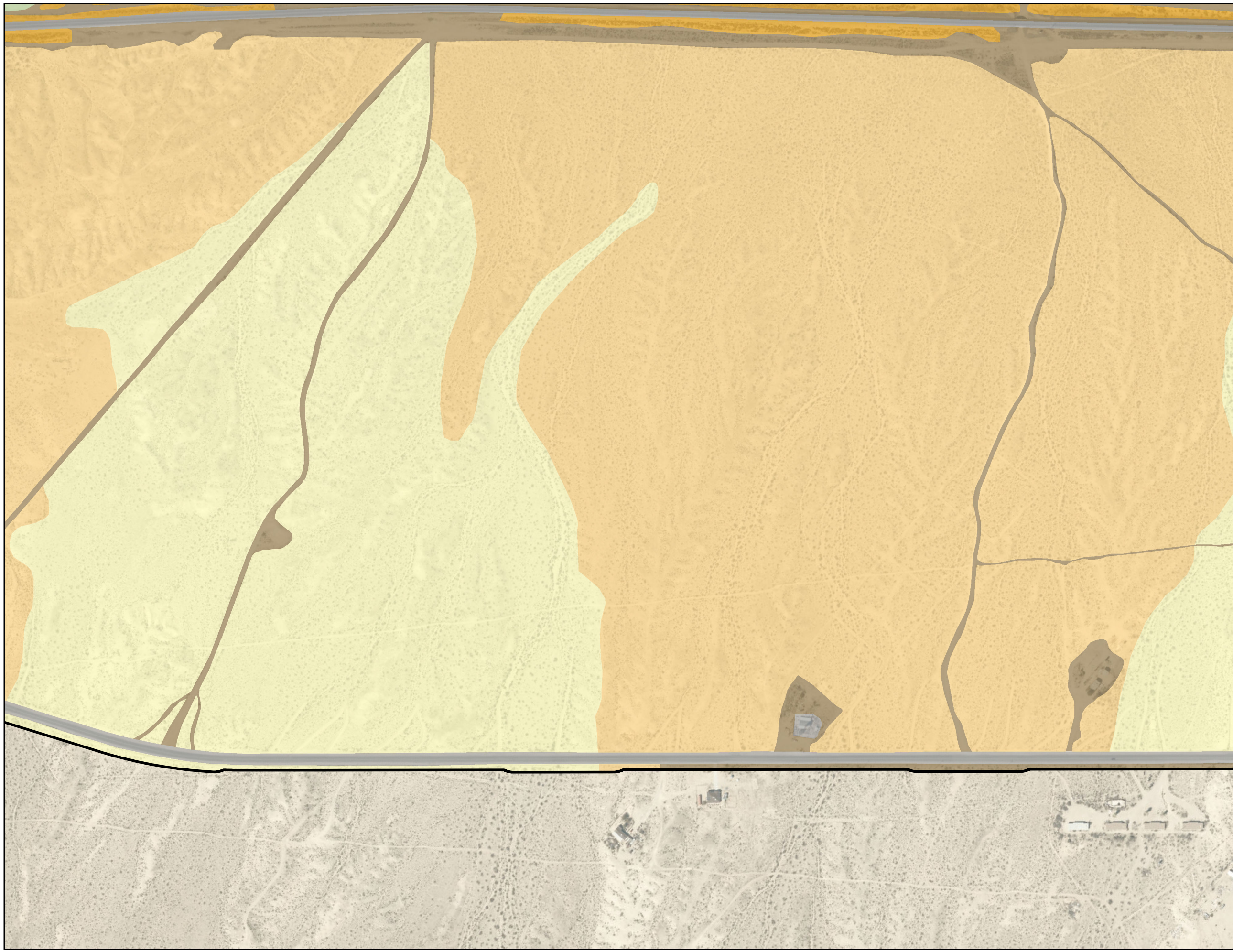
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Agriculture
- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Developed
- Disturbed Habitat

Key Map

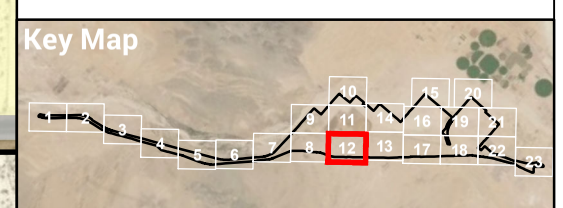


FIGURE 6

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Vegetation

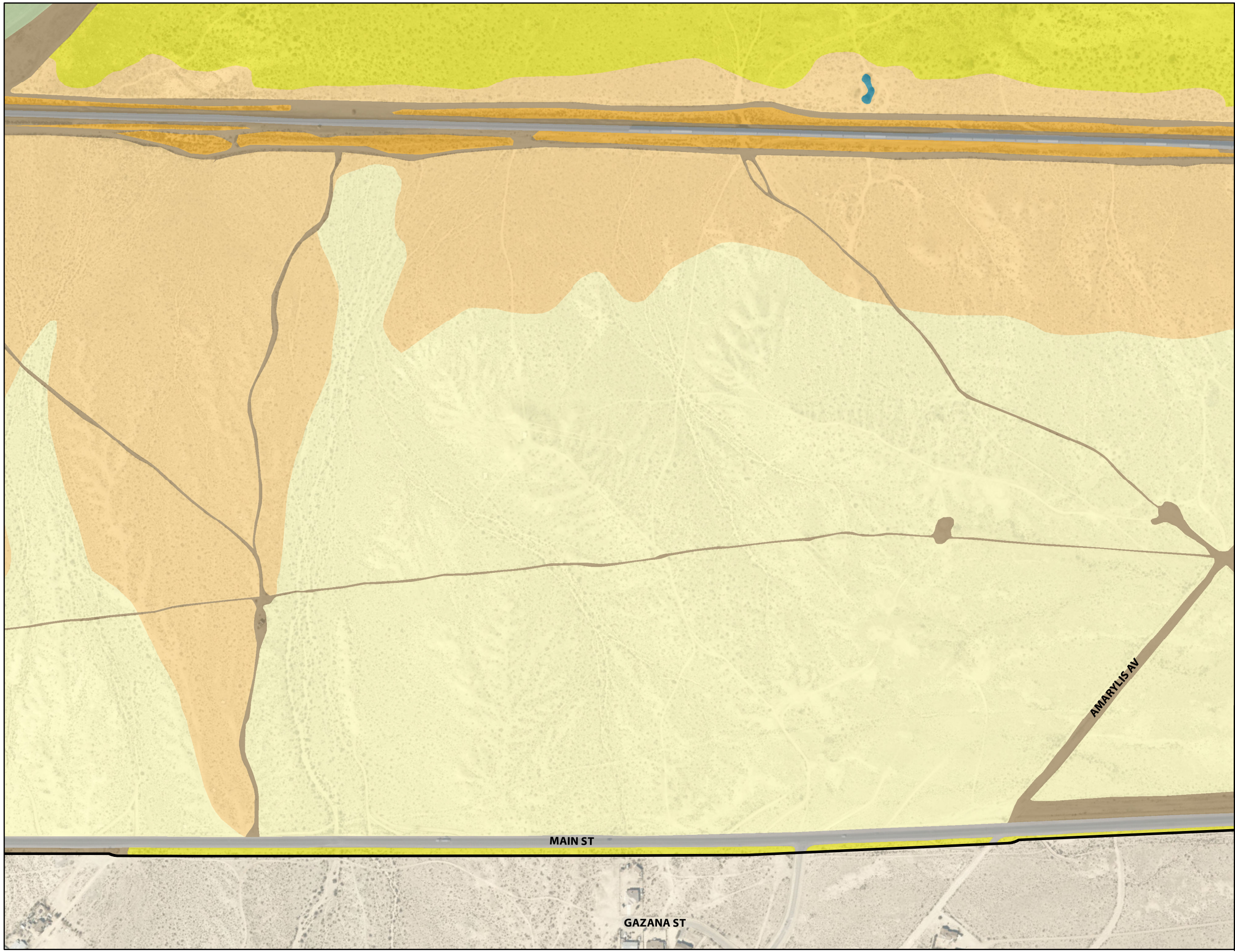
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Agriculture
- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Tamarisk Thickets

Key Map

FIGURE 6

PAGE 13 OF 23

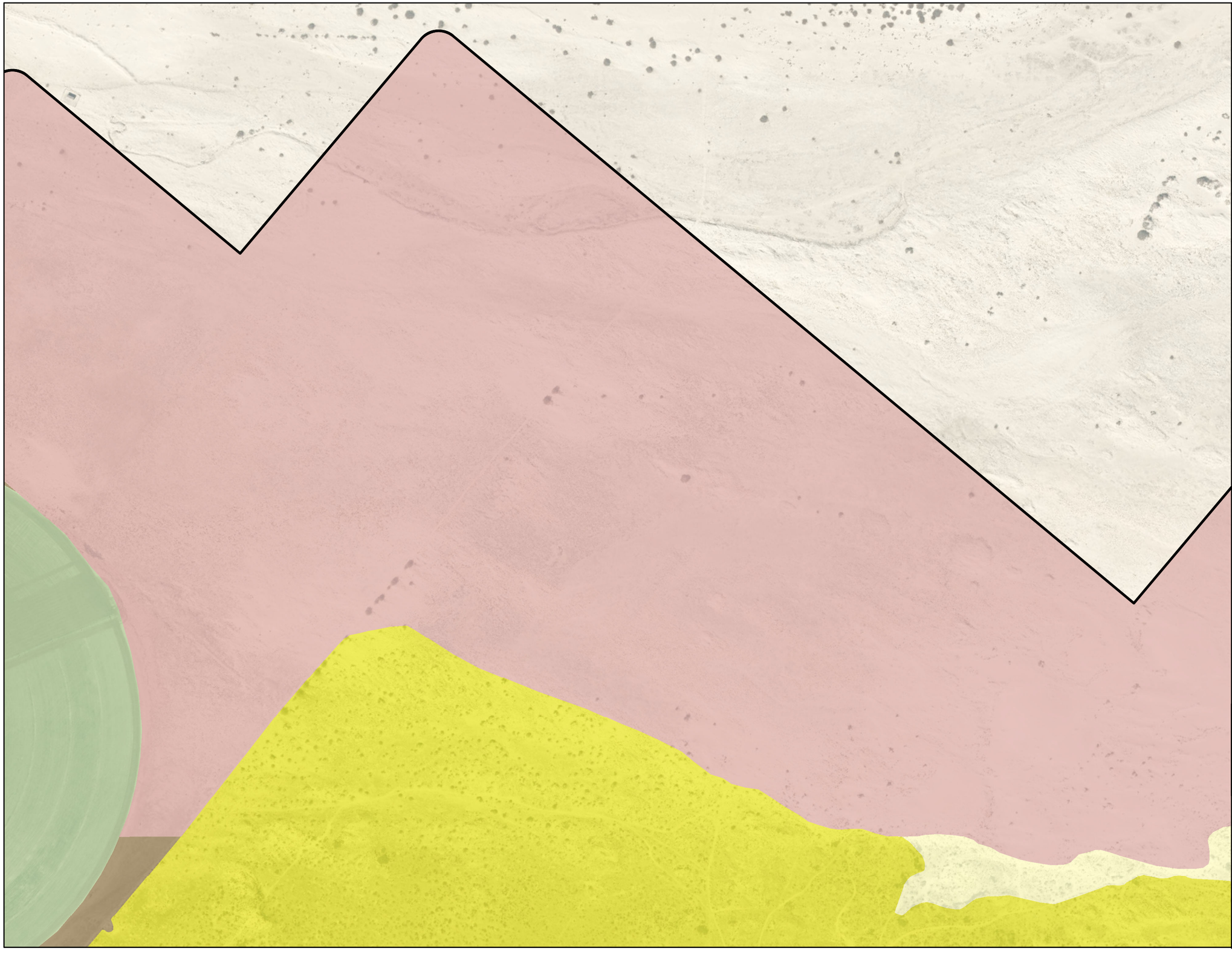
Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes
- Agriculture
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Disturbed Habitat

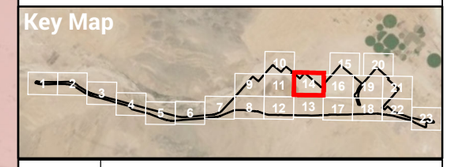


FIGURE 6

PAGE 14 OF 23

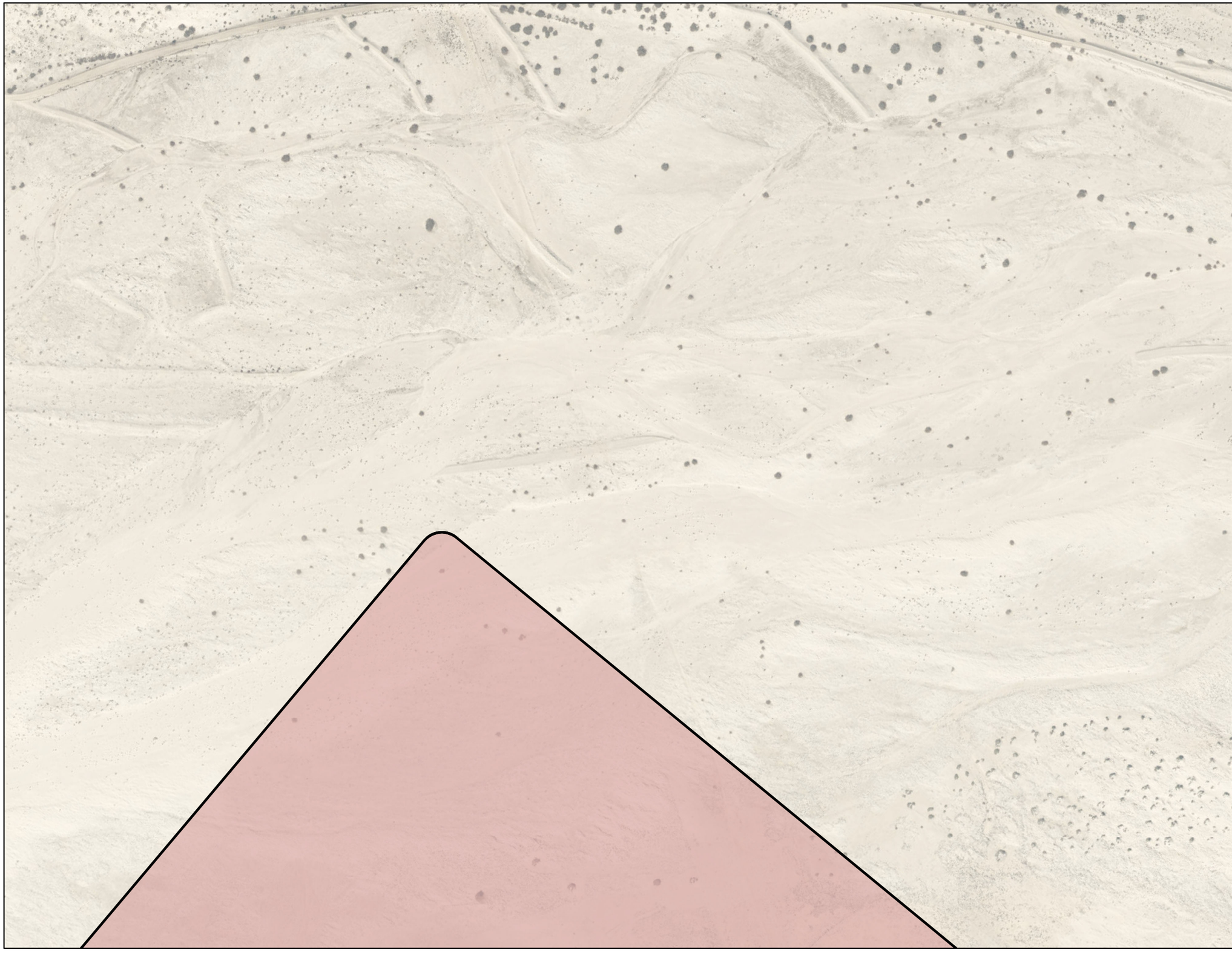
Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

Active Desert Dunes

Key Map

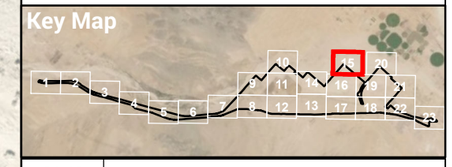


FIGURE 6

PAGE 15 OF 23

Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri

ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes
- Allscale Scrub
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Disturbed Habitat

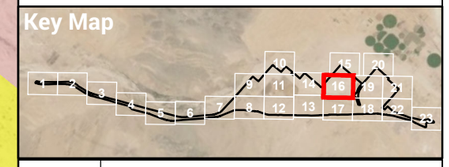


FIGURE 6

PAGE 16 OF 23

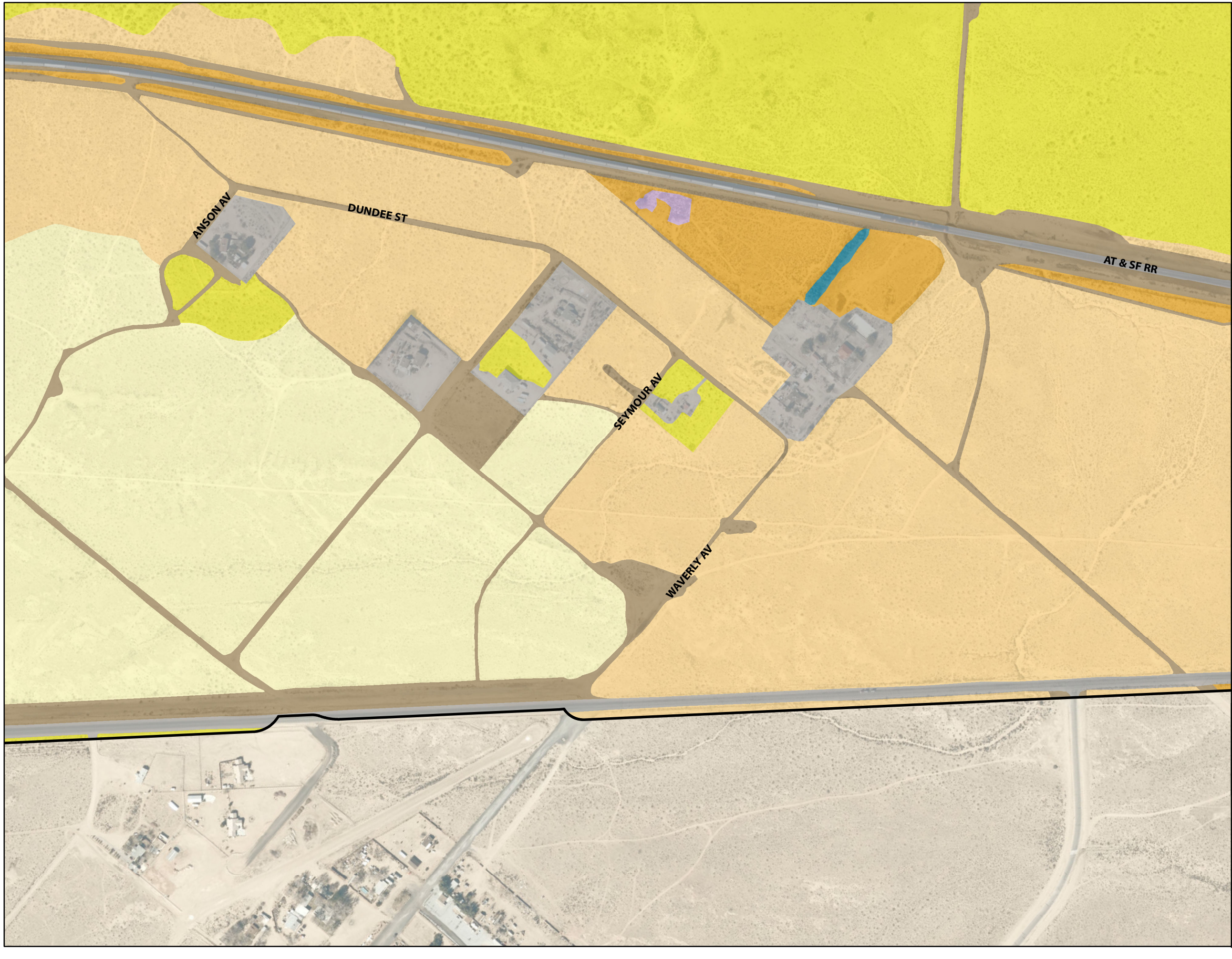
Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Ornamental
- Tamarisk Thickets

Key Map

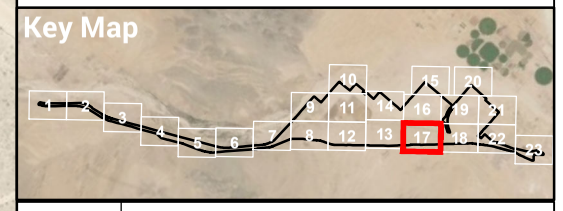


FIGURE 6

PAGE 17 OF 23

Vegetation

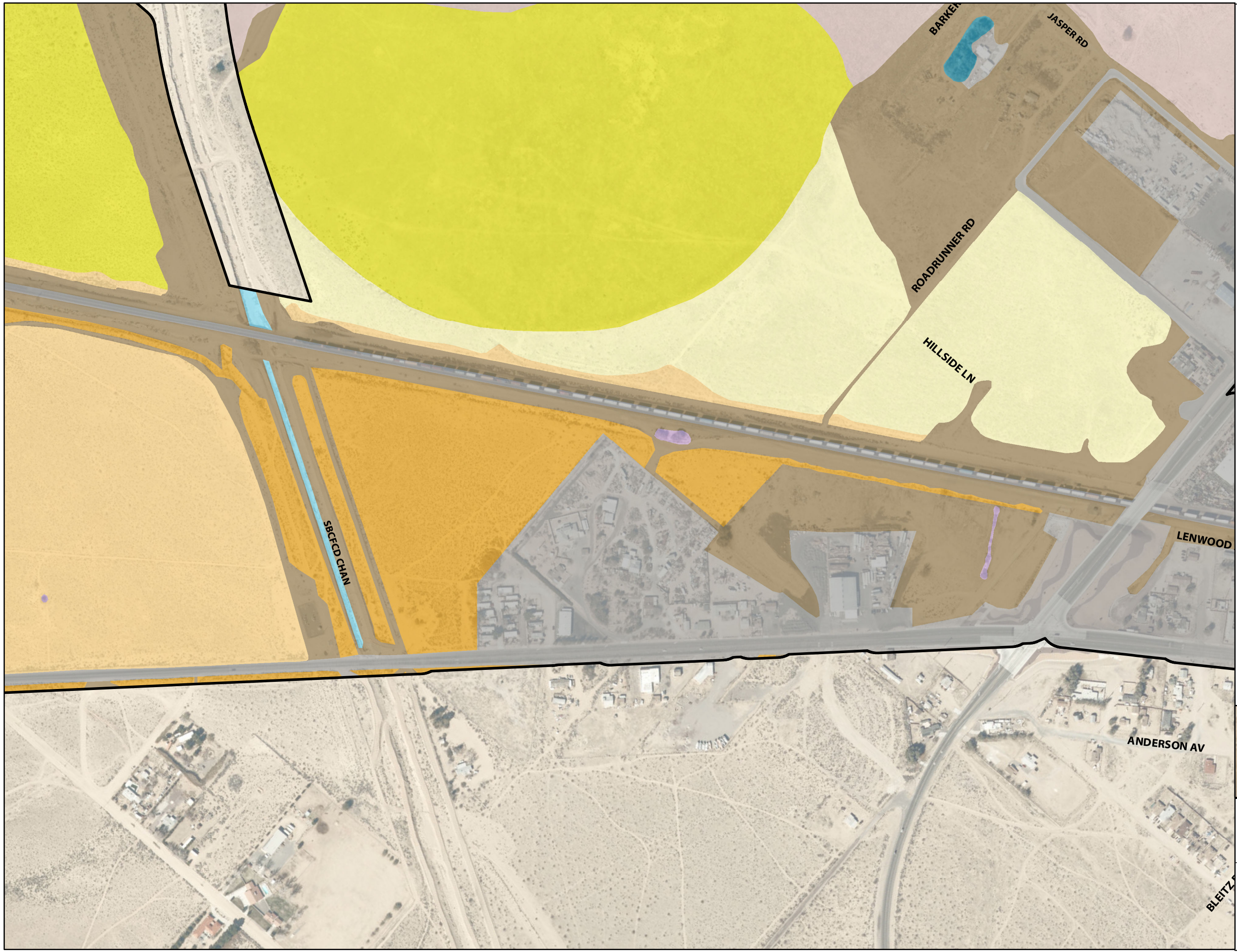
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes - Disturbed
- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Ornamental
- Tamarisk Thickets
- Unvegetated Channel

Key Map

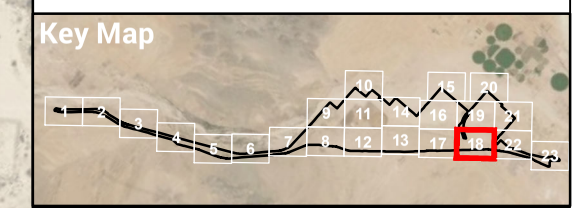


FIGURE 6

PAGE 18 OF 23

Vegetation

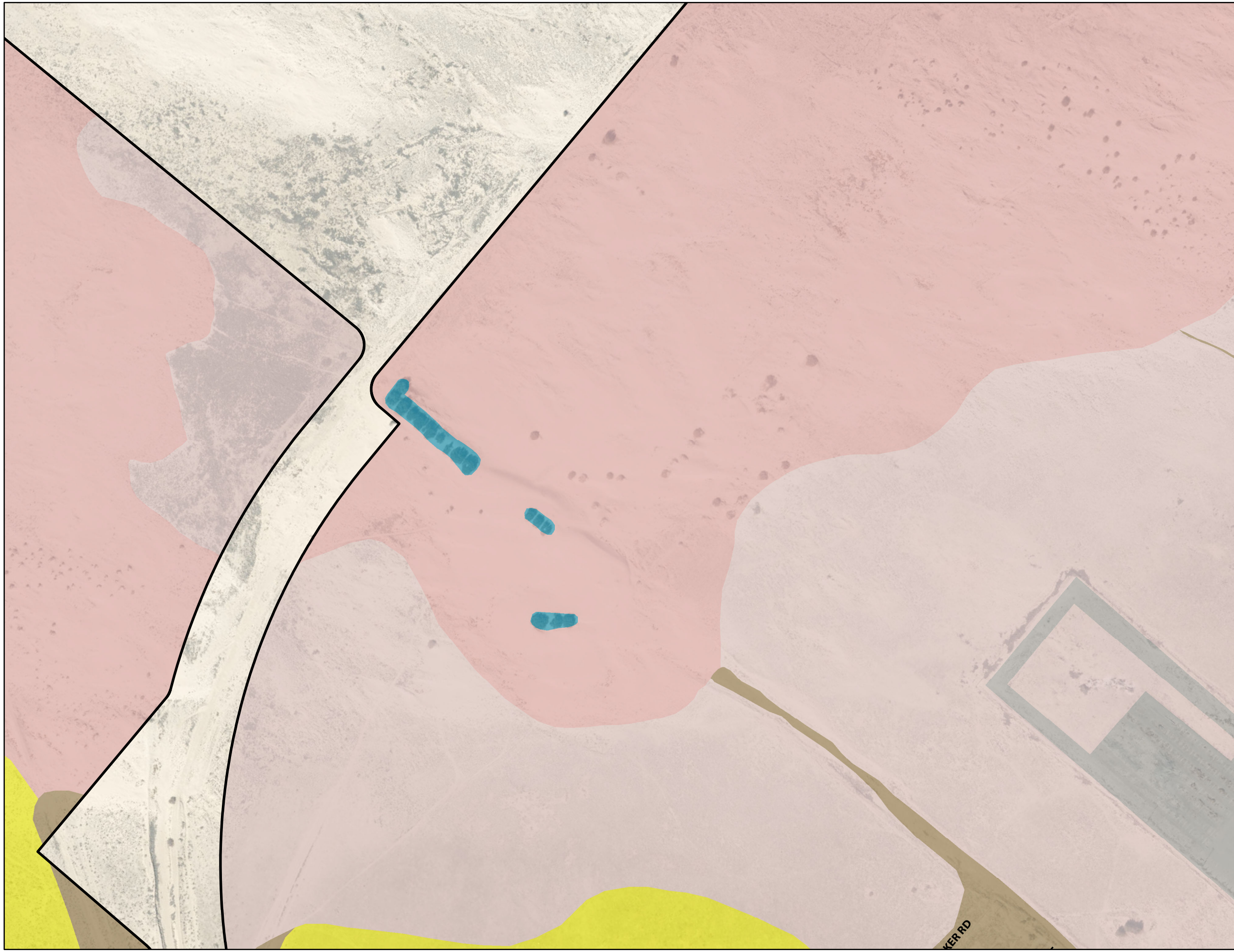
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes
- Active Desert Dunes - Disturbed
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Tamarisk Thickets

Key Map

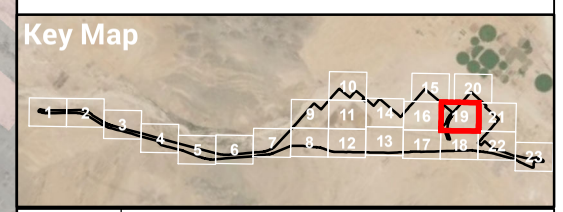


FIGURE 6

PAGE 19 OF 23

Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

Active Desert Dunes

Key Map

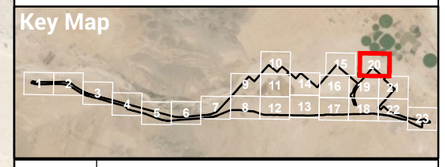


FIGURE 6

PAGE 20 OF 23

Vegetation

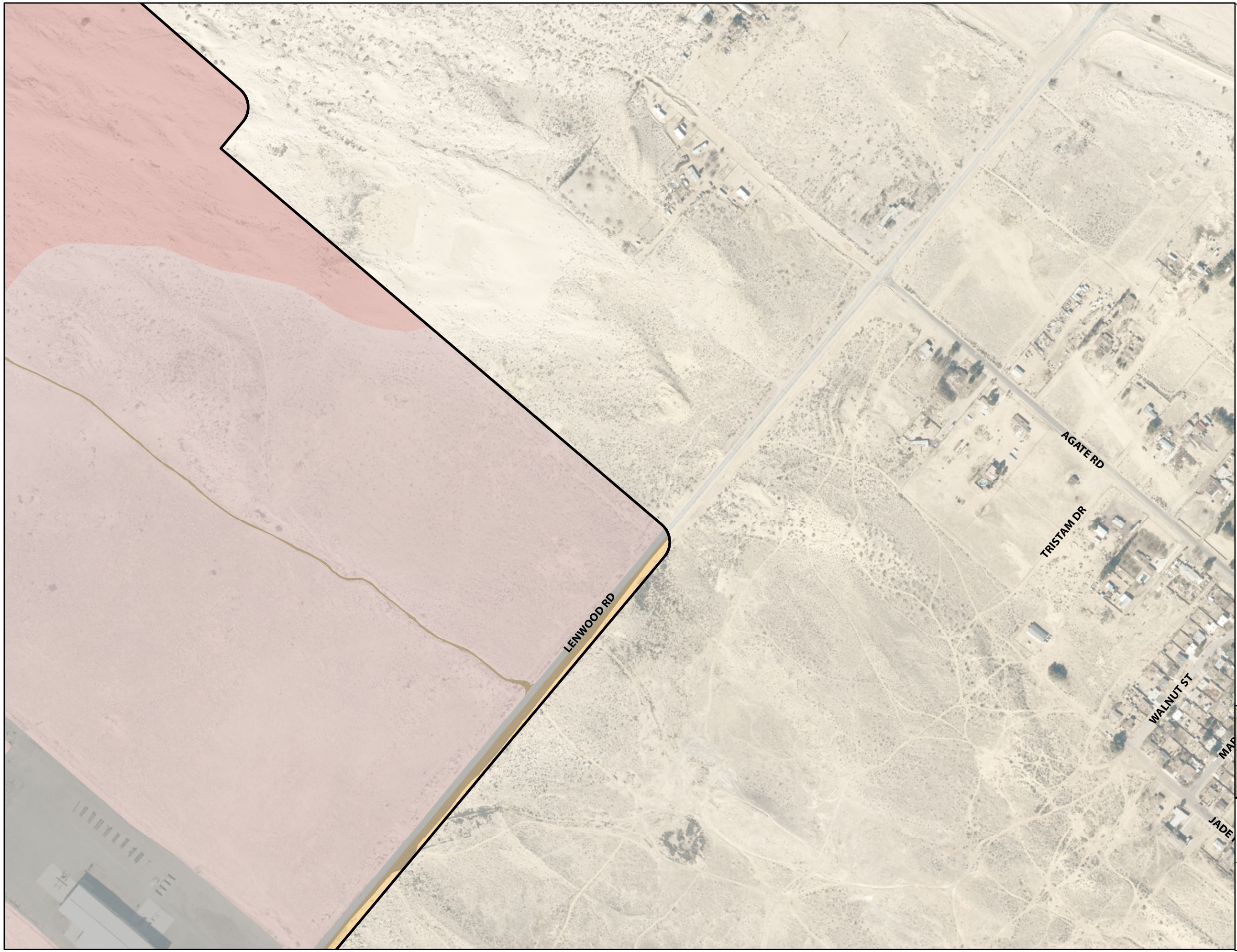
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes
- Active Desert Dunes - Disturbed
- Allscale Scrub
- Developed
- Disturbed Habitat

Key Map

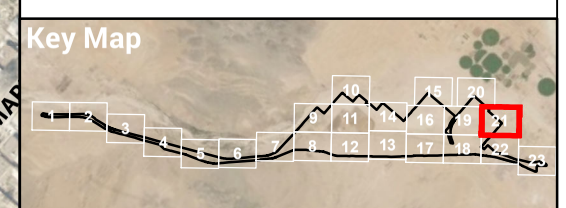


FIGURE 6

PAGE 21 OF 23

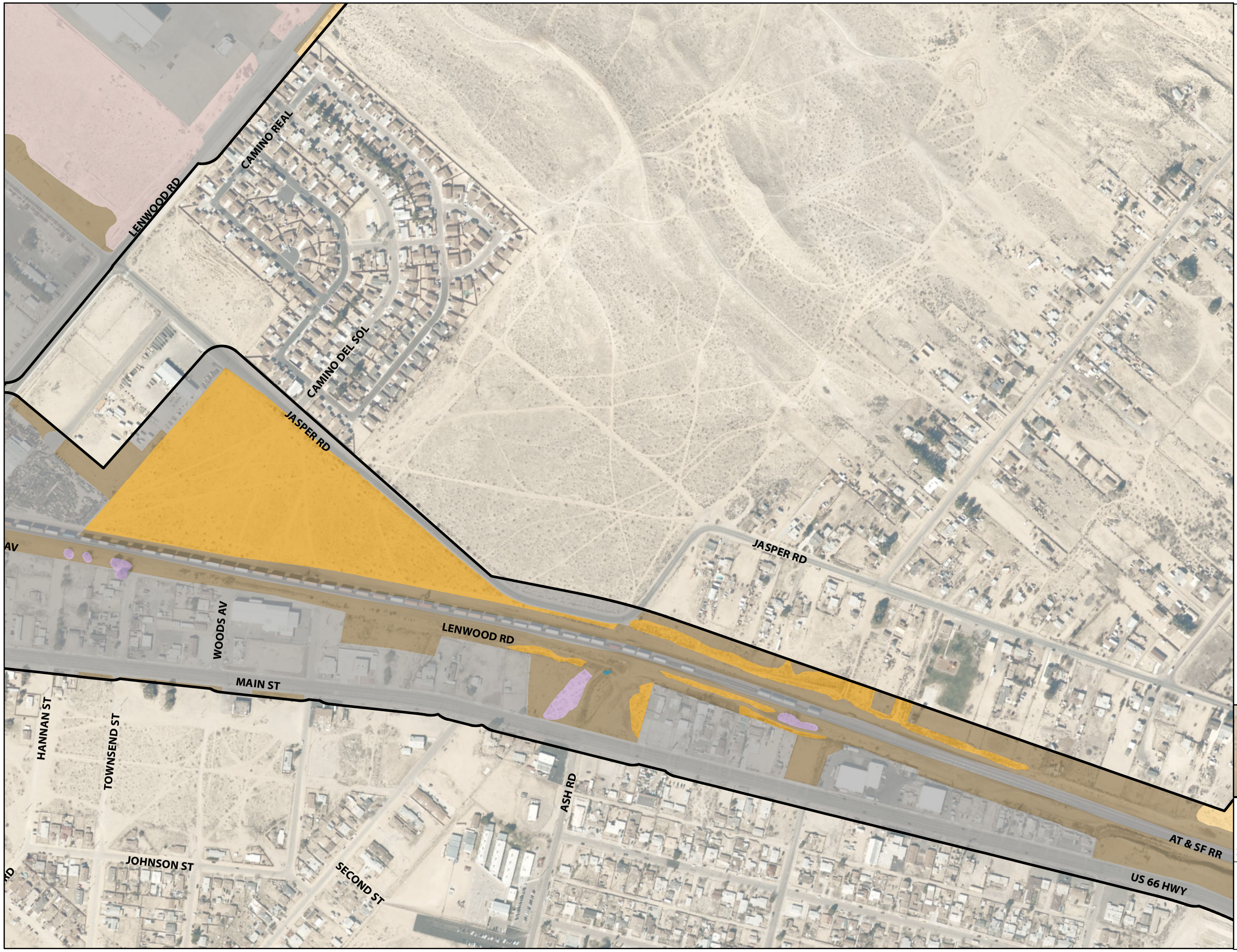
Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes - Disturbed
- Allscale Scrub
- Allscale Scrub - Disturbed
- Developed
- Disturbed Habitat
- Ornamental
- Tamarisk Thickets

Key Map

FIGURE 6

PAGE 22 OF 23

Vegetation

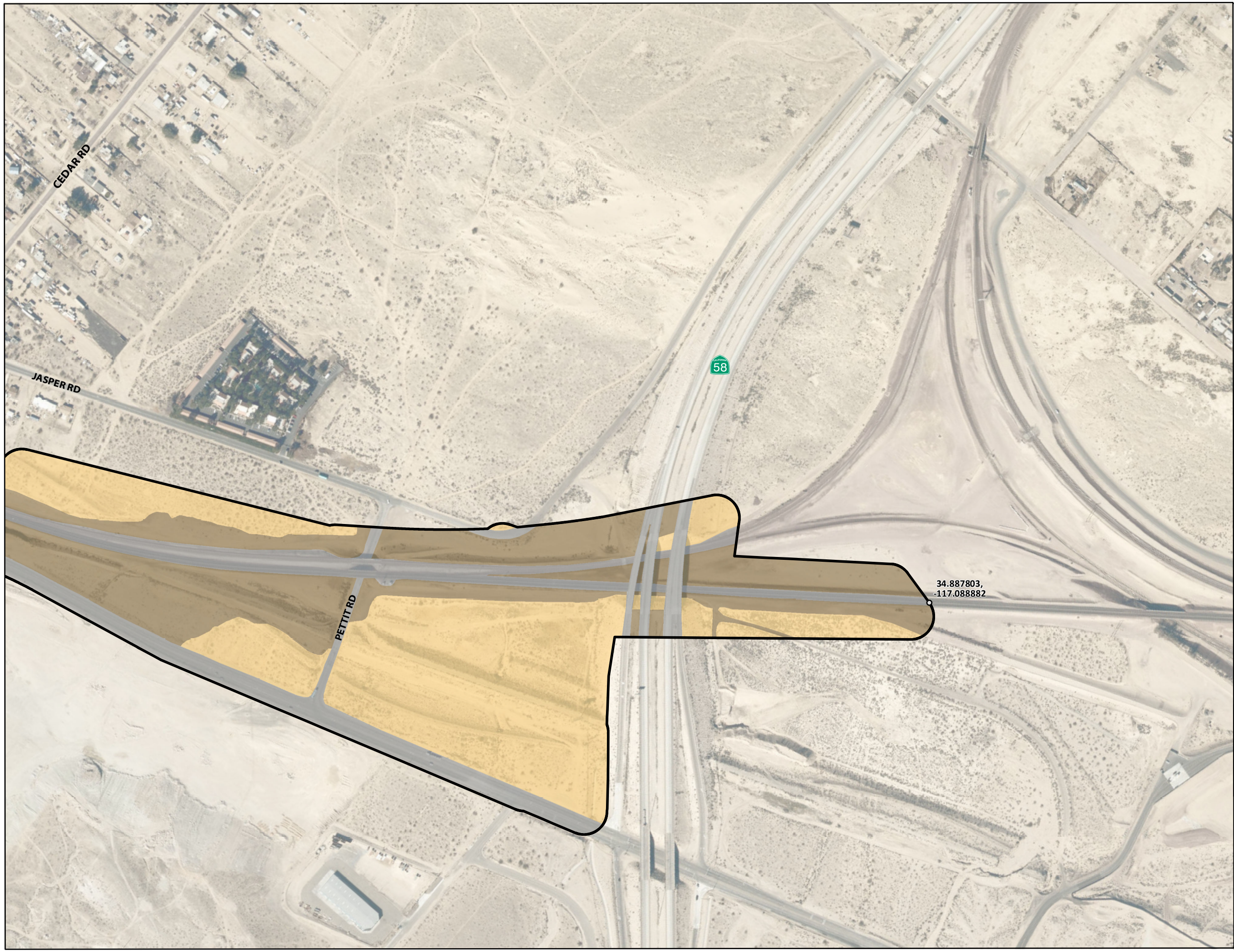
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Developed
- Disturbed Habitat

Key Map

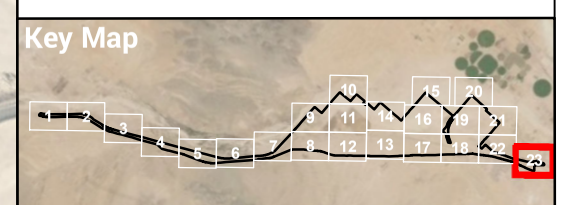


FIGURE 6

PAGE 23 OF 23

Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri

APPENDIX A

CHECKLIST: MINIMUM STANDARDS FOR ACCEPTANCE OF AQUATIC RESOURCES DELINEATION REPORTS

APPENDIX A. CHECKLIST: MINIMUM STANDARDS FOR ACCEPTANCE OF AQUATIC RESOURCES DELINEATION REPORTS, LOS ANGELES DISTRICT REGULATORY DIVISION, USACE, MARCH 16, 2017

Report Section/ Page Number	Minimum Standards for Acceptance of Aquatic Resources Delineation Reports	Additional Notes
Section 1; Appendix B	1. JD REQUEST AND FORMS: ☑ A cover letter indicating whether you are requesting a jurisdictional determination (JD)*. ☑ If you are requesting a JD, you must complete, sign, and return the Request for Corps Jurisdictional Determination (JD) sheet. ☑ For preliminary jurisdictional determinations the Preliminary Jurisdictional Determination Form must be signed and submitted.	*Text provided in ARDR in lieu of formal cover letter.
Section 9	2. CONTACT INFORMATION: Contact information for the ☑ applicant(s), ☑ property owner(s), and ☑ agent(s).	
N/A	3. SITE ACCESS: If the property owner or their representatives will not accompany the Corps to the site, a signed statement from the property owner(s) allowing Corps personnel to enter the property and to collect samples during normal business hours. If the property lacks direct access by public roads (in other words, access requires passage through private property not owned by the applicant), the owner or proponent must obtain permission from the adjacent property owner(s) to provide access for Corps personnel.	Property owner and/or representatives will accompany the Corps/RWQCB/CDFW for a site visit upon request.
Section 2.1	4. LOCATION: ☐ Directions to the survey area, ☐ an address (if available) and ☑ one or more set of geographic coordinates expressed in decimal degrees.	
Section 3.2.1	5. DELINEATION MANUAL CONFIRMATION: ☑ A statement confirming the delineation has been conducted in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual and applicable regional supplement(s). ☑ The regional supplement(s) used must be identified. ☑ For OHWM delineations, a statement must be included confirming the use of the OHWM field guide or that it is not applicable.	
Section 6; Appendix H, Table H-1	6. AQUATIC RESOURCE(S) DESCRIPTION: ☑ A narrative describing all aquatic resources on-site and an explanation of the mapped boundaries and any complex transition zones. ☑ If the site contains resources that only meet one or two of the three wetland criteria or do not exhibit a clear OHWM, describe the rationale for their inclusion or exclusion from the delineation. ☑ Also explain if any erosional features, upland swales, ditches and other potential aquatic features were considered but not included in the delineation.	
Figure 1 and Figure 5 series; Section 6; Table 7; Appendix H, Table H-1	7. AQUATIC RESOURCE MAPPING AND ACREAGE: ☑ Map of the outside survey boundary, ☑ total extent of aquatic and proposed non-aquatic features, ☑ type of feature(s) (waters of the United States or wetland), and include ☑ the total acreage for each polygon.	
Section 3.2	8. FIELD WORK DATES: ☑ Date(s) field work was completed.	
Appendix H, Table H-1	9. AQUATIC RESOURCE TABLE: A table listing all aquatic resources. The table must include ☑ the name of each aquatic resource (actual or arbitrary), ☑ its Cowardin type, ☑ acreage, ☑ summary of OHWM/wetland presence, ☑ dominant vegetation for each, and ☑ location (latitude/longitude in decimal	

	degrees). ☑ For linear features, the table must show both acreage and linear feet as well as channel measurements (active channel width).	
Section 4; Tables 1 and 4 through 6; Appendices D, E, and F	10. FIELD CONDITIONS: A description of existing field conditions, including ☑ current land use, ☑ normal conditions, ☑ flood/drought conditions, ☐ irrigation practices, ☑ past or recent manipulation to the site, and ☑ characteristics considered atypical (for criteria see OHWM and wetland supplement guides). ☑ Include WETS tables or pre-site visit precipitation data as appropriate: https://www.wcc.nrcs.usda.gov/climate/wets_doc.html.*	N/A for unchecked; APT data provided in lieu of WETS tables
Section 4.2	11. HYDROLOGY: ☑ A discussion of the hydrology at the site, including ☑ all known surface or subsurface sources, ☑ drainage gradients, ☑ downstream connections to the nearest traditional navigable waterway or interstate water, and ☑ any influence from manmade water sources such as irrigation.	
N/A	12. REMOTE SENSING: ☐ If remote sensing was used in the delineation, provide an explanation of how it was used and include the name, date and source of the tools and data used and copies of the maps/photographs.	N/A
Section 4.1; Figure 4; Appendix G	13. SOILS: ☑ Soil descriptions, ☑ soil map(s), ☑ soil photos, and ☑ a discussion of hydric soils (for wetland delineations only).	
Figure 2	14. USGS QUADRANGLE: ☑ A site location map on a 7.5-minute USGS quadrangle. The map must provide ☑ the name of the USGS quadrangle, ☑ Section, ☑ Township, ☑ Range, and ☑ the latitude and longitude in decimal degree format.	
Appendix I	15. BULK UPLOAD FORM: ☑ For sites with 3 or more separate aquatic features a completed copy of the ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet must be submitted.	
Figure 5 series	16. FIGURES: ☑ Map(s) of all delineated aquatic resources in accordance with the Final Map and Drawing Standards for the South Pacific Division Regulatory Program.	
Figure 5 series and Appendix G	17. SITE PHOTOGRAPHS: ☑ Ground photographs showing representative aquatic resource sites (or lack of), ☑ as well as an accompanying map of photo-points and table of photographic information (see Final Map and Drawing Standards for the South Pacific Division Regulatory Program item no. 8 a-c).	
Appendix E	18. DATA FORMS: ☑ Completed data forms including all essential information to make a jurisdictional determination [e.g. 2006 Wetland Determination Data Form -- Arid West Supplement; 2010 Arid West Ephemeral and Intermittent Streams OHWM Datasheet].	
Section 3	19. METHODS: ☑ A description of the methods used to survey the aquatic resource boundaries. ☑ If GPS data is used, the level of accuracy must be included. Ideally, the GPS equipment should have the capability of sub-meter (<=1 meter) level horizontal accuracy.	
Appendix K	20. GIS DATA: ☑ Digital data for the site, aquatic resource boundaries, and data point locations must be provided in a geographic information system (GIS) format, preferably either ESRI shapefiles or Geodatabase format, but GoogleEarth KMZ or KML files may be acceptable non-complex projects. Each GIS data file must be accompanied by a metadata file containing the appropriate geographic coordinate system, projection, datum, and labeling description. If GIS data is unavailable or otherwise cannot be produced and the Corps determines a site visit is necessary, the aquatic resource boundaries should be physically marked with numbered flags or stakes to facilitate verification by the Corps.	

APPENDIX B

JURISDICTIONAL DETERMINATION REQUEST FORMS

Appendix 1 - REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD)

To: District Name Here

- I am requesting a JD on property located at: south of and within the Mojave River, northwest of National Trails Highway, and south and west of California State Route (CA)-58
  (Street Address)
  City/Township/Parish: Barstow/Unincorp County: San Bernardino State: CA
  Acreage of Parcel/Review Area for JD: 5,104.49 acres
  Section: Various Township: 8N; 9N Range: 4W & 3W; 3W & 2W
  Latitude (decimal degrees): 34.853903 Longitude (decimal degrees): -117.159799
  (For linear projects, please include the center point of the proposed alignment.)
- Please attach a survey/plat map and vicinity map identifying location and review area for the JD.
- ✓ I currently own this property. ✓ I plan to purchase this property.
  ___ I am an agent/consultant acting on behalf of the requestor.
  ✓ Other (please explain): Right-of-entry to Corps staff limited to BNSF-owned properties until other properties purchased by BNSF.
- Reason for request: (check as many as applicable)
  ___ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
  ___ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
  ✓ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
  ___ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.
  ___ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide.
  ___ A Corps JD is required in order to obtain my local/state authorization.
  ___ I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
  ___ I believe that the site may be comprised entirely of dry land.
  ___ Other: _____
- Type of determination being requested:
  ___ I am requesting an approved JD.
  ✓ I am requesting a preliminary JD.
  ___ I am requesting a "no permit required" letter as I believe my proposed activity is not regulated.
  ___ I am unclear as to which JD I would like to request and require additional information to inform my decision.

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.

Note: Right-of-entry to Corps staff limited to BNSF-owned properties until other properties purchased by BNSF.

*Signature: David Rankin Date: 9/22/22

- Typed or printed name: David Rankin

Company name: BNSF Railway Company

Address: 2500 Lou Menk Drive, AOB-3
Forth Worth, TX 76131

Daytime phone no.: 817-352-2383

Email address: David.Rankin@BNSF.com

*Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD:

B. NAME AND ADDRESS OF PERSON REQUESTING PJD: David Rankin, BNSF Railway, 2500 Lou Menk Dr, AOB-3, Forth Worth, TX 76131

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: CA County/parish/borough: San Bernardino City: Barstow/Unincorporated

Center coordinates of site (lat/long in degree decimal format):

Lat.: 34.853903 Long.: -117.159799

Universal Transverse Mercator: 11S 485392.2m E 3856853.3m N

Name of nearest waterbody: Mojave River

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☐ Field Determination. Date(s):

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
		SEE	ATTACHED		

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- [x] Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
  Map: 2022 ARDR, prepared by Rocks Biological Consulting.
- [x] Data sheets prepared/submitted by or on behalf of the PJD requestor.
  - [ ] Office concurs with data sheets/delineation report.
  - [ ] Office does not concur with data sheets/delineation report. Rationale: _____.
- [ ] Data sheets prepared by the Corps: _____.
- [ ] Corps navigable waters' study: _____.
- [x] U.S. Geological Survey Hydrologic Atlas: 2022 ARDR, Figure 2; USGS NHD 2020.
  - [x] USGS NHD data.
  - [x] USGS 8 and 12 digit HUC maps.
- [x] U.S. Geological Survey map(s). Cite scale & quad name: 2022 ARDR, Figure 2; 1" = 4,500'; USGS 7.5' Quads (Hodge, Hinkley, Barstow SE, Barstow).
- [x] Natural Resources Conservation Service Soil Survey. Citation: 2022 ARDR, Figure 4; USDA NRCS 2018.
- [x] National wetlands inventory map(s). Cite name: 2022 ARDR, Figure 4; USFWS NWI 2019.
- [ ] State/local wetland inventory map(s): _____.
- [ ] FEMA/FIRM maps: _____.
- [ ] 100-year Floodplain Elevation is: _____.(National Geodetic Vertical Datum of 1929)
- [x] Photographs: [x] Aerial (Name & Date): See 2022 ARDR, Figures 1 & 4-6 (Maxar, Esri 2020; San Bernardino County, Esri 2020); Appendix D, Recent and Historic Aerials.
  or [x] Other (Name & Date): See 2022 ARDR Appendix G, Site Photographs.
- [ ] Previous determination(s). File no. and date of response letter: _____.
- [x] Other information (please specify): 2022 ARDR, prepared by Rocks Biological Consulting.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

_____	David Rambo 9/22/2022
Signature and date of Regulatory staff member completing PJD	Signature and date of person requesting PJD (REQUIRED, unless obtaining the signature is impracticable)[1]

[1] Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resources (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
NWW-1	34.772787	-117.284653	0.02 ac/123 ln ft	Non-wetland waters	Section 404
NWW-2	34.772847	-117.284610	0.01 ac/121 ln ft	Non-wetland waters	Section 404
NWW-3	34.773221	-117.283817	0.02 ac/132 ln ft	Non-wetland waters	Section 404
NWW-4	34.773653	-117.283036	0.01 ac/113 ln ft	Non-wetland waters	Section 404
NWW-5	34.773734	-117.282869	0.01 ac/109 ln ft	Non-wetland waters	Section 404
NWW-6	34.774652	-117.281701	0.01 ac/126 ln ft	Non-wetland waters	Section 404
NWW-7	34.776674	-117.278786	0.01 ac/119 ln ft	Non-wetland waters	Section 404
NWW-8	34.776786	-117.278705	0.01 ac/96 ln ft	Non-wetland waters	Section 404
NWW-9	34.778794	-117.277384	0.03 ac/107 ln ft	Non-wetland waters	Section 404
NWW-10	34.778399	-117.276743	<0.01 ac/52 ln ft	Non-wetland waters	Section 404
NWW-11	34.778377	-117.276478	0.02 ac/223 ln ft	Non-wetland waters	Section 404
NWW-12	34.778670	-117.276121	0.01 ac/127 ln ft	Non-wetland waters	Section 404
NWW-13	34.778712	-117.276024	0.01 ac/113 ln ft	Non-wetland waters	Section 404
NWW-14	34.778886	-117.275827	0.01 ac/133 ln ft	Non-wetland waters	Section 404
NWW-15	34.778978	-117.275585	0.01 ac/184 ln ft	Non-wetland waters	Section 404
NWW-16	34.784276	-117.262668	0.07 ac/214 ln ft	Non-wetland waters	Section 404
NWW-17	34.784361	-117.262104	0.05 ac/81 ln ft	Non-wetland waters	Section 404
NWW-18	34.786948	-117.252605	0.01 ac/104 ln ft	Non-wetland waters	Section 404
NWW-19	34.787318	-117.251761	0.01 ac/114 ln ft	Non-wetland waters	Section 404
NWW-20	34.791189	-117.241868	0.65 ac/852 ln ft	Non-wetland waters	Section 404
NWW-21	34.795810	-117.228450	0.03 ac/428 ln ft	Non-wetland waters	Section 404
NWW-22	34.796559	-117.227801	0.02 ac/176 ln ft	Non-wetland waters	Section 404
NWW-23	34.795776	-117.228162	0.02 ac/221 ln ft	Non-wetland waters	Section 404
NWW-24	34.797160	-117.227759	0.11 ac/801 ln ft	Non-wetland waters	Section 404
NWW-25	34.796981	-117.225815	0.07 ac/727 ln ft	Non-wetland waters	Section 404
NWW-26	34.797595	-117.225008	0.07 ac/522 ln ft	Non-wetland waters	Section 404
NWW-27	34.798258	-117.223204	0.18 ac/1,155 ln ft	Non-wetland waters	Section 404
NWW-28	34.797819	-117.222127	0.01 ac/109 ln ft	Non-wetland waters	Section 404
NWW-29	34.798766	-117.222983	<0.01 ac/96 ln ft	Non-wetland waters	Section 404
NWW-30	34.798508	-117.221906	0.03 ac/311 ln ft	Non-wetland waters	Section 404
NWW-31	34.798583	-117.221247	0.01 ac/145 ln ft	Non-wetland waters	Section 404
NWW-32	34.798456	-117.220065	<0.01 ac/32 ln ft	Non-wetland waters	Section 404
NWW-33	34.799322	-117.219846	0.02 ac/171 ln ft	Non-wetland waters	Section 404
NWW-34	34.800955	-117.215818	0.03 ac/572 ln ft	Non-wetland waters	Section 404

NWW-35	34.807290	-117.203290	0.01 ac/66 ln ft	Non-wetland waters	Section 404
NWW-36	34.808738	-117.201555	0.01 ac/183 ln ft	Non-wetland waters	Section 404
NWW-37	34.809189	-117.201054	0.01 ac/150 ln ft	Non-wetland waters	Section 404
NWW-38	34.809316	-117.200892	0.01 ac/141 ln ft	Non-wetland waters	Section 404
NWW-39	34.809671	-117.200471	<0.01 ac/182 ln ft	Non-wetland waters	Section 404
NWW-40	34.810099	-117.199975	0.01 ac/155 ln ft	Non-wetland waters	Section 404
NWW-41	34.810323	-117.199718	0.01 ac/172 ln ft	Non-wetland waters	Section 404
NWW-42	34.811425	-117.198424	0.02 ac/175 ln ft	Non-wetland waters	Section 404
NWW-43	34.826693	-117.188511	0.13 ac/475 ln ft	Non-wetland waters	Section 404
NWW-44	34.829248	-117.186429	3.13 ac/5,956 ln ft	Non-wetland waters	Section 404
NWW-45	34.834684	-117.182237	0.21 ac/2,468 ln ft	Non-wetland waters	Section 404
NWW-46	34.835168	-117.181479	0.06 ac/1,172 ln ft	Non-wetland waters	Section 404
NWW-47	34.833706	-117.176283	0.04 ac/580 ln ft	Non-wetland waters	Section 404
NWW-48	34.836991	-117.181122	0.03 ac/481 ln ft	Non-wetland waters	Section 404
NWW-49	34.836110	-117.179064	0.73 ac/7,138 ln ft	Non-wetland waters	Section 404
NWW-50	34.837239	-117.179203	0.02 ac/461 ln ft	Non-wetland waters	Section 404
NWW-51	34.837464	-117.178078	0.04 ac/842 ln ft	Non-wetland waters	Section 404
NWW-52	34.837867	-117.177679	0.04 ac/562 ln ft	Non-wetland waters	Section 404
NWW-53	34.837648	-117.177101	0.07 ac/1,131 ln ft	Non-wetland waters	Section 404
NWW-54	34.835210	-117.172619	0.02 ac/354 ln ft	Non-wetland waters	Section 404
NWW-55	34.835454	-117.171863	0.02 ac/170 ln ft	Non-wetland waters	Section 404
NWW-56	34.835773	-117.172617	0.02 ac/252 ln ft	Non-wetland waters	Section 404
NWW-57	34.836014	-117.172631	0.02 ac/264 ln ft	Non-wetland waters	Section 404
NWW-58	34.838348	-117.176084	0.50 ac/4,358 ln ft	Non-wetland waters	Section 404
NWW-59	34.838248	-117.174160	0.75 ac/8,262 ln ft	Non-wetland waters	Section 404
NWW-60	34.840401	-117.179750	0.17 ac/188 ln ft	Non-wetland waters	Section 404
NWW-61	34.837031	-117.169791	0.05 ac/910 ln ft	Non-wetland waters	Section 404
NWW-62	34.840397	-117.175307	0.14 ac/1,696 ln ft	Non-wetland waters	Section 404
NWW-63	34.840934	-117.174275	0.20 ac/2,174 ln ft	Non-wetland waters	Section 404
NWW-64	34.841711	-117.174418	0.04 ac/538 ln ft	Non-wetland waters	Section 404
NWW-65	34.842293	-117.173643	0.02 ac/482 ln ft	Non-wetland waters	Section 404
NWW-66	34.843147	-117.172457	0.08 ac/1,260 ln ft	Non-wetland waters	Section 404
NWW-67	34.841131	-117.171984	0.22 ac/2,373 ln ft	Non-wetland waters	Section 404
NWW-68	34.839992	-117.170094	0.34 ac/5,708 ln ft	Non-wetland waters	Section 404
NWW-69	34.842933	-117.168625	0.68 ac/6,858 ln ft	Non-wetland waters	Section 404
NWW-70	34.842209	-117.166408	2.09 ac/18,554 ln ft	Non-wetland waters	Section 404
NWW-71	34.844554	-117.165718	0.10 ac/1,128 ln ft	Non-wetland waters	Section 404
NWW-72	34.845370	-117.166236	0.04 ac/427 ln ft	Non-wetland waters	Section 404
NWW-73	34.844453	-117.163545	1.24 ac/13,348 ln ft	Non-wetland waters	Section 404
NWW-74	34.846950	-117.162756	0.17 ac/1,582 ln ft	Non-wetland waters	Section 404
NWW-75	34.845550	-117.159978	0.04 ac/487 ln ft	Non-wetland waters	Section 404
NWW-76	34.848019	-117.159133	0.86 ac/8,649 ln ft	Non-wetland waters	Section 404
NWW-77	34.847129	-117.156396	0.16 ac/1,677 ln ft	Non-wetland waters	Section 404

NWW-78	34.848845	-117.157242	0.01 ac/278 ln ft	Non-wetland waters	Section 404
NWW-79	34.850248	-117.158057	0.13 ac/1,874 ln ft	Non-wetland waters	Section 404
NWW-80	34.850680	-117.154564	2.02 ac/15,877 ln ft	Non-wetland waters	Section 404
NWW-81	34.853340	-117.156269	0.12 ac/1,229 ln ft	Non-wetland waters	Section 404
NWW-82	34.854433	-117.152784	0.64 ac/8,328 ln ft	Non-wetland waters	Section 404
NWW-83	34.856239	-117.153167	0.01 ac/250 ln ft	Non-wetland waters	Section 404
NWW-84	34.854958	-117.146066	0.02 ac/909 ln ft	Non-wetland waters	Section 404
NWW-85	34.857281	-117.149898	0.31 ac/3,921 ln ft	Non-wetland waters	Section 404
NWW-86	34.856698	-117.147965	0.02 ac/218 ln ft	Non-wetland waters	Section 404
NWW-87	34.857936	-117.147949	0.13 ac/2,162 ln ft	Non-wetland waters	Section 404
NWW-88	34.858906	-117.148308	0.04 ac/403 ln ft	Non-wetland waters	Section 404
NWW-89	34.863711	-117.134655	1.39 ac/12,490 ln ft	Non-wetland waters	Section 404
NWW-90	34.860552	-117.142795	0.08 ac/995 ln ft	Non-wetland waters	Section 404
NWW-91	34.863147	-117.140564	0.01 ac/150 ln ft	Non-wetland waters	Section 404
NWW-92	34.874455	-117.131291	1.32 ac/4,629 ln ft	Non-wetland waters	Section 404
NWW-93	34.873485	-117.118709	0.06 ac/409 ln ft	Non-wetland waters	Section 404
NWW-94	34.874055	-117.117372	0.06 ac/401 ln ft	Non-wetland waters	Section 404
NWW-95	34.877087	-117.110926	0.03 ac/307 ln ft	Non-wetland waters	Section 404
NWW-96	34.878268	-117.108708	0.05 ac/439 ln ft	Non-wetland waters	Section 404
NWW-97	34.879422	-117.105552	0.03 ac/506 ln ft	Non-wetland waters	Section 404
NWW-98	34.880017	-117.105950	0.01 ac/124 ln ft	Non-wetland waters	Section 404
NWW-99	34.880936	-117.101226	0.03 ac/353 ln ft	Non-wetland waters	Section 404
NWW-100	34.882602	-117.095407	0.34 ac/2,524 ln ft	Non-wetland waters	Section 404
NWW-101	34.883416	-117.092671	0.29 ac/1,003 ln ft	Non-wetland waters	Section 404
NWW-102	34.883038	-117.091930	0.01 ac/99 ln ft	Non-wetland waters	Section 404
NWW-103	34.797426	-117.223080	0.01 ac/43 ln ft	Non-wetland waters	Section 404
NWW-104	34.797510	-117.222886	0.01 ac/70 ln ft	Non-wetland waters	Section 404
NWW-105	34.828712	-117.182373	0.01 ac/29 ln ft	Non-wetland waters	Section 404
NWW-106	34.828907	-117.182084	0.01 ac/36 ln ft	Non-wetland waters	Section 404
NWW-107	34.835555	-117.169501	<0.01 ac/51 ln ft	Non-wetland waters	Section 404
NWW-108	34.847053	-117.151904	0.01 ac/36 ln ft	Non-wetland waters	Section 404
NWW-109	34.863277	-117.170128	104.30 ac/4,818 ln ft	Non-wetland waters	Section 404

APPENDIX C

APPLICABLE AQUATIC RESOURCE PROTECTION REGULATIONS

APPENDIX C. APPLICABLE AQUATIC RESOURCE PROTECTION REGULATIONS

Several regulations have been established by federal, state, and local agencies to protect and conserve aquatic resources. The descriptions below provide a brief overview of agency regulations that may be applicable to the project.

Executive Order 11990

Executive Order 11990 aims to avoid direct or indirect impacts on wetlands from federal or federally approved projects when a practicable alternative is available. If wetland impacts cannot be avoided, all practicable measures to minimize harm must be included.

Clean Water Act

Pursuant to Section 404 of the Clean Water Act (33 U.S. Code [USC] § 1251 et seq.; CWA), the U.S. Army Corps of Engineers (Corps) is authorized to regulate any activity that would result in the discharge of dredged or fill material into waters of the U.S. (including wetlands), which include those waters listed in 33 Code of Federal Regulations (CFR) 328.3 (51 Federal Register [FR] 41217, November 13, 1983; 53 FR 20764, June 6, 1988) and further defined by the 2001 *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC; 531 U.S. 159) decision and the 2006 *Rapanos v. United States* (547 U.S. 715) decision. The Corps, with oversight from the U.S. Environmental Protection Agency (USEPA), has the principal authority to issue CWA Section 404 permits. The Corps would require a Standard Individual Permit (SIP) for more than minimal impacts to waters of the U.S. as determined by the Corps. Projects with minimal individual and cumulative adverse effects on the environment may meet the conditions of an existing Nationwide Permit (NWP).

A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for all Section 404 permitted actions. The Regional Water Quality Control Board (RWQCB), a division of the State Water Resources Control Board, provides oversight of the Section 401 certification process in California. The RWQCB is required to provide Water Quality Certification for licenses or permits that authorize an activity that may result in a discharge from a point source into a water of the U.S. Water Quality Certification authorization "is limited to assuring that a discharge from a Federally licensed or permitted activity will comply with water quality requirements" (40 CFR 121.3).

The National Pollutant Discharge Elimination System (NPDES) is the permitting program for discharge of pollutants into surface waters of the U.S. under Section 402 of the CWA.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Water Code Section 13000 et seq.) provides for statewide coordination of water quality regulations. The SWRCB was established as the statewide authority and nine separate RWQCBs were developed to oversee water quality on a day-to-day basis. The RWQCBs have primary responsibility for protecting water quality in California. As discussed above, the RWQCBs regulate discharges to surface waters under the CWA. In addition, the RWQCBs are responsible for administering the Porter-Cologne Water Quality Control Act.

Pursuant to the Porter-Cologne Water Quality Control Act, the state is given authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. As such, any person proposing to discharge waste into a water body that could

affect its water quality must first file a Report of Waste Discharge if a Section 404 permit is not required for the activity. “Waste” is partially defined as any waste substance associated with human habitation, including fill material discharged into water bodies.

California Fish and Game Code Section 1600-1602

Pursuant to Division 2, Chapter 6, Section 1602 of the California Fish and Game Code (CFGC), California Department of Fish and Wildlife (CDFW) regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream or lake that supports fish or wildlife. A Notification of Lake or Streambed Alteration must be submitted to CDFW for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake.” CDFW has jurisdiction over riparian habitats associated with watercourses and wetland habitats supported by a river, lake, or stream. Jurisdictional waters are delineated by the outer edge of riparian vegetation (i.e., drip line) or at the top of the bank of streams or lakes, whichever is wider. CDFW jurisdiction does not include tidal areas or isolated resources (e.g., riparian or wetland areas not supported by a river, lake, or stream). CDFW reviews the proposed actions and, if necessary, submits (to the applicant) a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and applicant is the Lake or Streambed Alteration Agreement.

APPENDIX D

RECENT AND HISTORIC AERIALS ANALYSIS

Appendix D

Recent and Historic Aerials Analysis

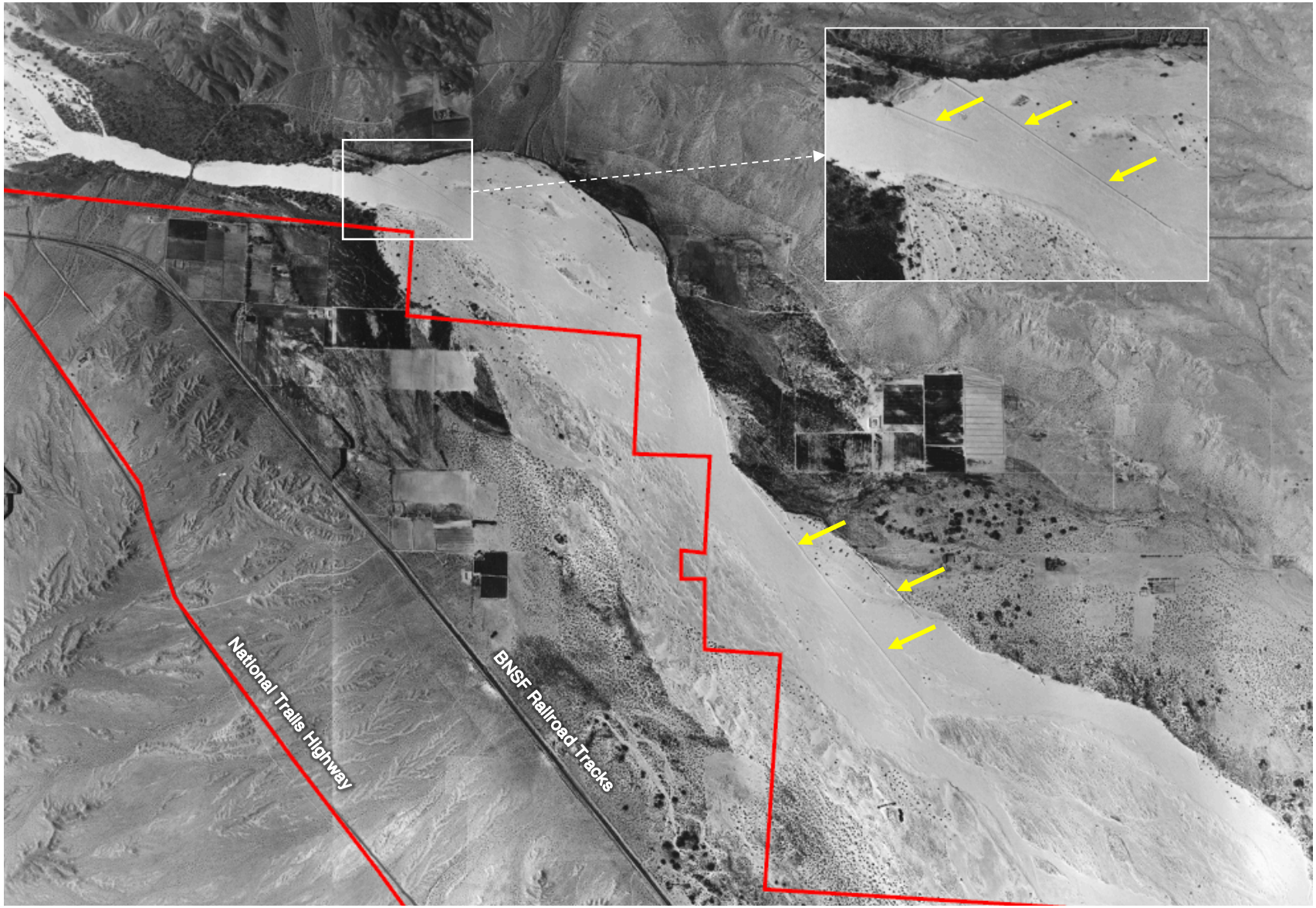
Source: Google Earth Pro, University of California – Santa Barbara, & NetrOnline



October 1929 – Very little development occurs within and surrounding the review area in the October 1929 aerial. The railroad tracks and National Trails Highway are visible in their present-day locations; small areas of agricultural/ranch land are present on site. Basin (B-) 1 and B-2 are not present/visible in the October 1929 aerial.



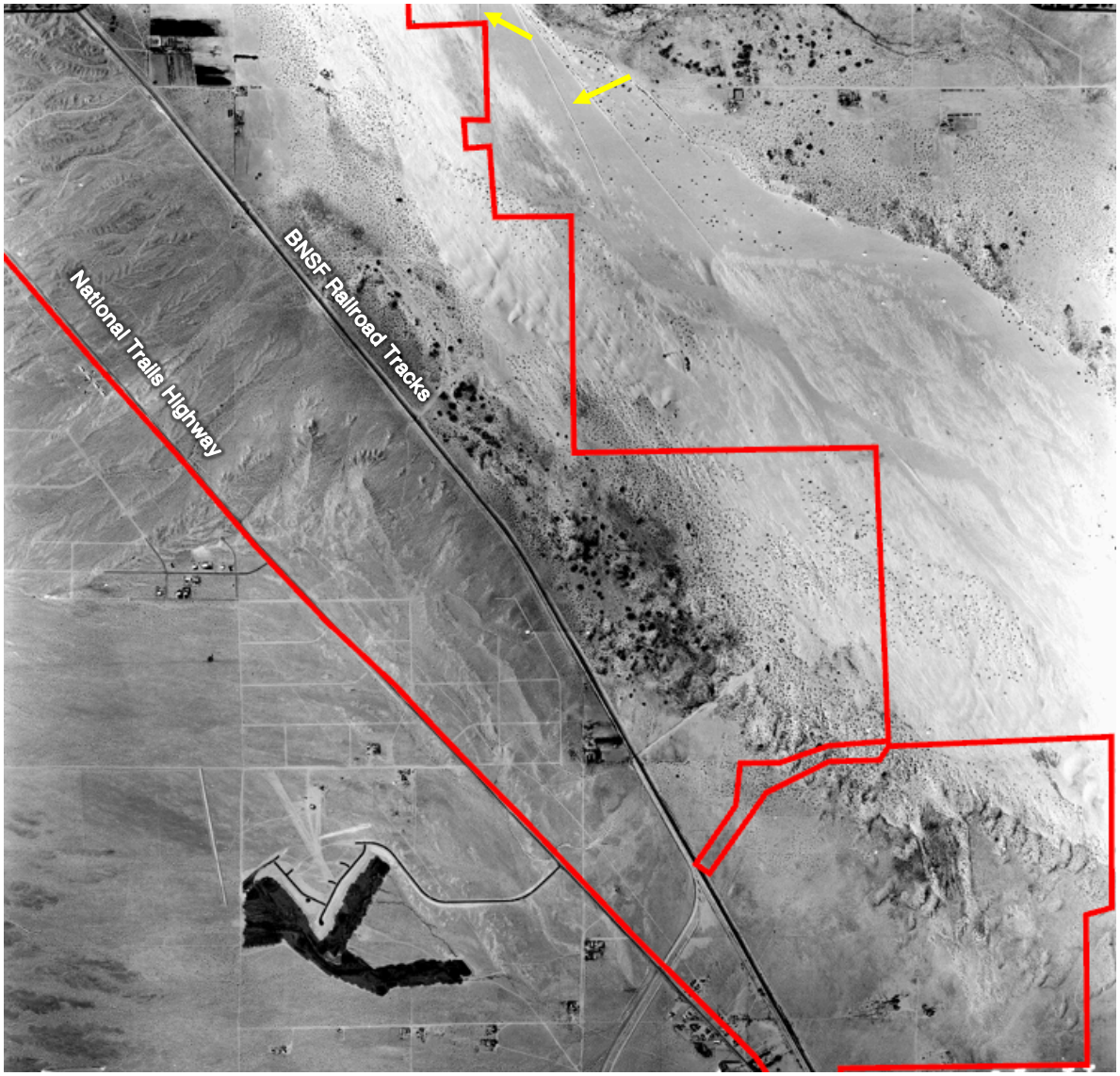
May 1952 – Agricultural development expanded north and south of the Mojave River between October 1929 and May 1952. The May 1952 aerial displays the active flooding of the Mojave River and its intersection with the review area at multiple points.



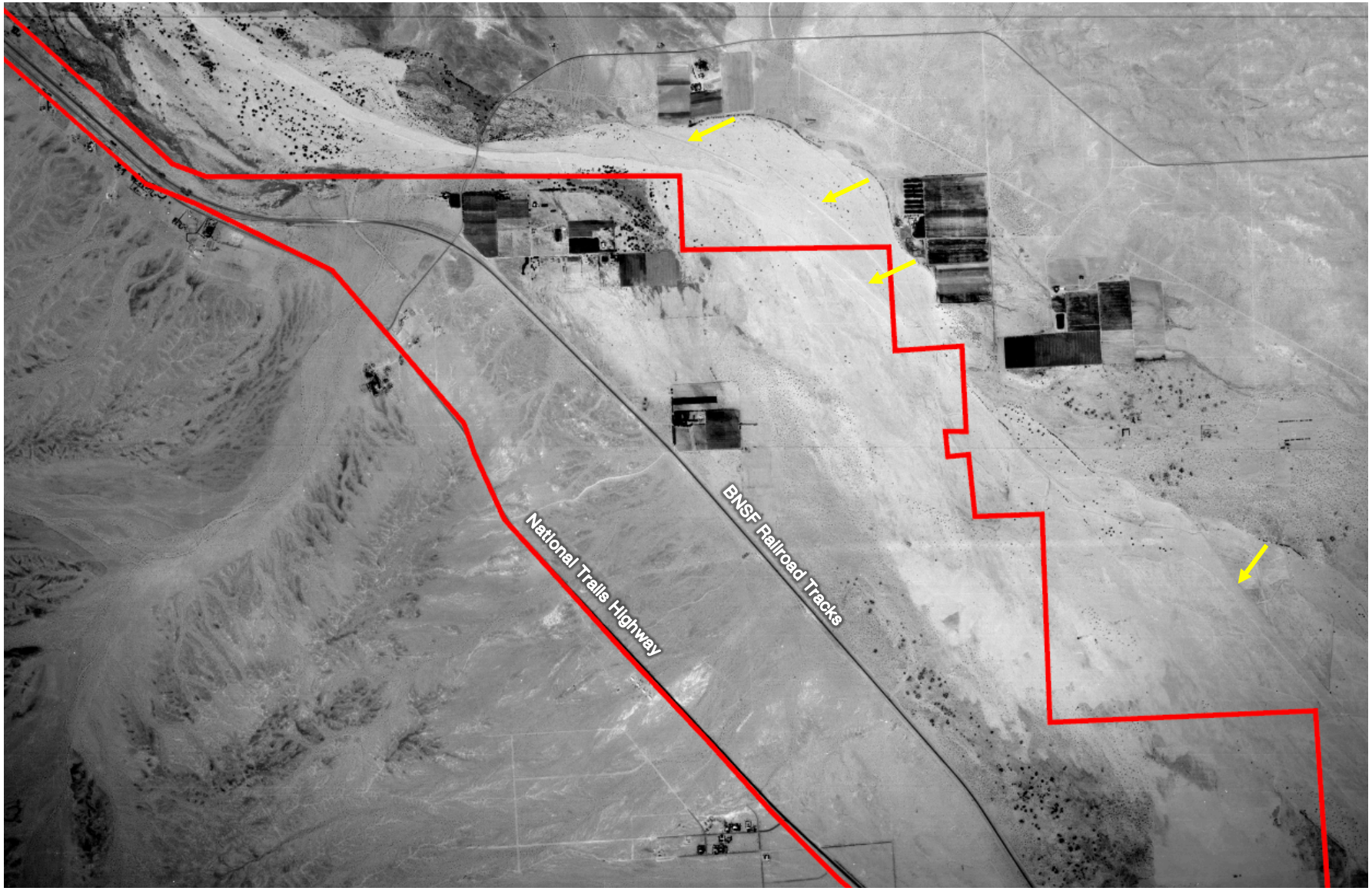
January 1953 – Berms were installed within portions of the Mojave River (yellow arrows) between May 1952 and January 1953, redirecting and constricting the river's natural flow path. Development of ranchland and/or residential uses within and surrounding the review area increased slightly between May 1952 and January 1953.



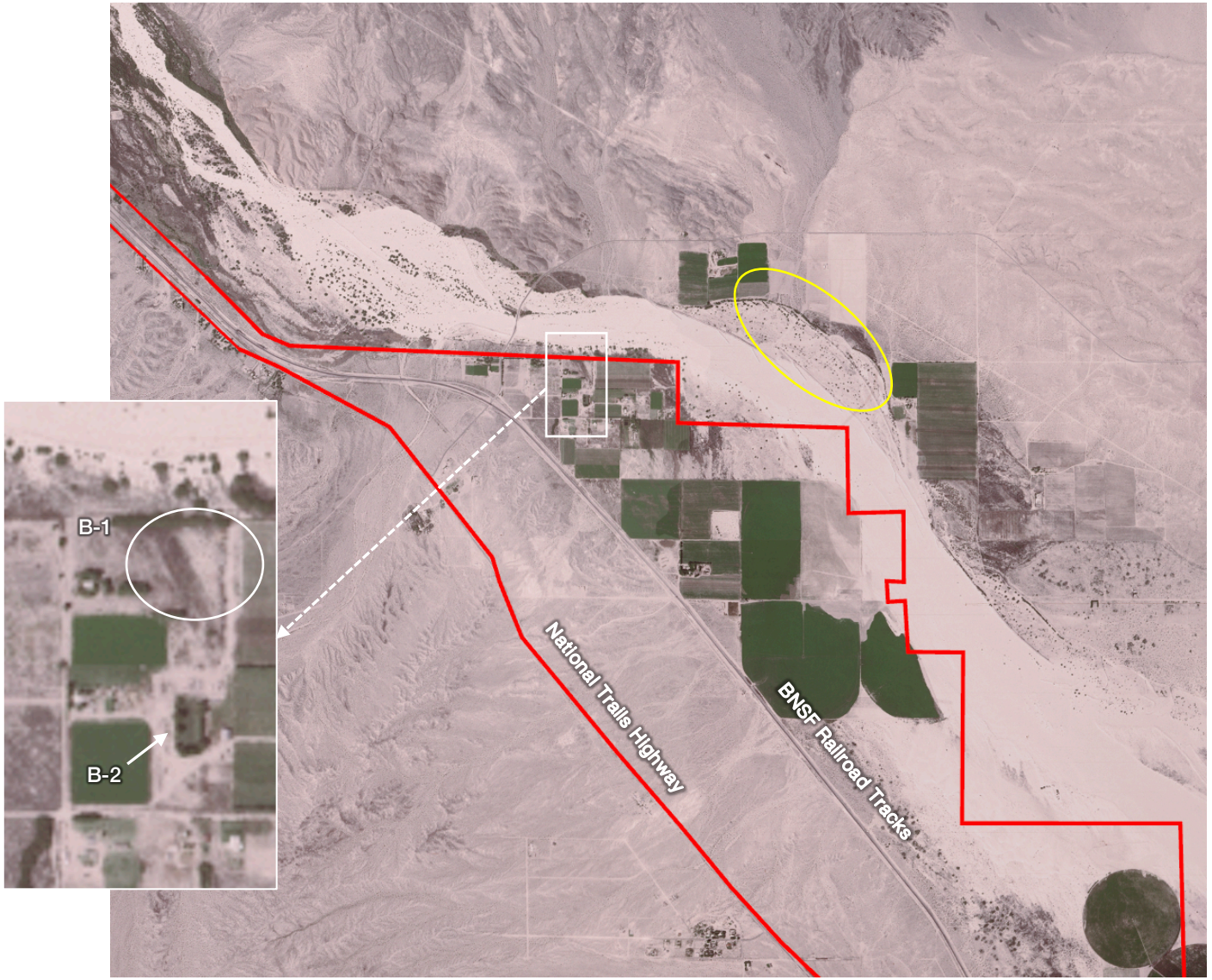
June 1959 – Minor changes in development or land use within and surrounding the review area occurred between January 1953 and June 1959. The berms within the Mojave River (yellow arrows) appear consistent from January 1953 to June 1959.



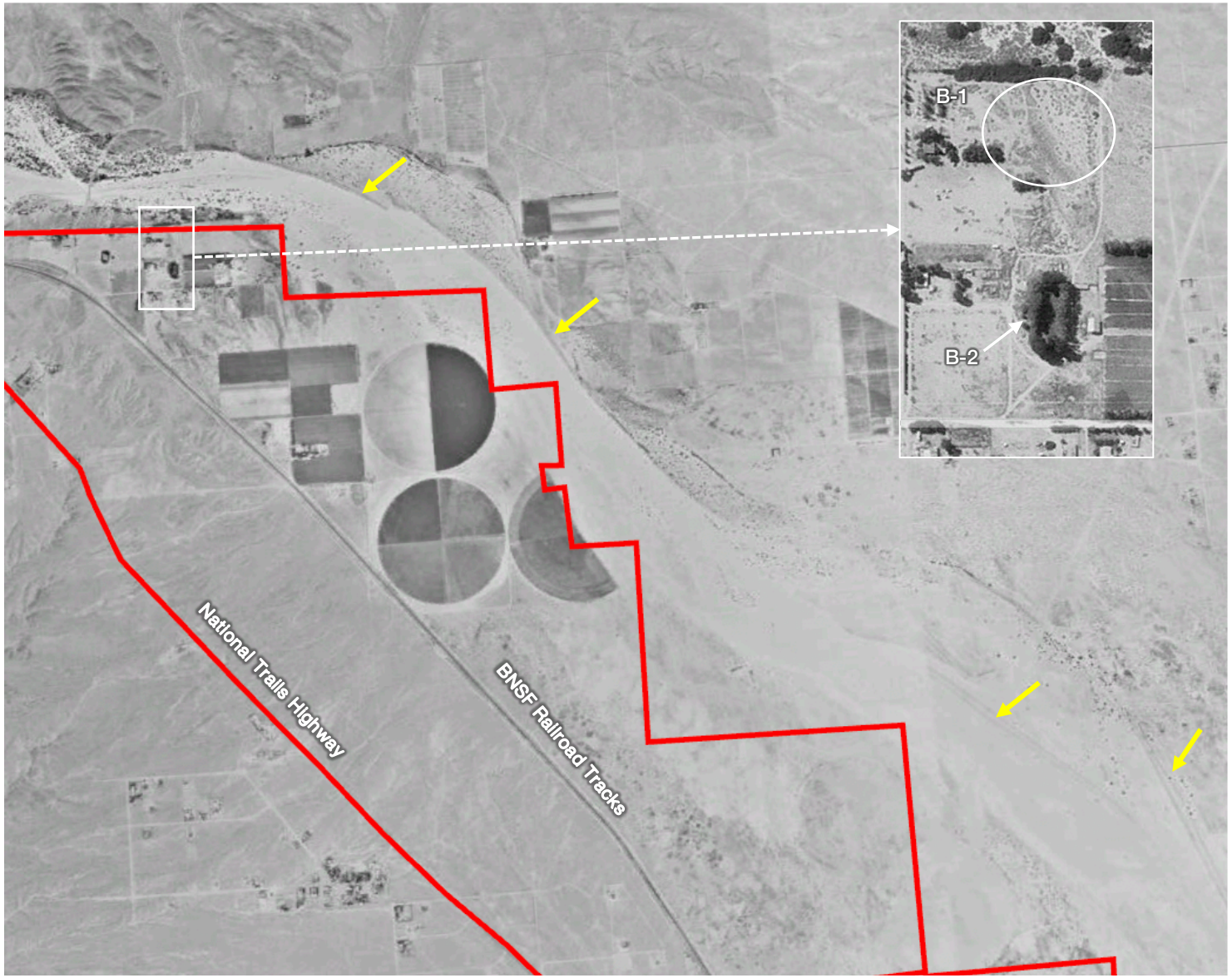
November 1963 – Additional berms within/along the Mojave River (yellow arrows) appear between June 1959 and November 1963. Manipulation in the form of the removal and installation of berms to manage/direct flow within the Mojave River continues throughout this time period.



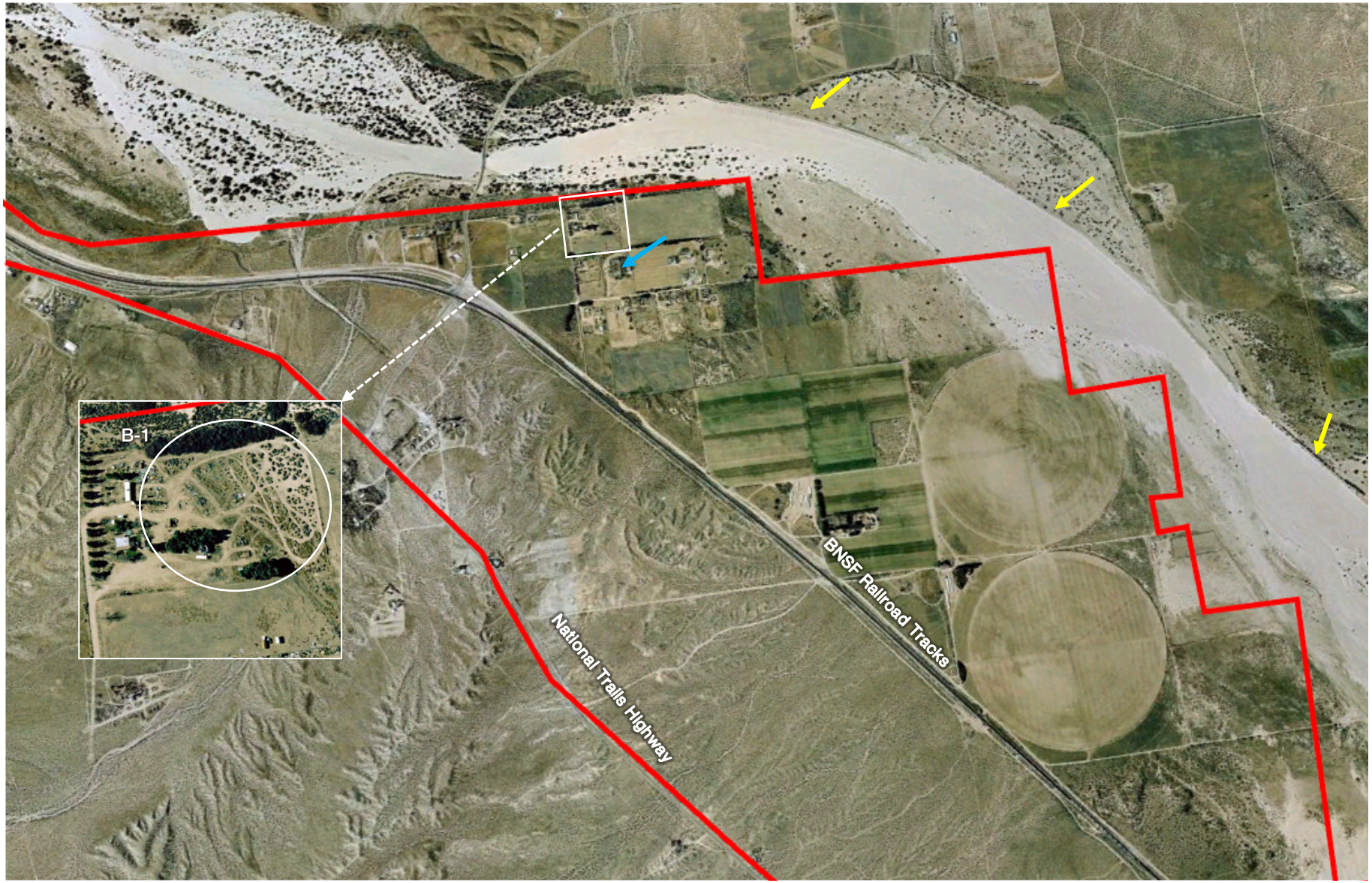
July 1973 – Minor changes in development or land use occurred within and surrounding the review area between November 1963 and July 1973; agricultural/ranch land use continued, expanding slightly northwest of the Mojave River. Between November 1963 and July 1973, additional berms were installed within the Mojave River (yellow arrows), further redirecting flow.



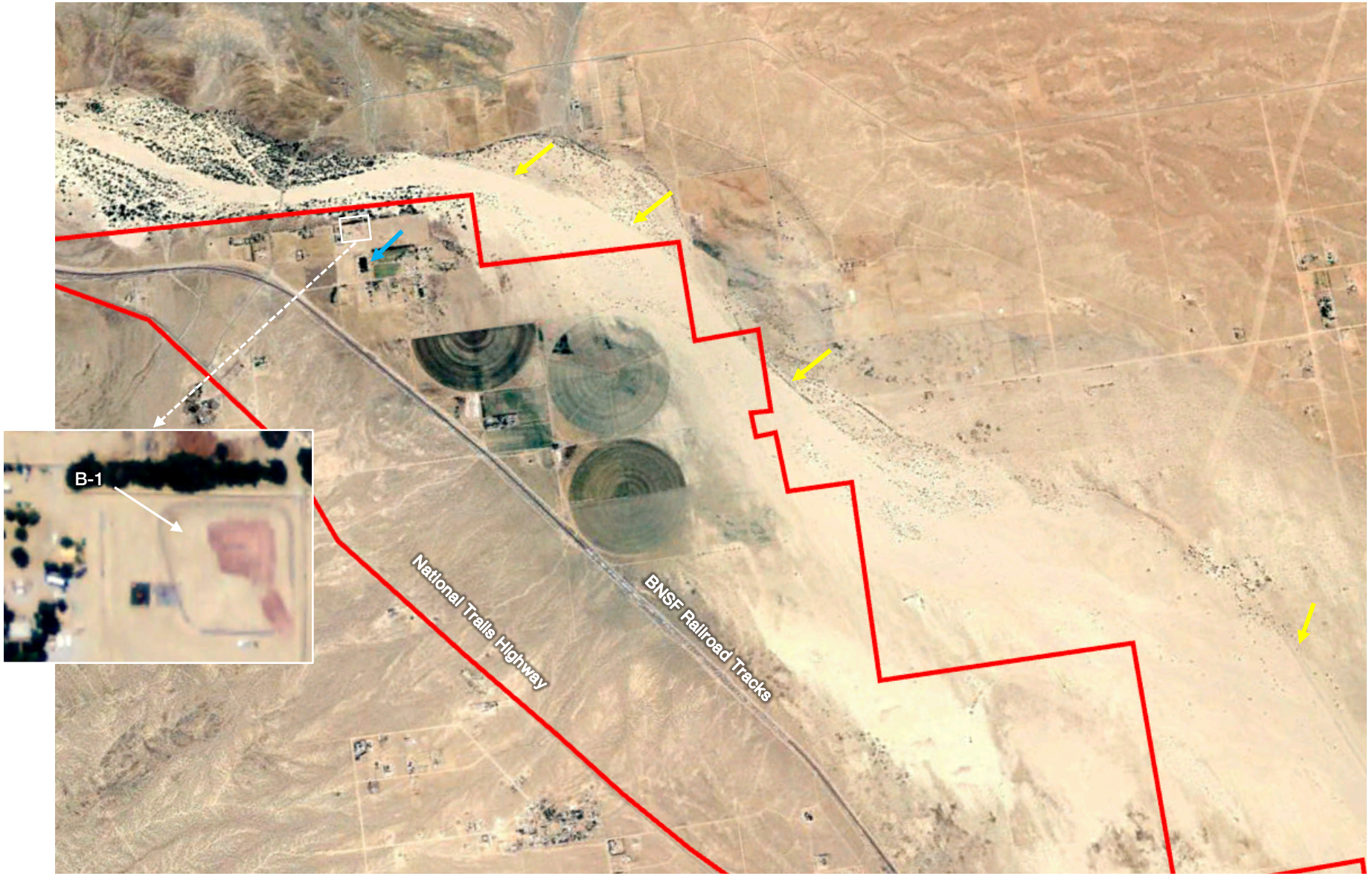
December 1984 – A large agricultural (row crop) operation was established within/around the northwestern portion of the review area (southwest of the Mojave River) between July 1973 and December 1984. The area northwest of the Mojave River berms (yellow circle) has become more vegetated since July 1973. B-2 was constructed between July 1973 and December 1984; however, B-1 is not yet present/visible in the December 1984 aerial.



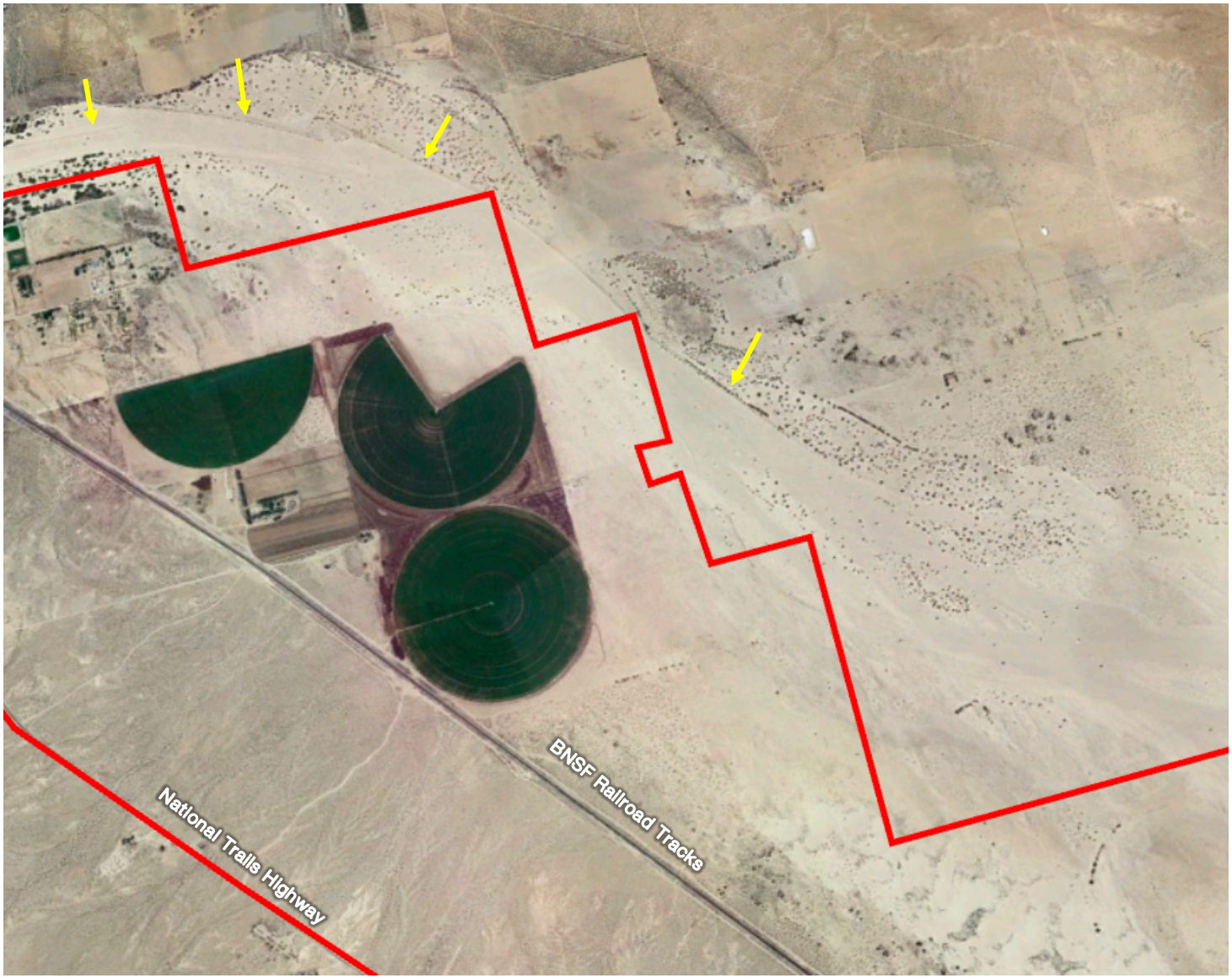
October 1995 – Little has changed within and surrounding the review area between December 1984 and October 1995. The berms within/along the Mojave River (yellow arrows) appear to remain consistent between December 1984 and October 1995. B-2 is visible in the October 1995 aerial; however, B-1 is not yet present/visible.



December 2005 – Agricultural practices continue within the review area. B-2 is still visible (blue arrow) in the December 2005 aerial; however, B-1 is not yet present/visible. The berms within/along the Mojave River (yellow arrows) appear to remain consistent between October 1994 and December 2005.



May 2009 – Agricultural practices continue within the review area. B-2 is still visible (blue arrow) within the May 2009 aerial, while construction of B-1 began between December 2005 and May 2009. The berms within/along the Mojave River (yellow arrows) remain consistent from December 2005 to May 2009.



September 2015 – The large agricultural (row crop) operation remains active in the northwestern portion of the review area. B-1 and B-2 are visible on the September 2015 aerial. The berms within/along the Mojave River (yellow arrows) remain consistent from October 1994 to September 2015.

APPENDIX E

ARID WEST WETLAND DETERMINATION DATA FORMS AND EPHEMERAL AND INTERMITTENT STREAMS OHWM DATASHEETS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 04/13/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 1

Investigator(s): Ryan Layden, Emily Trevino, Kelsey Woldt Section, Township, Range: S08, T09N, R02W

Landform (hillslope, terrace, etc.): Within drainage Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR): LRR D - Interior Deserts Lat: 34.87856910 Long: -117.108756418 Datum: WGS 84

Soil Map Unit Name: Cajon sand, 2 to 9 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Representative sample point taken within vegetated drainage which receives flows from road. Most water ponds adjacent to road before culvert under railroad. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Originally delineated on 12/10/2018; conditions reassessed on 04/13/2022.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarix ramosissima	30%	Yes	FAC
2.			
3.			
4.			
	30% = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Cynodon dactylon	69%	Yes	FACU
2. Solanum elaeagnifolium	25%	Yes	NL/UPL
3. Bromus tectorum	4%	No	NL/UPL
4. Hordeum murinum	2%	No	FACU
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as tamarisk thickets. Five-foot radius for tree stratum used to only account for vegetation within area growing under same soil and hydrologic conditions. Tamarix ramosissima is synonymous with Tamarix chinensis (FAC) per NWPL. Ulmus pumila located further upstream (UPL). Hydric soil and wetland hydrology parameters not met; thus, prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	7.5 YR 4/4	100%	N/A	N/A	N/A	N/A	Sandy loam	No evidence of redox observed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral test not met. Drift deposits observed as trash and dried Cynodon dactylon; however, no other primary or secondary wetland hydrology indicators were met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 04/13/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 2

Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden Section, Township, Range: S18, T09N, R02W

Landform (hillslope, terrace, etc.): Within Channel Local relief (concave, convex, none): Slighty concave Slope (%): 0-1

Subregion (LRR): LRR D - Interior Deserts Lat: 34.873737305 Long: -117.117380668 Datum: WGS 84

Soil Map Unit Name: Cajon sand, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology ✔ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Flows received from a culvert/storm drain structure at the intersection of Lenwood Rd & National Trails Hwy; area constructed after 2014 based on aerials. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Originally delineated on 12/10/2018; conditions reassessed on 04/13/2022.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Atriplex polycarpa	4%	Yes	FACU
2. Tribulus terrestris	2%	Yes	NL/UPL
3.			
4.			
5.			
	6% = Total Cover		
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 90% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as disturbed habitat. Hydric soil parameter not met; thus, prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10 YR 4/6	100%	N/A	N/A	N/A	N/A	Sandy loam	No evidence of redox observed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Some surface soil cracks observed; drift deposits present as trash. FAC-Neutral test not met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 04/13/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 3

Investigator(s): Emily Trevino, Ryan Layden, Kelsey Woldt Section, Township, Range: S18, T09N, R02W

Landform (hillslope, terrace, etc.): Within channel Local relief (concave, convex, none): None Slope (%): 1-2

Subregion (LRR): LRR D - Interior Deserts Lat: 34.864014091 Long: -117.131613178 Datum: WGS 84

Soil Map Unit Name: Norob-Halloran complex, 0 to 5 percent slopes (soils rated as hydric per the NRCS) NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ✔, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Vegetation and soils considered significantly disturbed as wash appears to be heavily used by off-road vehicles; other similar washes in area were also unvegetated without signs of road use. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Originally delineated 12/10/2018; conditions reassessed 04/13/2022.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A	= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A	= Total Cover	
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A	= Total Cover	

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken in unvegetated sandy wash within area mapped as allscale scrub habitat.

SOIL

Sampling Point: WDP 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10 YR 5/4	100%	N/A	N/A	N/A	N/A	Loamy sanc	No evidence of redox observed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal - compacted soils

Depth (inches): 7 inches

Hydric Soil Present? Yes ____ No ✔

Remarks:

Pit only dug to 7 inches due to hard compacted soils. Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Netural test not met (no vegetation). Drift deposits observed as dead plant material; however, no other primary or secondary wetland hydrology indicators were met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 04/12/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 4

Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden Section, Township, Range: S34, T09N, R03W

Landform (hillslope, terrace, etc.): Within Channel Local relief (concave, convex, none): Concave Slope (%): 2-5

Subregion (LRR): LRR D - Interior Deserts Lat: 34.834144855 Long: -117.182577641 Datum: WGS 84

Soil Map Unit Name: Nebona-Cuddeback complex, 2 to 9 percent slopes (soil rated as hydric per the NRCS) NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology ✔ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Representative sample point taken within unvegetated sandy wash. Hydrology considered significantly disturbed as wash is located adjacent to dirt road. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Originally delineated 12/11/2018; conditions reassessed 04/12/2022.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A	= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A	= Total Cover	
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A	= Total Cover	

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken in unvegetated sandy wash within area mapped as allscale scrub habitat.

SOIL

Sampling Point: WDP 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 4/6	100%	N/A	N/A	N/A	N/A	Loamy sanc	No evidence of redox observed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✔ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Drift deposits observed as trash; sediment deposits observed on plants.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 12/11/2018

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 5

Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden Section, Township, Range: S23, T09N, R03W

Landform (hillslope, terrace, etc.): Adjacent channel Local relief (concave, convex, none): None Slope (%): 0-1

Subregion (LRR): LRR D - Interior Deserts Lat: 34.858104785 Long: -117.153040231 Datum: WGS 84

Soil Map Unit Name: Cajon sand, 2 to 9 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Representative sample point taken within area mapped as tamarisk thickets adjacent to railroad tracks. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Originally delineated on 12/11/2018; conditions reassessed on 04/13/2022.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarix ramosissima	40%	Yes	FAC
2.			
3.			
4.			
	40% = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Atriplex polycarpa	5%	Yes	FACU
2. Larrea tridentata	5%	Yes	NL/UPL
3.			
4.			
5.			
	10% = Total Cover		
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 50% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as tamarisk thickets. Ten-foot radius for tree stratum used to only account for vegetation within area growing under same soil and hydrologic conditions. Tamarix ramosissima is synonymous with Tamarix chinensis (FAC) per NWPL. Hydric soil and wetland hydrology parameters not met; thus, prevalence index worksheet not required/needed

SOIL

Sampling Point: WDP 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10 YR 4/4	100%	N/A	N/A	N/A	N/A	Loamy sanc	No evidence of redox observed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No ✔

Remarks:

Top 14 inches of soil very dry; soils moistened with spray bottle to record soil color. Bottom 6 inches of soil profile slightly moist. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): N/A

Water Table Present? Yes _____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral test not met. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 04/13/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 6

Investigator(s): Kelsey Woldt, Emily Trevino, Ryan Layden Section, Township, Range: S34, T09N, R03W

Landform (hillslope, terrace, etc.): Between concrete walls Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR): LRR D - Interior Deserts Lat: 34.823367355 Long: -117.187893481 Datum: WGS 84

Soil Map Unit Name: Victorville sandy loam (soil rated as hydric per the NRCS) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✔, or Hydrology ✔ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Very sparsely vegetated wash within area of NRCS mapped hydric soils. Soil considered disturbed due to presence of rocks/fill at 15 inches. Hydrology considered disturbed due to concrete structures & channelization of flows further south. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Originally delineated on 12/12/2018; conditions reassessed on 04/13/2022.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A = Total Cover		
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 98% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✔

Remarks:

Sample point taken within area mapped as disturbed allscale scrub. Less than 5% herbaceous cover (approximately 2%), therefore, per Arid West Manual no herb stratum.

SOIL

Sampling Point: WDP 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-15	10 YR 3/3	100%	N/A	N/A	N/A	N/A	Sandy clay loan	No evidence of redox observed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal - rocks/fill and compacted soils

Depth (inches): 15 inches

Hydric Soil Present? Yes ____ No ✔

Remarks:

Sample pit only dug to 15 inches due to rocks and compact soils. Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral test not met (no vegetation). Flows may have historically occurred here; however, no wetland hydrology indicators were observed during field visit.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 04/13/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 7

Investigator(s): Emily Trevino, Ryan Layden, Kelsey Woldt Section, Township, Range: S04, T08N, R03W

Landform (hillslope, terrace, etc.): Within roadside ditch Local relief (concave, convex, none): slightly concave Slope (%): 0-1

Subregion (LRR): LRR D - Interior Deserts Lat: 34.814749092 Long: -117.195136063 Datum: WGS 84

Soil Map Unit Name: Cajon-Wasco, cool complex, 2 to 9 percent slopes (soil rated as hydric per the NCRS) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology ✔ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Hydrology considered disturbed due to proximity to National Trails Hwy; area appears to primarily collect water adjacent to roadways. Soil cracks and Tamarix ramosissima present in slightly concave area. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Originally delineated on 12/12/2018; conditions reassessed on 04/13/2022.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarix ramosissima	40%	Yes	FAC
2.			
3.			
4.			
	40% = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Atriplex polycarpa	35%	Yes	FACU
2.			
3.			
4.			
5.			
	35% = Total Cover		
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 20% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as tamarisk thickets. Ten-foot radius for tree stratum used to only account for vegetation within area growing under same soil and hydrologic conditions. Tamarix ramosissima is synonymous with Tamarix chinensis (FAC) per NWPL. Hydric soil parameter not met; thus, prevalence index worksheet not required/needed

SOIL

Sampling Point: WDP 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10 YR 3/3	100%	N/A	N/A	N/A	N/A	Silty clay loam	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Surface soil cracks present. FAC-Neutral test not met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 04/13/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 8

Investigator(s): Kelsey Woldt, Emily Trevino, Ryan Layden Section, Township, Range: S08, T08N, R03W

Landform (hillslope, terrace, etc.): mid-slope terrace Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): LRR D - Interior Deserts Lat: 34.802059 Long: -117.215235 Datum: WGS 84

Soil Map Unit Name: Cajon Sand, 2 to 9 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ____	No ✔	

Remarks:

Wetland sample point taken based on presence of Tamarix ramosissima. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Originally delineated on 08/20/2019, conditions reassessed on 04/13/2022.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarix ramosissima	70%	Yes	FAC
2.			
3.			
4.			
	70% = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A = Total Cover		
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 30% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Sample point taken within area mapped as tamarisk thickets. Fifteen-foot radius for tree stratum used to only account for vegetation within area growing under same soil and hydrologic conditions. Tamarix ramosissima is synonymous with Tamarix chinensis (FAC) per NWPL. Bare ground covered with vegetative litter.

SOIL

Sampling Point: WDP 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10 YR 4/3	100	N/A	N/A	N/A	N/A	Silty loam	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): N/A

Water Table Present? Yes _____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral test not met. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 4/12/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 9

Investigator(s): Sarah Krejca, Emily Trevino Section, Township, Range: S27, T09N, R03W

Landform (hillslope, terrace, etc.): Slight depression Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): LRR D - Interior Deserts Lat: 34.837732 Long: 1177.184099 Datum: WGS 84

Soil Map Unit Name: Victorville sandy loam (soil rated as hydric per the NCRS) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Representative sample point taken with area mapped as tamarisk thickets habitat. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarix ramosissima	85%	Yes	FAC
2.			
3.			
4.			
	85% = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A = Total Cover		
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 15% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as tamarisk thickets. Ten-foot radius for tree stratum used to only account for vegetation within area growing under same soil and hydrologic conditions. Tamarix ramosissima is synonymous with Tamarix chinensis (FAC) per NWPL.

SOIL

Sampling Point: WDP 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 3/4	100%	N/A	N/A	N/A	N/A	Sandy loam	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal - compacted soils

Depth (inches): @ 14 inches

Hydric Soil Present? Yes _____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): N/A

Water Table Present? Yes _____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral test not met. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 3/24/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 10

Investigator(s): Ryan Layden, Kelsey Woldt Section, Township, Range: S27, T09N, R03W

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): LRR D - Interior Deserts Lat: 34.840370 Long: -117.179805 Datum: WGS 84

Soil Map Unit Name: Cajon sand, 2 to 9 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ____, Soil ✔, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✔	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:

Representative sample point taken within area displaying surface soil cracks just north of dirt road and culvert. Soil considered significantly disturbed due to presence of rocks/rock bed at 10 inches. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Suaeda nigra	12%	Yes	OBL
2. Atriplex polycarpa	2%	No	FACU
3.			
4.			
5.			
	14% = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Schismus barbatus	5%	Yes	NL/UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 80% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

Sample point taken within an area mapped as creosote bush scrub in a dry floodplain north of railroad culvert. Hydric soil parameter not met; thus, prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 4/4	100%	N/A	N/A	N/A	N/A	Sand	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal - rocks/rock bed

Depth (inches): @10 inches

Hydric Soil Present? Yes ____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ✔ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Drift deposits present as dead plant material; surface soil cracks prominent throughout sample area. FAC-Netural test not met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 6/20/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 11

Investigator(s): Ryan Layden, Kelsey Woldt Section, Township, Range: S09, T09N, R02W

Landform (hillslope, terrace, etc.): Depressional area Local relief (concave, convex, none): concave Slope (%): 1-3

Subregion (LRR): LRR D - Interior Deserts Lat: 34.883818 Long: -117.094404 Datum: WGS 84

Soil Map Unit Name: Cajon sand, 2 to 9 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Representative sample point taken within concave area where ponding is visible on aerials, near the railway and Pettit Road. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Salsola tragus	5%	Yes	FACU
2. Atriplex polycarpa	2%	Yes	FACU
3.			
4.			
5.			
	7% = Total Cover		
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 93% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as allscale scrub. Hydric soil and wetland parameters not met; thus, prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 5/4	100%	N/A	N/A	N/A	N/A	Sand	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal - compact soils

Depth (inches): @8 inches

Hydric Soil Present? Yes ____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Surface soil cracks prominent throughout sample area. FAC-Neutral test not met.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 1
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/22 **Time:** 1010
Town: Barstow **State:** CA
Photo begin file#: 1 **Photo end file#:** 1

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.879643,-117.105536

Potential anthropogenic influences on the channel system:
Runoff from adjacent commercial lots, National Trails Hwy, and active railroad tracks.

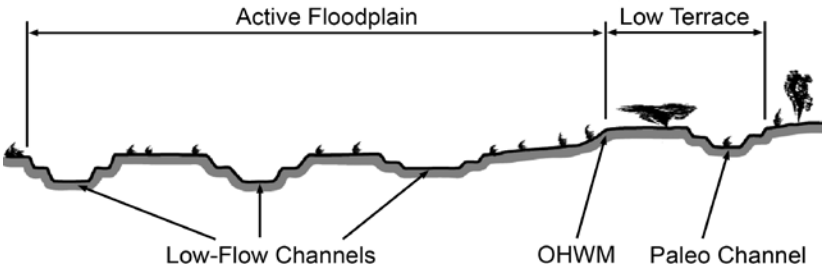
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

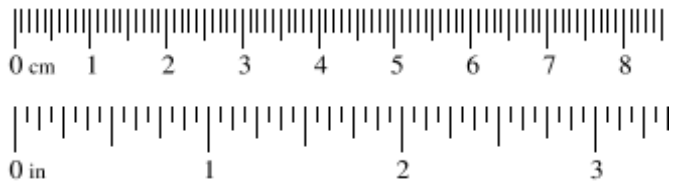


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

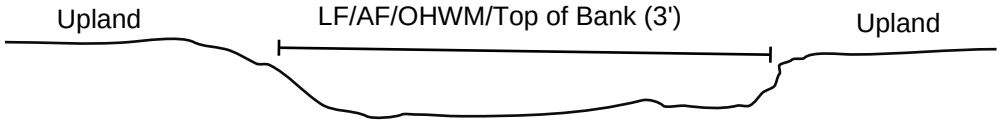
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 1 **Date:** 04/13/22 **Time:** 1010

Cross section drawing:



OHWM

GPS point: 34.879643,-117.105536

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide OHWM defined by a clear break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography. Small unvegetated channel which flows into culvert under railroad tracks; two small channels input into this main sandy feature.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 1 **Date:** 04/13/22 **Time:** 1010

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide AF with clear break in bank slope. Drift/debris present as trash. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: very fine sand

Total veg cover: 50 % Tree: 0 % Shrub: 35 % Herb: 15 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Cynodon dactylon and Salsola sp. Very fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 2
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 0951
Town: Barstow **State:** CA
Photo begin file#: 3 **Photo end file#:** 3

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.87744646, -117.11103257

Potential anthropogenic influences on the channel system:
Upstream input from culvert crossing at National Trails Highway; runoff from adjacent residential lots.

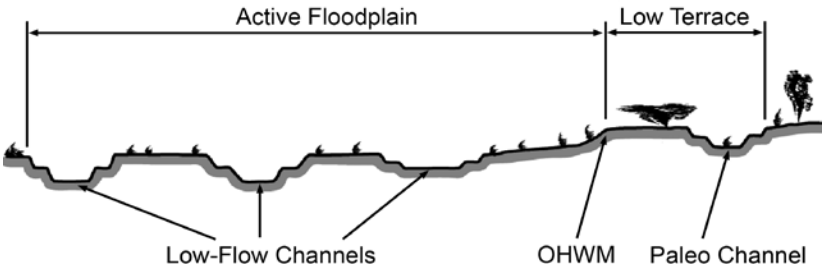
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

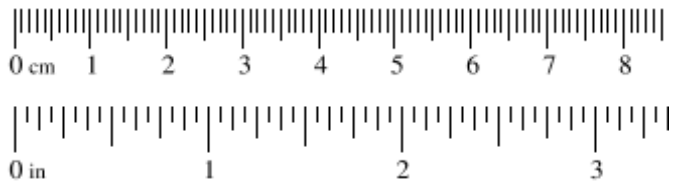


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

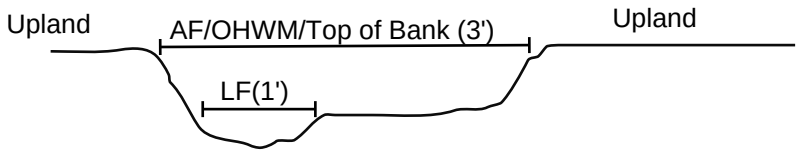
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 2 **Date:** 04/13/2022 **Time:** 0951

Cross section drawing:



OHWM

GPS point: 34.87744646, -117.11103257

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography. Feature dwindles out at road, field staff did not observe a connection downstream.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: coarser sediment texture
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide low-flow channel (LF) characterized by a break in bank slope. Granule sediment texture throughout.

Project ID: Big Barstow **Cross section ID:** ODP 2 **Date:** 04/13/2022 **Time:** 0951

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 5 % Tree: 0 % Shrub: 0 % Herb: 5 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide active floodplain (AF) with visible bed and bank. Vegetation dominated by sparse upland grasses and herbs. Drift/debris present as trash. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Pebble

Total veg cover: 20 % Tree: 0 % Shrub: 15 % Herb: 5 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Atriplex polycarpa and creosote dominant vegetation with annual non-native grasses on upland slopes directly adjacent to channel. Pebble sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 3
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1025
Town: Barstow **State:** CA
Photo begin file#: 4 **Photo end file#:** 4

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.87408624, -117.11735678

Potential anthropogenic influences on the channel system:
Concrete storm drain feature diverts flows into delineated area creating channel; surrounded by road/intersection, active railroad, and housing.

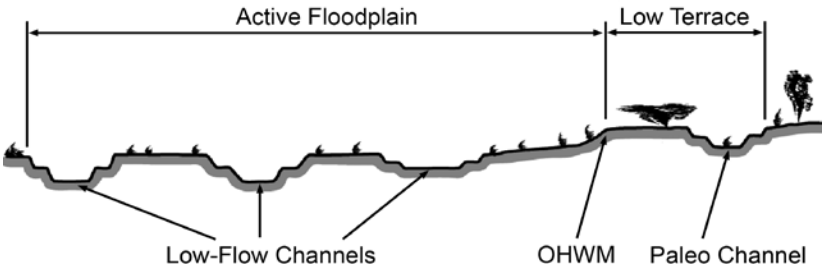
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

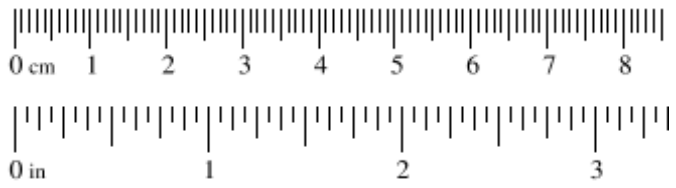


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

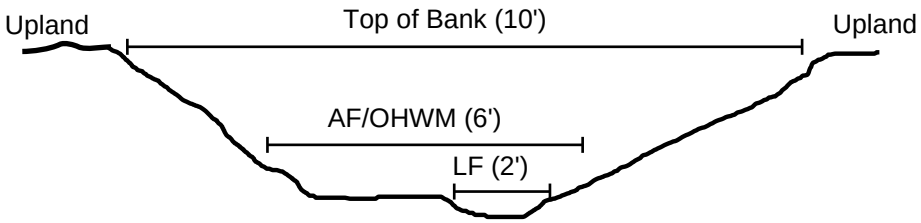
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 3 **Date:** 04/13/2022 **Time:** 1025

Cross section drawing:



OHWM

GPS point: 34.87408624, -117.11735678

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide OHWM; width noted from portion of the feature that is not a part of the storm drain structure (concrete 4' channel). OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☑ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: coarser sediment texture
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide low-flow channel (LF) exhibiting small areas with mudcracks. Granule sediment texture throughout.

Project ID: Big Barstow **Cross section ID:** ODP 3 **Date:** 04/13/2022 **Time:** 1025

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very fine sand

Total veg cover: 5 % Tree: 0 % Shrub: 5 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide active floodplain (AF) with visible bed and bank. Vegetation dominated by Atriplex polycarpa. Drift/debris present as trash. Very fine sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse silt

Total veg cover: 20 % Tree: 0 % Shrub: 20 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace; continues from AF to upland. Vegetation dominated by Atriplex polycarpa and Sphaeralcea sp. on upland adjacent to channel; gravel on western slope within landscaped area, eastern slope/bank not landscaped. Coarse silt sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 4
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 0757
Town: Barstow **State:** CA
Photo begin file#: 6 **Photo end file#:** 6

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.86896511, -117.12867725

Potential anthropogenic influences on the channel system:
Highly manipulated/disturbed (off-road vehicle use) trapezoidal channel flowing under railroad tracks.

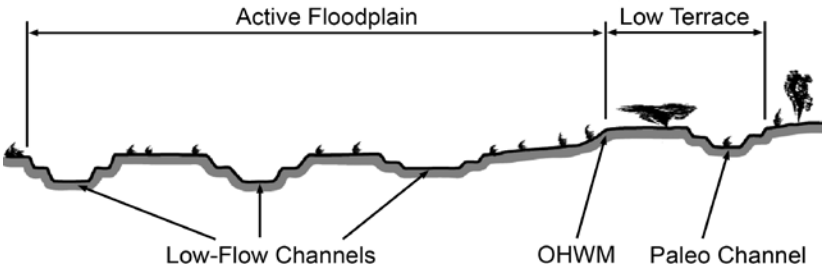
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

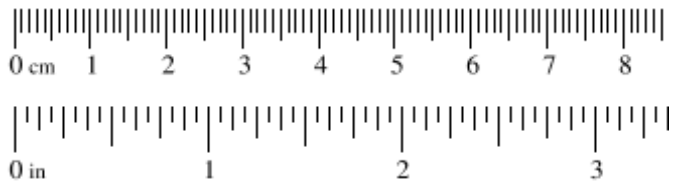


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

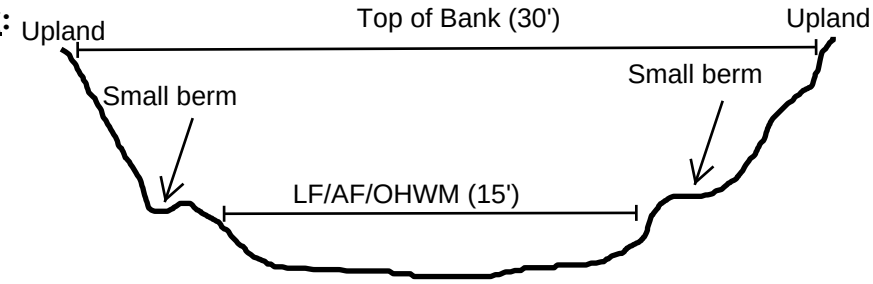
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 4 **Date:** 04/13/2022 **Time:** 0757

Cross section drawing:



OHWM

GPS point: 34.86896511, -117.12867725

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 15-foot wide OHWM; wider upstream with larger sediment/pebbles in channel. OHWM defined by a break in bank slope and change in average sediment texture. Highly manipulated trapezoidal channel; evidence of off-road vehicle use throughout. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 4 **Date:** 04/13/2022 **Time:** 0757

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: very fine sand

Total veg cover: 5 % Tree: 0 % Shrub: 5 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Mid (herbaceous, shrubs, saplings)
- ☑ Early (herbaceous & seedlings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☑ Mudcracks
- ☐ Soil development
- ☐ Ripples
- ☐ Surface relief
- ☑ Drift and/or debris
- ☐ Other: _____
- ☑ Presence of bed and bank
- ☐ Other: _____
- ☐ Benches
- ☐ Other: _____

Comments:

Approximately 15-foot wide AF; soils may have been recently compacted by off-road vehicle use or other disturbance. Vegetation dominated by Salsola sp. Drift/debris present as dead plant material. Very fine sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Early (herbaceous & seedlings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Soil development
- ☐ Ripples
- ☑ Surface relief
- ☐ Drift and/or debris
- ☐ Other: _____
- ☐ Presence of bed and bank
- ☐ Other: _____
- ☐ Benches
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Manipulated/channelized features--upland slopes highly disturbed. Surface relief defines uplands. Granule sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 5
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 0804
Town: Barstow **State:** CA
Photo begin file#: 8 **Photo end file#:** 8

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.86403251, -117.13160838

Potential anthropogenic influences on the channel system:
Wash appears to be regularly driven and manipulated by off-road vehicles, and is bisected by other dirt roads.

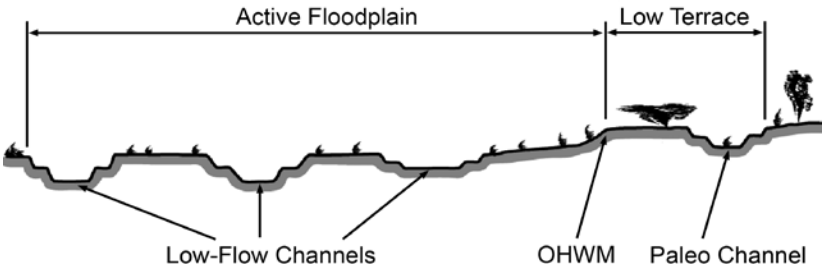
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

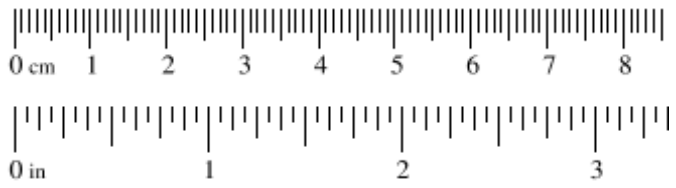


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

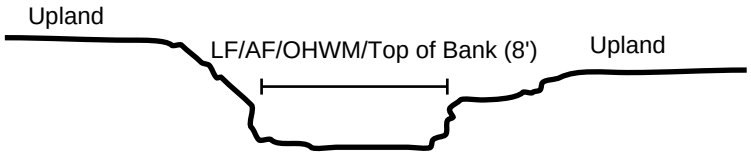
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 5 **Date:** 04/13/2022 **Time:** 0804

Cross section drawing:



OHWM

GPS point: 34.86403251, -117.13160838

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 8-foot wide OHWM defined by change in average sediment texture, change in vegetation cover, and change in average sediment texture. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 5 **Date:** 04/13/2022 **Time:** 0804

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 8-foot wide AF with sandy wash characteristics. Drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: very fine sand

Total veg cover: 2 % Tree: 0 % Shrub: 2 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Ephedra sp. and Atriplex polycarpa. Very fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 6
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 0810
Town: Barstow **State:** CA
Photo begin file#: 9 **Photo end file#:** 9

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.865122044,-117.13308065

Potential anthropogenic influences on the channel system:
Upstream runoff from adjacent dirt road leading from National Trails Highway.

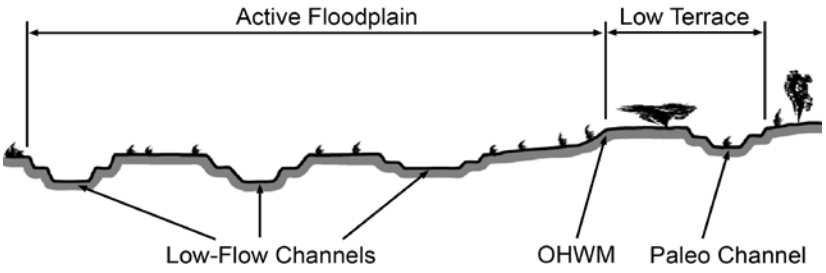
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

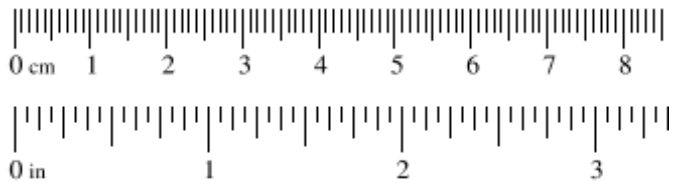


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

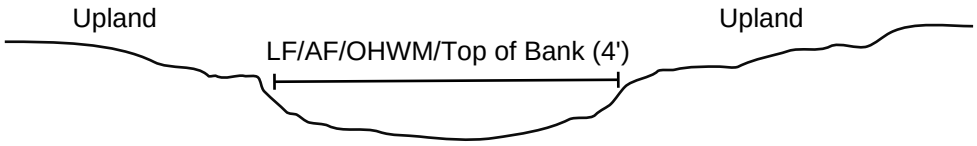
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 6 **Date:** 04/13/2022 **Time:** 0810

Cross section drawing:



OHWM

GPS point: 34.865122044,-117.13308065

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide OHWM defined by change in vegetation cover and change in average sediment texture. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 6 **Date:** 04/13/2022 **Time:** 0810

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: very coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide AF. Drift present as dead plant material deposited on Atriplex scrub adjacent to channel. Very coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: fine sand

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Atriplex sp. Fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 7
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 0823
Town: Barstow **State:** CA
Photo begin file#: 10 **Photo end file#:** 10

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.86456294, -117.13547279

Potential anthropogenic influences on the channel system:
Off-road vehicle use and potential influence by adjacent homes. Upstream log obstruction likely placed by adjacent residents.

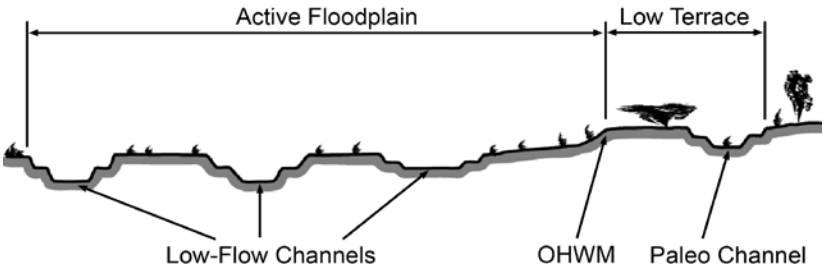
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

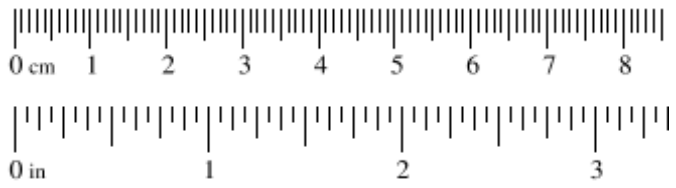


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

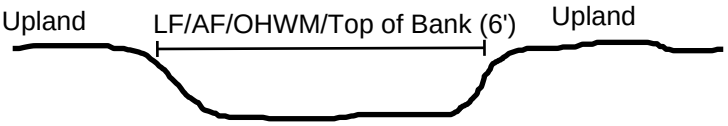
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 7 **Date:** 04/13/2022 **Time:** 0823

Cross section drawing:



OHWM

GPS point: 34.86456294, -117.13547279

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 7 **Date:** 04/13/2022 **Time:** 0823

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide AF with clear break in slope; Drift/debris present as dead plant material. Very coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 17 % Tree: 0 % Shrub: 15 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by creosote bush/Atriplex scrub. Fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 8
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1326
Town: Barstow **State:** CA
Photo begin file#: 11 **Photo end file#:** 11

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.86171543, -117.14261952

Potential anthropogenic influences on the channel system:
Residential dirt roads and housing may be contributing to localized flows that do not appear to connect downstream.

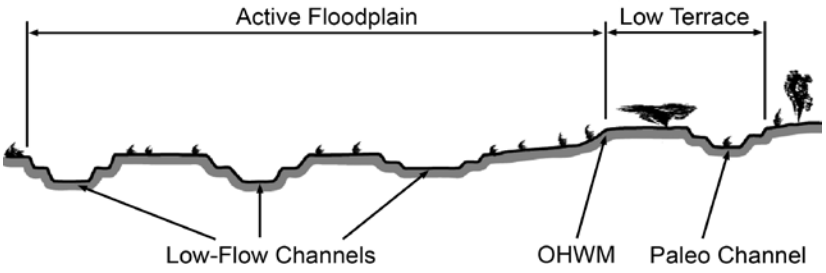
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

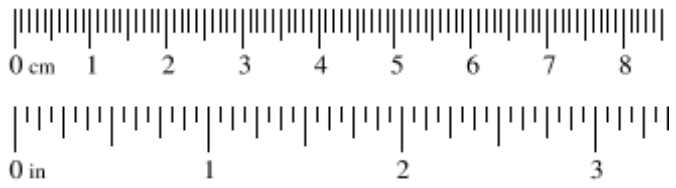


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

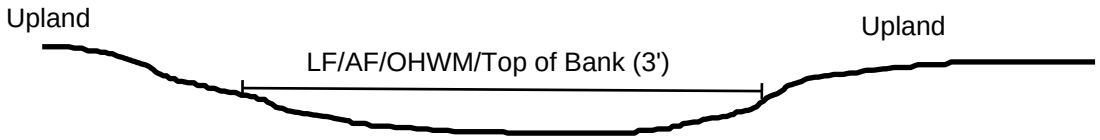
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: BNSF Big Barstow **Cross section ID:** ODP 8 **Date:** 04/13/2022 **Time:** 1326

Cross section drawing:



OHWM

GPS point: 34.86171543, -117.14261952

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide OHWM defined by a very shallow and gradual break in slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 8 **Date:** 04/13/2022 **Time:** 1326

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide AF with very shallow and gradual break in slope. Drift/debris present as dead plant. Very coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Ambrosia dumosa and Larrea tridentata. Coarse sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 9
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1331
Town: Barstow **State:** CA
Photo begin file#: 12 **Photo end file#:** 12

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.86304344,-117.140500865

Potential anthropogenic influences on the channel system:
Area received runoff from adjacent residential homes and dirt roads.

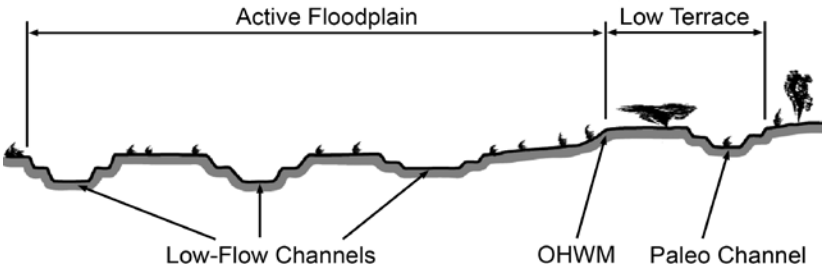
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

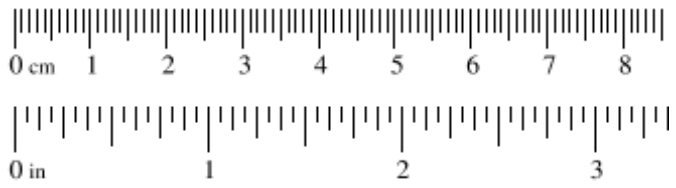


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

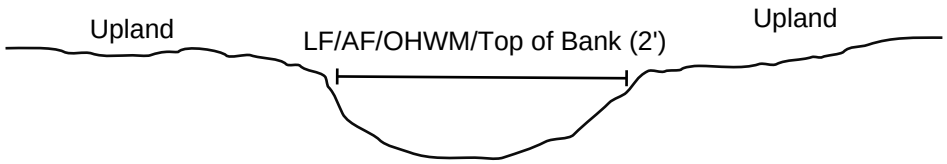
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 9 **Date:** 04/13/2022 **Time:** 1331

Cross section drawing:



OHWM

GPS point: 34.86304344,-117.140500865

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 9 **Date:** 04/13/2022 **Time:** 1331

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide AF. Drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 10 % Tree: 0 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Ambrosia dumosa and Larrea tridentata. Find sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 10
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1315
Town: Barstow **State:** CA
Photo begin file#: 13 **Photo end file#:** 13

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.85849318,-117.148919321

Potential anthropogenic influences on the channel system:
Area shows evidence of heavy off-road vehicle use and yard trash dumped in wash and throughout area.

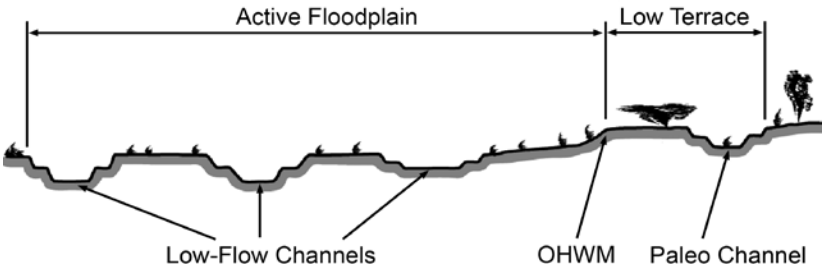
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

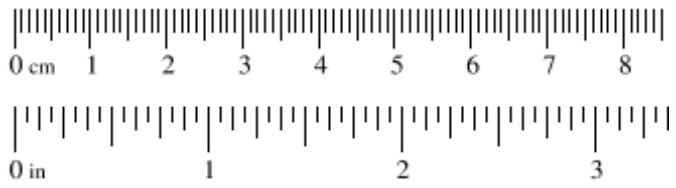


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

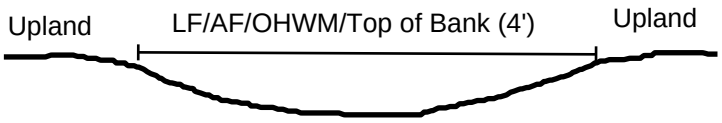
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 10 **Date:** 04/13/2022 **Time:** 1315

Cross section drawing:



OHWM

GPS point: 34.85849318,-117.148919321

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide OHWM defined by a shallow/gradual break in slope, change in vegetation cover, and change in average sediment texture. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 10 **Date:** 04/13/2022 **Time:** 1315

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide AF with slight break in slope. Drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: fine sand

Total veg cover: 10 % Tree: 0 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Ambrosia dumosa and Larrea tridentata scrub. Fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: BNSF Big Barstow
Project Number: N/A
Stream: ODP 11
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/22 **Time:** 1309
Town: Barstow **State:** CA
Photo begin file#: 14 **Photo end file#:** 14

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.857778251,-117.15123949

Potential anthropogenic influences on the channel system:
Heavy off-road vehicle use, dirt roads, and trash/debris throughout the entire area.

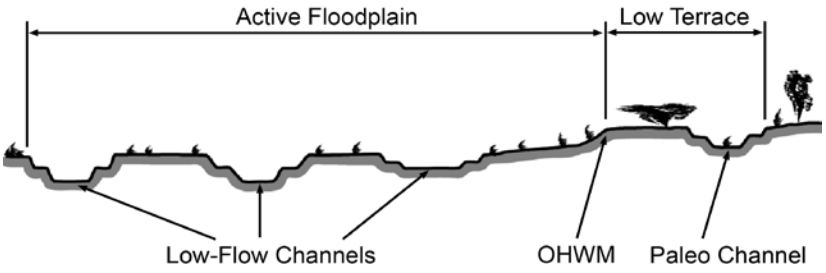
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

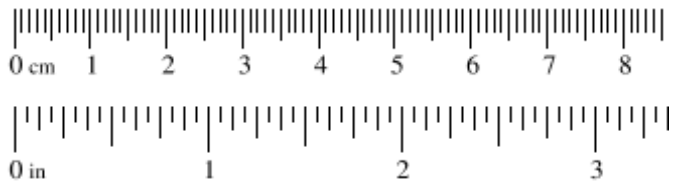


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

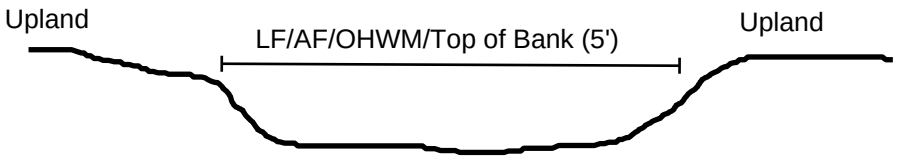
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 11 **Date:** 04/13/2022 **Time:** 1309

Cross section drawing:



OHWM

GPS point: 34.857778251,-117.15123949

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 5-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Feature has decreased definition in upstream and downstream portions and remains defined in the mid section. Feature appears erosional adjacent to road. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 11 **Date:** 04/13/22 **Time:** 1309

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 5-foot wide AF. Drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: fine sand

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Ambrosia dumosa and Larrea tridentata scrub. Fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 12
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1452
Town: Barstow **State:** CA
Photo begin file#: 16 **Photo end file#:** 16

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.857778251,-117.15123949

Potential anthropogenic influences on the channel system:
Area receives runoff from adjacent dirt road and railroad tracks.

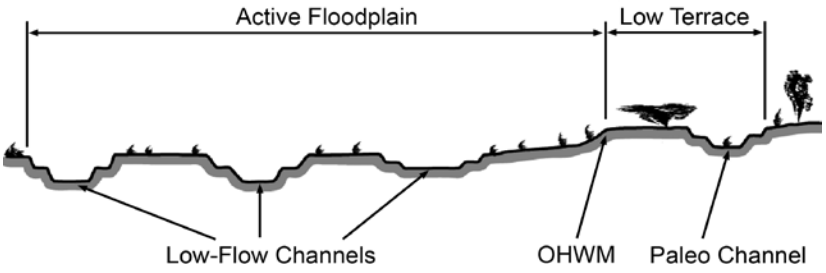
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

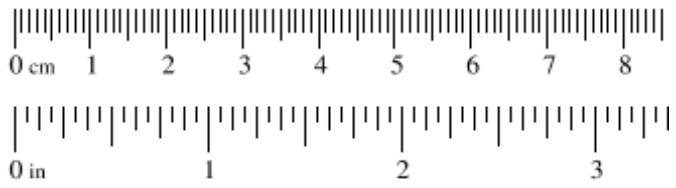


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

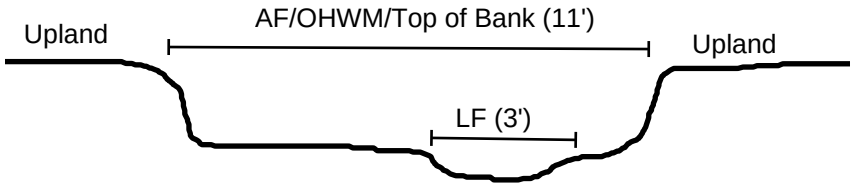
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 12 **Date:** 04/12/2022 **Time:** 1452

Cross section drawing:



OHWM

GPS point: 34.85631287,-117.15451914

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 11-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide low-flow channel (LF); very shallow and faint in some portions of the feature. Visible bed and bank. Granule sediment texture throughout.

Project ID: Big Barstow **Cross section ID:** ODP 12 **Date:** 04/12/2022 **Time:** 1452

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 2 % Tree: 0 % Shrub: 0 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Mid (herbaceous, shrubs, saplings)
- ☑ Early (herbaceous & seedlings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 11-foot wide AF, incised with an abrupt shift from upland to AF. Drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Early (herbaceous & seedlings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Atriplex canescens/Atriplex polycarpa scrub. Coarse sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 13
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1440
Town: Barstow **State:** CA
Photo begin file#: 17 **Photo end file#:** 17

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.853941018,-117.15730066

Potential anthropogenic influences on the channel system:
Area subject to heavy upstream off-road vehicle use and receives runoff from adjacent residential neighborhood.

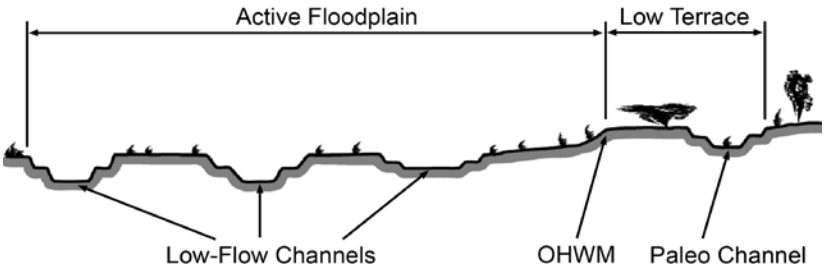
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

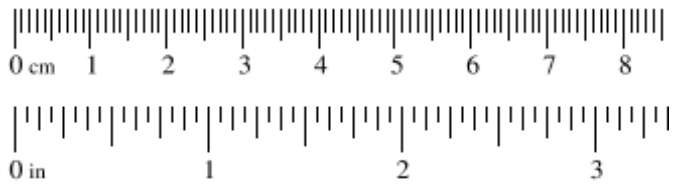


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

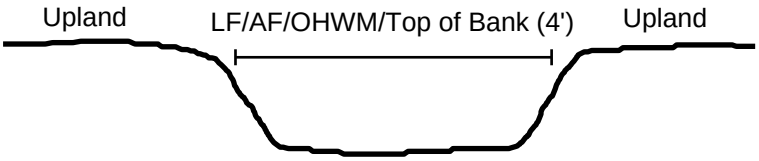
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 13 **Date:** 04/12/2022 **Time:** 1440

Cross section drawing:



OHWM

GPS point: 34.853941018,-117.15730066

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide OHWM defined by a break in bank slope, change in vegetation cover, and change in average sediment texture. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 13 **Date:** 4/12/2022 **Time:** 1440

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide AF. Shallow channel with drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: very fine sand

Total veg cover: 10 % Tree: 0 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Atriplex polycarpa and Ambrosia dumosa scrub. Very fine sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 14
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1418
Town: Barstow **State:** CA
Photo begin file#: 18 **Photo end file#:** 18

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.84826389,-117.165801470

Potential anthropogenic influences on the channel system:
Area receives runoff from upstream residential neighborhood and associated dirt roads.

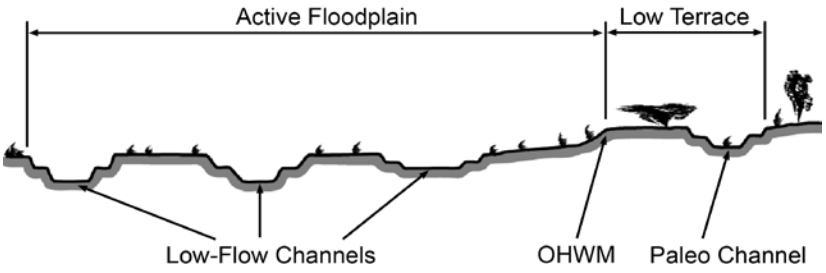
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

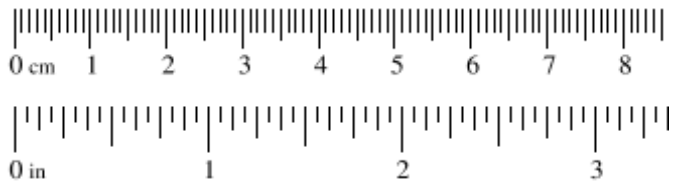


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

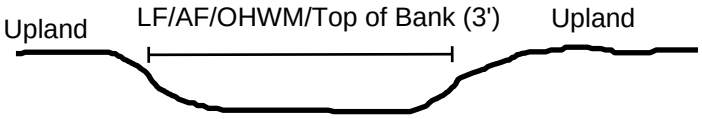
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	Gravel
2.56	64	Cobble	Gravel
0.157	4	Pebble	Gravel
0.079	2.00	Granule	Gravel
0.039	1.00	Very coarse sand	Sand
0.020	0.50	Coarse sand	Sand
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	Sand
1/8 0.0025	0.0625	Very fine sand	Sand
1/16 0.0012	0.031	Coarse silt	Silt
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	Silt
1/128 0.00015	0.0039	Very fine silt	Silt
		Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 14 **Date:** 04/12/2022 **Time:** 1418

Cross section drawing:



OHWM

GPS point: 34.84826389,-117.165801470

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide OHWM defined by a break in bank slope, change in vegetation cover, and change in average sediment texture. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 14 **Date:** 04/12/2022 **Time:** 1418

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide AF. Shallow channel with drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: very fine sand

Total veg cover: 5 % Tree: 0 % Shrub: 5 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Larrea tridentata and Ambrosia dumosa scrub. Very fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 15
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1304
Town: Barstow **State:** CA
Photo begin file#: 19 **Photo end file#:** 19

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.84366014,-117.167787774

Potential anthropogenic influences on the channel system:
Area receives runoff from upstream residential neighborhood and associated dirt roads.

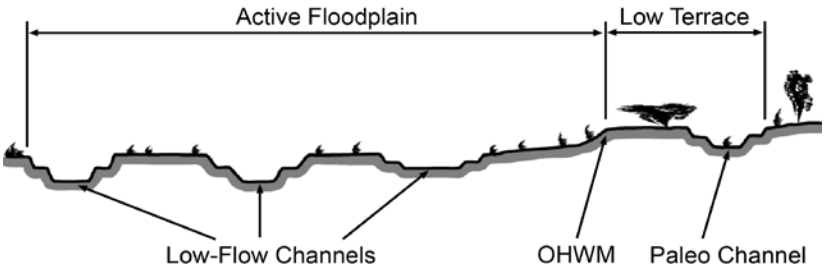
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

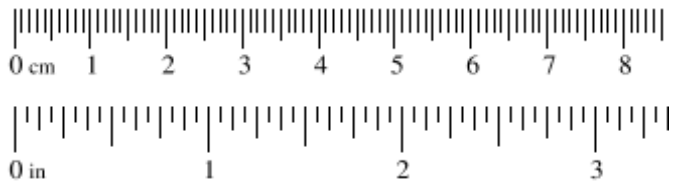


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

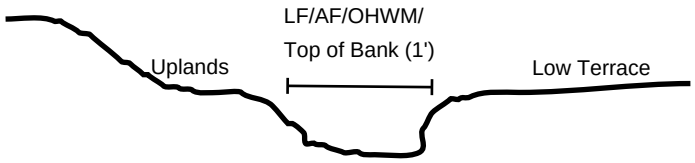
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 15 **Date:** 04/12/2022 **Time:** 1304

Cross section drawing:



OHWM

GPS point: 34.84366014,-117.167787774

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 15 **Date:** 04/12/2022 **Time:** 1304

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☑ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide AF exhibiting ripples. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 10 % Tree: 0 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Uplands present at west bank; low terrace present at east bank. Vegetation dominated by Larrea tridentata scrub. Multiple, vegetated low terrace areas exist between the seven OHWMs within the low topographic area. Granule sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 16
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1021
Town: Barstow **State:** CA
Photo begin file#: 20 **Photo end file#:** 20

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.83413979,-117.182567893

Potential anthropogenic influences on the channel system:
Residential irrigation appears to be contributing to flow. Additionally, trash and debris is present within and along banks of the feature.

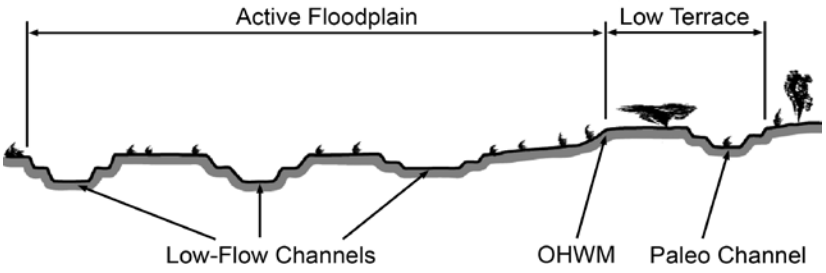
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

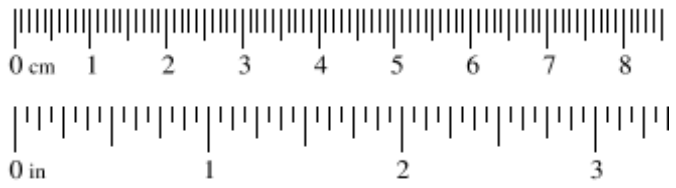


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

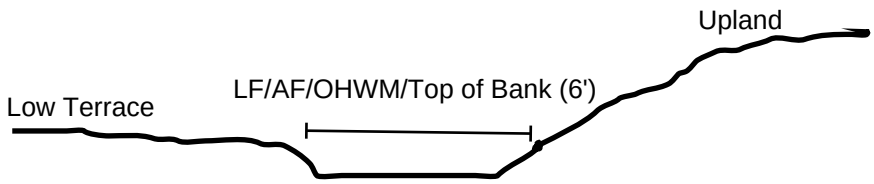
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 16 **Date:** 04/12/2022 **Time:** 1021

Cross section drawing:



OHWM

GPS point: 34.83413979,-117.182567893

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 16 **Date:** 04/12/2022 **Time:** 1021

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide AF. Drift/debris present as dead plant material. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 10 % Tree: 0 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Uplands present at west bank; low terrace present at east bank. Vegetation dominated by Larrea tridentata, Atriplex polycarpa, and Ambrosia dumosa. Granule sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 17
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1138
Town: Barstow **State:** CA
Photo begin file#: 21 **Photo end file#:** 21

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.82964338,-117.183496811

Potential anthropogenic influences on the channel system:
Wash appears to be utilized as a road for off-road vehicles. Flows are diverted into large culvert under railroad tracks.

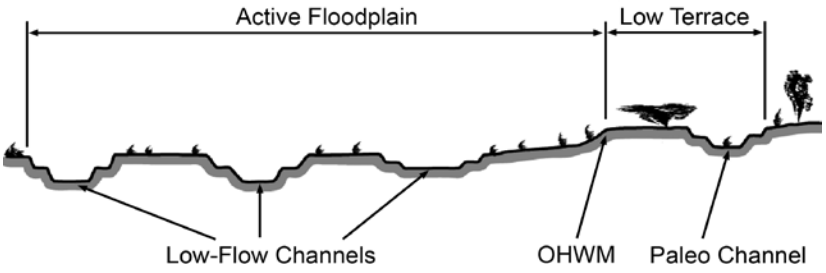
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

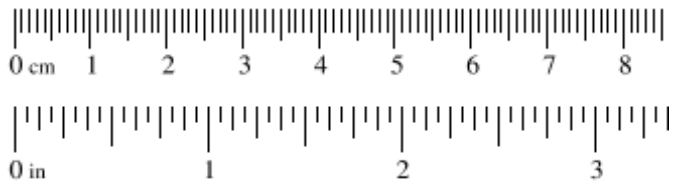


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

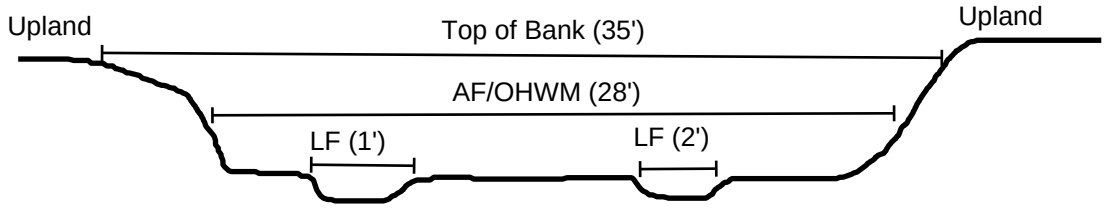
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 17 **Date:** 04/13/2022 **Time:** 1138

Cross section drawing:



OHWM

GPS point: 34.82964338,-117.183496811

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Large wash/road with approximately 28-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☑ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: finer sediment texture
- ☐ Other: _____
- ☐ Other: _____

Comments:

Two low-flow channels (LF) measuring approximately 1 foot and 2 feet wide; exhibiting ripples. Coarse sand sediment texture throughout.

Project ID: Big Barstow **Cross section ID:** ODP 17 **Date:** 04/13/2022 **Time:** 1138

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 4 % Tree: 0 % Shrub: 0 % Herb: 4 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☑ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 28-foot wide active floodplain (AF) that appears to function as a road. Drift/debris present as dead plant material. Vegetation dominated by Schismus sp. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: pebble

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Larrea tridentata, Atriplex polycarpa, and Senna armata. Pebble sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 18
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1057
Town: Barstow **State:** CA
Photo begin file#: 23 **Photo end file#:** 23

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.808776842,-117.201606214

Potential anthropogenic influences on the channel system:
Dirt road and small dirt berm are severing potential downstream connection.

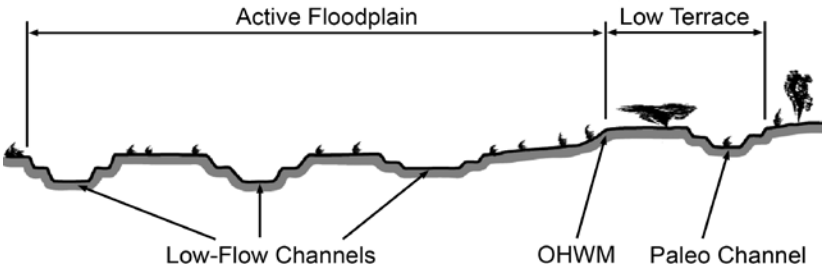
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Area receives flows from higher desert ground. Originally delineated on 12/12/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

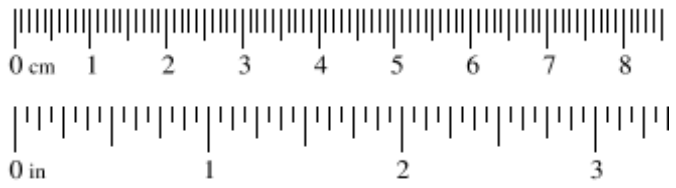


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

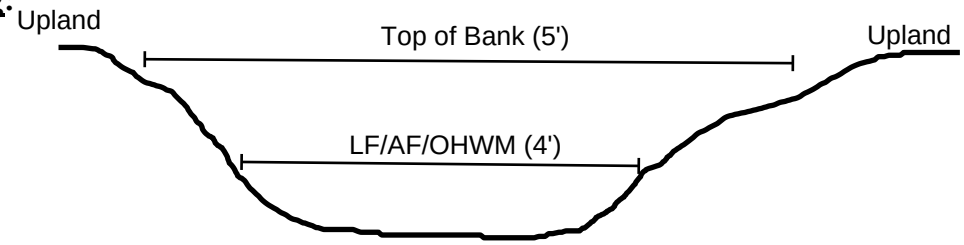
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 18 **Date:** 04/13/2022 **Time:** 1057

Cross section drawing:



OHWM

GPS point: 34.808776842,-117.201606214

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 18 **Date:** 04/13/2022 **Time:** 1057

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☑ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide OHWM. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: pebble

Total veg cover: 20 % Tree: 0 % Shrub: 20 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Atriplex polycarpa scrub. Pebble sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 19
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1257
Town: Barstow **State:** CA
Photo begin file#: 24 **Photo end file#:** 24

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.84361111, -117.16861111

Potential anthropogenic influences on the channel system:
Area receives runoff from upstream residential neighborhood and associated dirt roads.

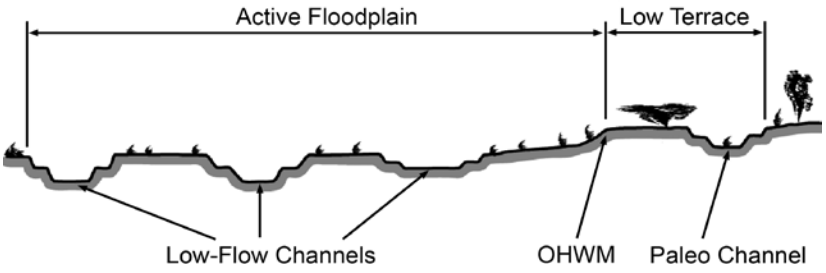
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

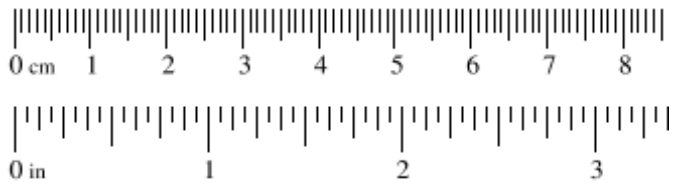


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

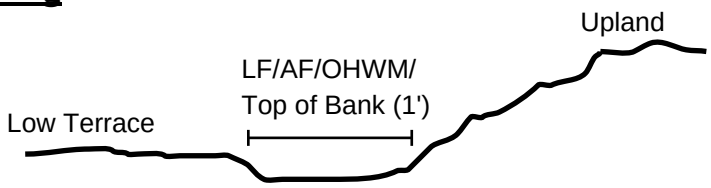
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 19 **Date:** 04/12/2022 **Time:** 1257

Cross section drawing:



OHWM

GPS point: 34.84361111, -117.16861111

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide OHWM defined by a change in average sediment texture, change in vegetation cover, and a break in bank slope. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 19 **Date:** 04/12/2022 **Time:** 1257

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☑ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide AF exhibiting sandy wash characteristics and ripples. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: pebble

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Uplands present at south bank; low terrace present at southeast bank. Vegetation dominated by Larrea tridentata scrub. Multiple, vegetated low terrace areas exist between the seven OHWMs within the low topographic area. Pebble sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 20
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1123
Town: Barstow **State:** CA
Photo begin file#: 25 **Photo end file#:** 25

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.81944638, -117.18971987

Potential anthropogenic influences on the channel system:
Area receives runoff from dirt road and railroad; trash/debris present.

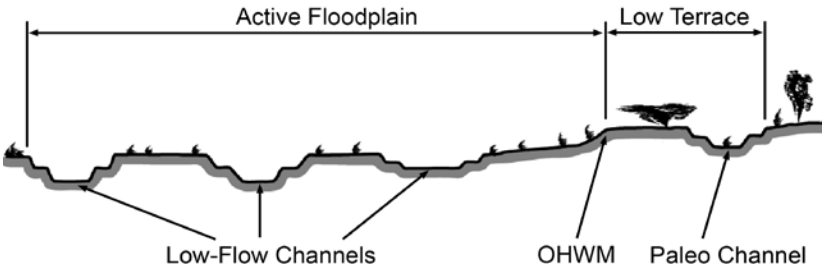
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Swale-like feature between dirt road and railroad. Originally delineated on 12/12/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
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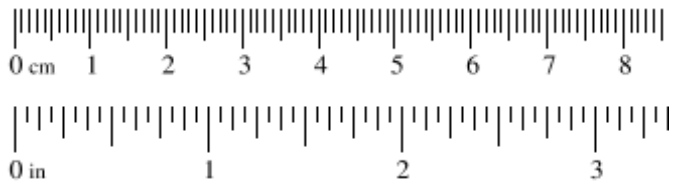
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

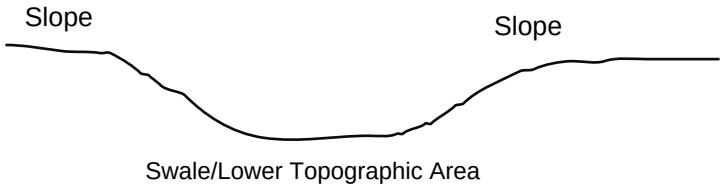
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 20 **Date:** 04/13/2022 **Time:** 1123

Cross section drawing:



OHWM

GPS point: 34.81944638, -117.18971987

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☐ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Lower topographic area (i.e., swale-like feature) that does not appear to sustain sufficient drainage flows to create the presence of a bed and bank and/or break in bank slope. Average sediment texture and vegetation species did not appear to differ from lower topographic area to adjacent slopes. A change in vegetation cover was observed between the lower topographic area and adjacent slopes (lower topographic area is generally unvegetated); however, no other OHWM indicators were present.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: Big Barstow **Cross section ID:** ODP 20 **Date:** 04/13/2022 **Time:** 1123

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 21
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 4/12/2022
Town: Barstow
Photo begin file#: 27

Time: 1335
State: CA
Photo end file#: 27

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.840211, -117.169904

Potential anthropogenic influences on the channel system:
Area receives runoff form adjacent dirt road and National Trails Highway.

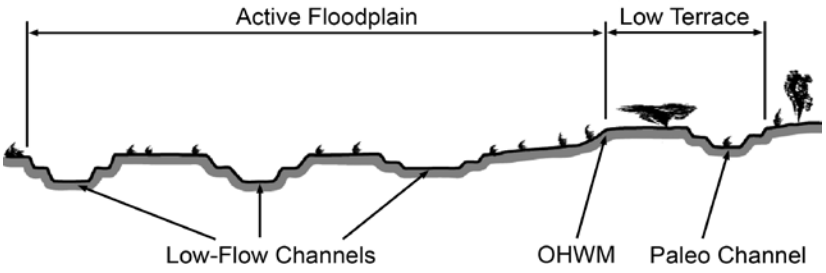
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 8/20/2019, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

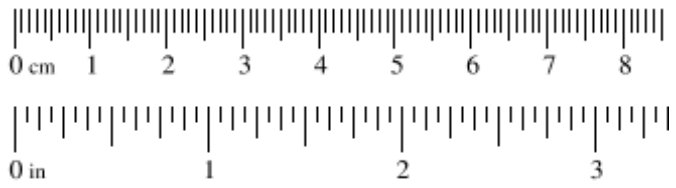


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

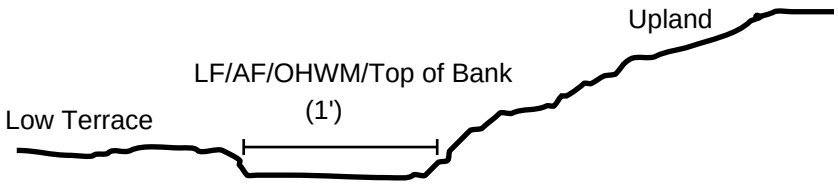
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 21 **Date:** 04/12/2022 **Time:** 1335

Cross section drawing:



OHWM

GPS point: 34.840211, -117.169904

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide OHWM adjacent to two similar features in an area of low topography. OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 21 **Date:** 04/12/2022 **Time:** 1335

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide AF with a 1-inch break in slope. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 15 % Tree: 0 % Shrub: 8 % Herb: 7 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Upland present at west bank; low terrace present at east bank. Upland vegetation dominated by Ambrosia dumosa, Larrea tridenta, Ephedra sp., Schismus barbatus, and Atriplex canescens. Low terrace vegetation consists of the above species as well as Erodium sp. Granule sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 22
Investigator(s): Sarah Krejca, Natasha Foti

Date: 12/01/2021 **Time:** 1115
Town: Barstow **State:** CA
Photo begin file#: 28 **Photo end file#:** 28

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.847611, -117.152992

Potential anthropogenic influences on the channel system:
Wash appears to be utilized as a road for off-road vehicles. Area also receives runoff from National Trails Highway to the south/southeast.

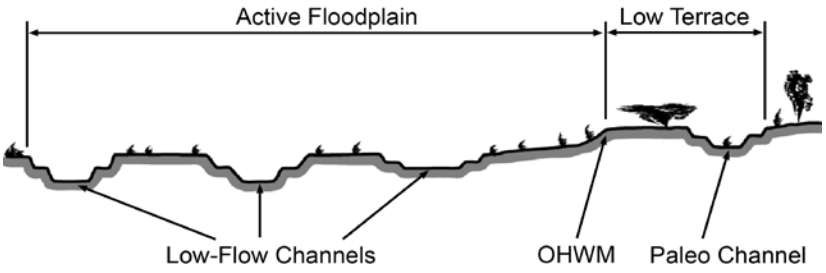
Brief site description:
Immediate surrounding area generally undeveloped except for National Trails Highway directly southeast.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



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   - ☑ GPS
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Wentworth Size Classes

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		Cobble	Gravel
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0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
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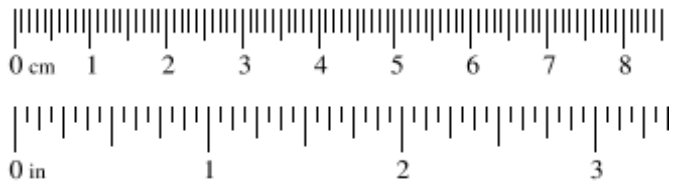
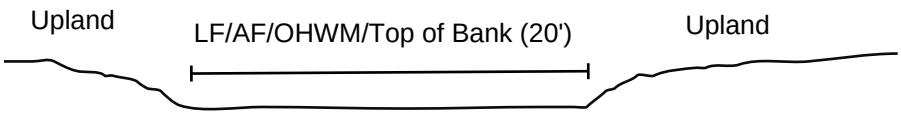
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 22 **Date:** 12/01/2021 **Time:** 1115

Cross section drawing:



OHWM

GPS point: 34.847611, -117.152992

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 20-foot wide OHWM defined by an approximately 1-inch break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 22 **Date:** 12/01/2021 **Time:** 1115

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 20-foot wide AF with an approximately 1-inch break in bank slope. Very coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 20 % Tree: 0 % Shrub: 17 % Herb: 3 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by creosote bush (Larrea tridentata), ephedra (Ephedra sp.), and unknown dried/dead grass. Granule sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 23
Investigator(s): Sarah Krejca, Natasha Foti

Date: 12/01/2021
Town: Barstow
Photo begin file#: 29

Time: 1215
State: CA
Photo end file#: 29

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.858029, -117.140586

Potential anthropogenic influences on the channel system:
Wash receives runoff from dirt road at upstream extent.

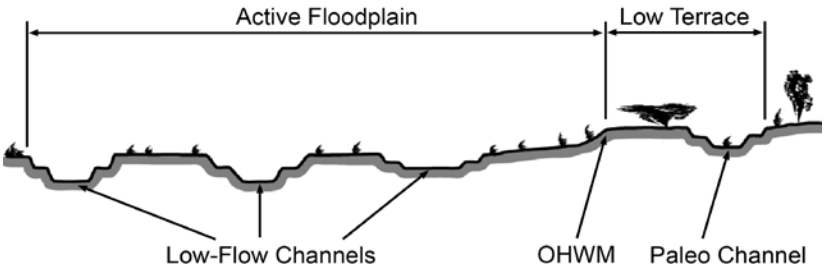
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Immediate surrounding area generally flat and undeveloped except for dirt roads at upstream extent and just downstream.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

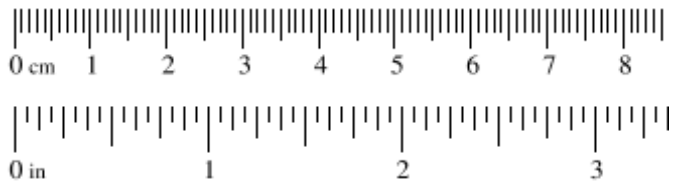


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

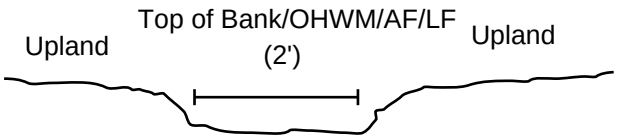
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 23 **Date:** 12/01/2021 **Time:** 1215

Cross section drawing:



OHWM

GPS point: 34.858029, -117.140586

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide OHWM defined by an approximately 2-inch break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 23 **Date:** 12/01/2021 **Time:** 1215

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide AF with an approximately 2-inch break in bank slope. Medium sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very fine sand

Total veg cover: 15 % Tree: 0 % Shrub: 10 % Herb: 5 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by creosote bush (Larrea tridentata), allscale (Atriplex sp.), and unknown dried/dead grass. Very fine sand sediment texture with pebbles throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 24
Investigator(s): Sarah Krejca, Kelsey Woldt, Alec Goodman

Date: 03/16/2022
Town: Barstow
Photo begin file#: 30

Time: 1210
State: CA
Photo end file#: 30

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.852444, -117.182596

Potential anthropogenic influences on the channel system:
Area receives upstream road runoff from dirt roads and National Trails Highway.

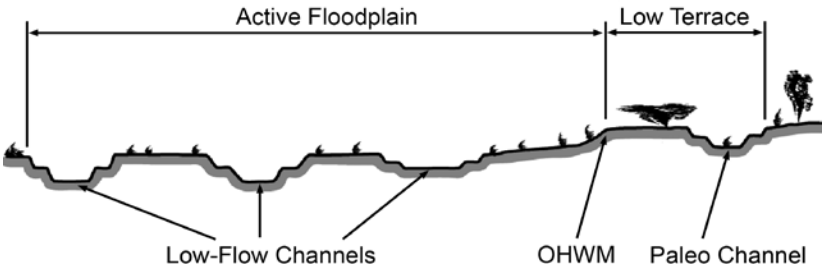
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Immediate surrounding area generally undeveloped except for dirt roads

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

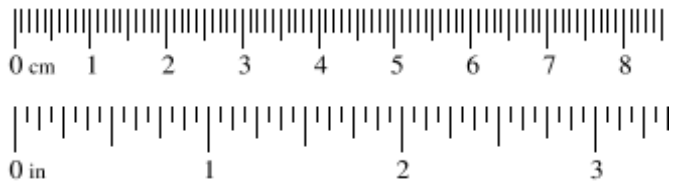


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

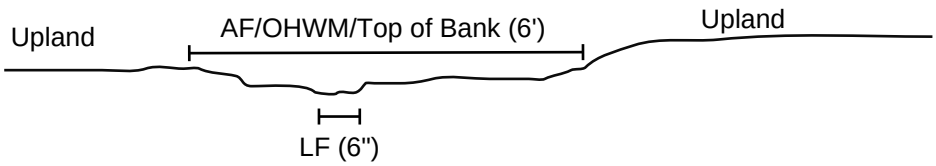
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 24 **Date:** 03/16/2022 **Time:** 1210

Cross section drawing:



OHWM

GPS point: 34.852444, -117.182596

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide OHWM defined by an approximate 1-inch break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: finer sediment
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-inch wide low-flow channel (LF) defined by a slight break in bank slope and change in average sediment texture from LF to active floodplain (AF). LF is more pronounced/visible in certain areas. Coarse sand sediment texture throughout.

Project ID: Big Barstow **Cross section ID:** ODP 24 **Date:** 03/16/2022 **Time:** 1210

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: very coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide AF with an approximately 1-inch break in bank slope. Drift deposits present as dead plant material. Very coarse sand sediment texture with some granules.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 15 % Tree: 0 % Shrub: 13 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by creosote bush (Larrea tridentata), ephedra (Ephedra sp.), desert senna (Senna armata), and white bursage (Ambrosia dumosa). Fine sand sediment texture with some pebbles and granules.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 25
Investigator(s): Ryan Layden

Date: 03/16/2022
Town: Barstow
Photo begin file#: 32

Time: 1250
State: CA
Photo end file#: 32

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.862508, -117.131741

Potential anthropogenic influences on the channel system:
Area receives road runoff from dirt roads; off-road vehicle use is apparent in the surrounding area.

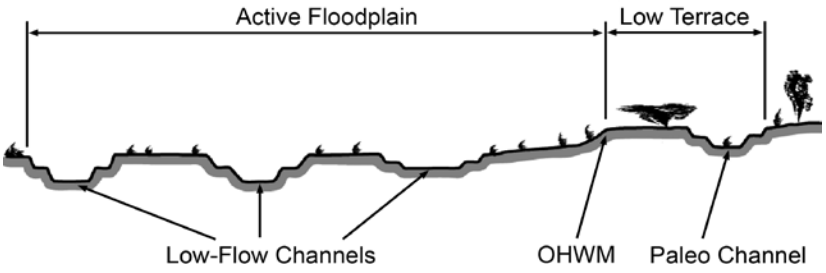
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Immediate surrounding area is generally undeveloped.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

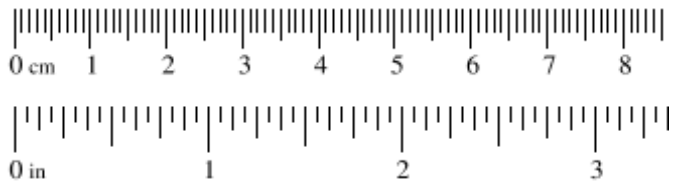


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

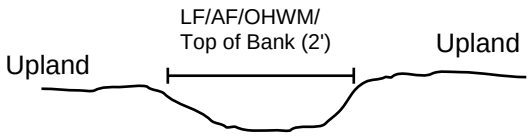
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 25 **Date:** 03/16/2022 **Time:** 1250

Cross section drawing:



OHWM

GPS point: 34.862508, -117.131741

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide OHWM defined by a visible break in slope, change in sediment texture, and change in vegetation cover. Narrow channel that receives road runoff upstream and supplies a larger feature downstream. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 25 **Date:** 03/16/2022 **Time:** 1250

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 2 % Tree: 0 % Shrub: 0 % Herb: 2 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide AF with a clear break in bank slope. Vegetation composed of allscale scrub. Medium sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 17 % Tree: 0 % Shrub: 15 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation composed of allscale scrub. Coarse sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 26
Investigator(s): Kelsey Woldt, Ryan Layden

Date: 03/24/2022 **Time:** 0800
Town: Barstow **State:** CA
Photo begin file#: 33 **Photo end file#:** 33

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.874111, -117.153853

Potential anthropogenic influences on the channel system:
Area receives possible upstream runoff/flows from surrounding development. Bermed area/road occurs along portions of northern extent of the river. Evidence of off-road vehicular use (tire tracks).

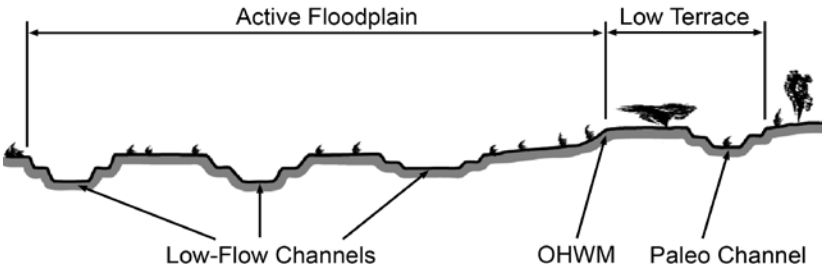
Brief site description:
Within Mojave River adjacent to active desert dune habitat; immediate surrounding area generally undeveloped.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

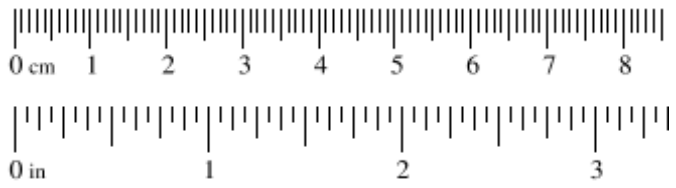


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

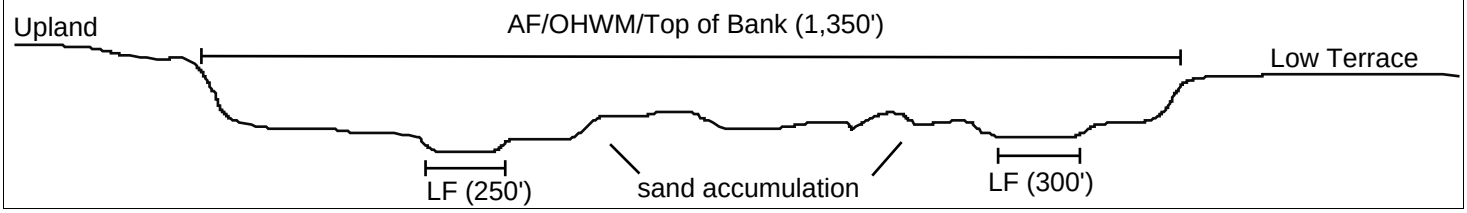
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 26 **Date:** 03/24/2022 **Time:** 0800

Cross section drawing:



OHWM

GPS point: 34.874111, -117.153853

Indicators:

- ☐ Change in average sediment texture
- ☑ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1,350-foot wide OHWM defined by a gradual break in slope and change in vegetation species. OHWM indicators along this extent of the Mojave River were sporadic/irregular, as such, the OHWM was determined using field data, a review of historic aerial imagery, and 10-year floodplain mapping. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography. Note that the entire delineated extent of the OHWM does not occur within the review area.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: 34.875578, -117.157011

Characteristics of the floodplain unit:

Average sediment texture: Very coarse sand

Total veg cover: 10 % Tree: 0 % Shrub: 8 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Two low-flow channels (LF) measuring approximately 250 feet and 300 feet wide. Vegetation dominated by California broomsage (Lepidospartum squamatum). Rock patterns indicative of flow and drift/debris present as woody tree fragments. Very coarse sand sediment texture with pebbles and granules, some finer sand at 1-inch deep.

Project ID: Big Barstow **Cross section ID:** ODP 26 **Date:** 03/24/2022 **Time:** 0800

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 12 % Tree: 0 % Shrub: 2 % Herb: 10 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1,350-foot wide active floodplain (AF). Vegetation dominated by California broomsage (Lepidospartum squamatum) and desert panicgrass (Panicum urvilleanum). Drift/debris present as large tree branches and trunks not located at the base of and/or associated with California broomsage. Coarse sand sediment texture throughout with multiple areas of higher elevation throughout AF with changes in sediment (finer sand in higher topographic zones) caused by accumulation of wind-blown sands. Indicators along this extent of the Mojave River were sporadic/irregular, as such, the extent of the AF was determined using field data, a review of historic aerial imagery, and 10-year floodplain mapping.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: 34.874042, -117.153691

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 12 % Tree: 0 % Shrub: 2 % Herb: 10 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low terrace present at eastern bank (within review area); no true low terrace (i.e., uplands) present at western bank (outside of review area). Vegetation dominated by tumbleweed (Salsola australis), honey mesquite (Prosopis glandulosa), and desert panicgrass (Panicum urvilleanum). Coarse sand sediment texture with few pebbles throughout low terrace. Slight change in elevation from AF to low terrace; bank defined by large linear dunes.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 27
Investigator(s): Kelsey Woldt, Ryan Layden

Date: 03/24/2022 **Time:** 1207
Town: Barstow **State:** CA
Photo begin file#: 35 **Photo end file#:** 35

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.840347, -117.179832

Potential anthropogenic influences on the channel system:
Area receives runoff/sheet flow from adjacent dirt road and large 12-foot cement culvert approximately 100-feet to the south that directs flows under the railroad tracks.

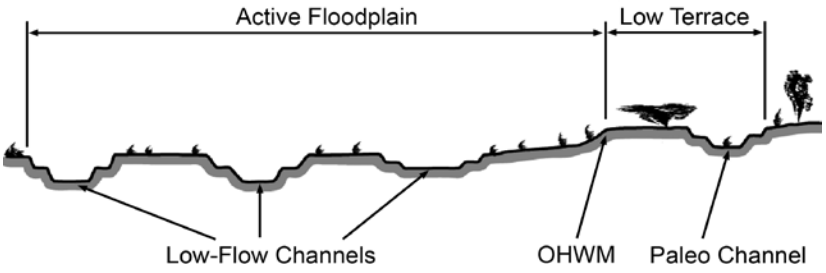
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Immediate surrounding area includes railroad tracks, dirt road, undeveloped land, and residential.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

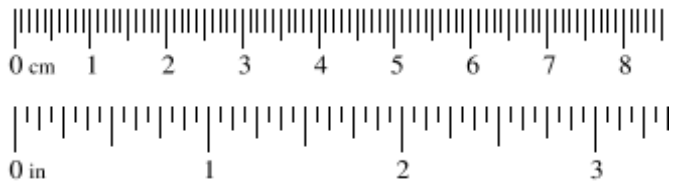


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

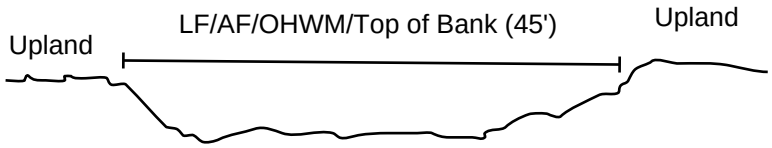
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 27 **Date:** 03/24/2022 **Time:** 1207

Cross section drawing:



OHWM

GPS point: 34.840347, -117.179832

Indicators:

- ☐ Change in average sediment texture
- ☑ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 45-foot wide OHWM defined by a break in bank slope, change in vegetation species, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF)

Project ID: Big Barstow **Cross section ID:** ODP 27 **Date:** 03/24/2022 **Time:** 1207

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very fine sand

Total veg cover: 8 % Tree: 0 % Shrub: 6 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☑ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 45-foot wide AF supplied by upstream sheet flow from railroad culvert. Drift/debris present as detritus. Mudcracks and drift patterns (i.e., grasses lying northwest in direction of flow) present. Vegetation dominated by Atriplex polycarpa and Schismus barbatus. Very fine sand sediment texture with few granules.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very fine sand

Total veg cover: 35 % Tree: 0 % Shrub: 20 % Herb: 15 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Drift/debris present as dead plant material. Vegetation dominated by Suaeda nigra, Atriplex polycarpa, and Schismus barbatus. Very fine sand sediment texture with few granules.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 28
Investigator(s): Sarah Krejca, Shanti Santulli

Date: 10/20/2021 **Time:** 1325
Town: Barstow **State:** CA
Photo begin file#: 37 **Photo end file#:** 38

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.852444, -117.182596

Potential anthropogenic influences on the channel system:
Area receives possible upstream runoff/flows from surrounding development. Bermed area/road occurs along northern extent of the river.

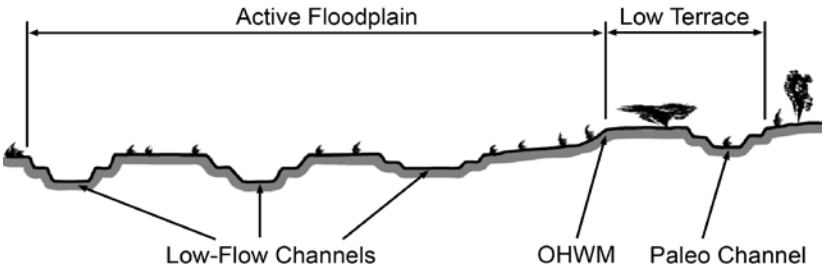
Brief site description:
Within Mojave River adjacent to active desert dune habitat; immediate surrounding area generally undeveloped.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

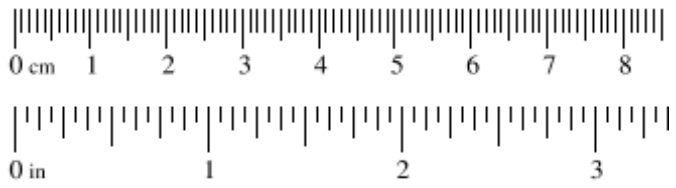


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

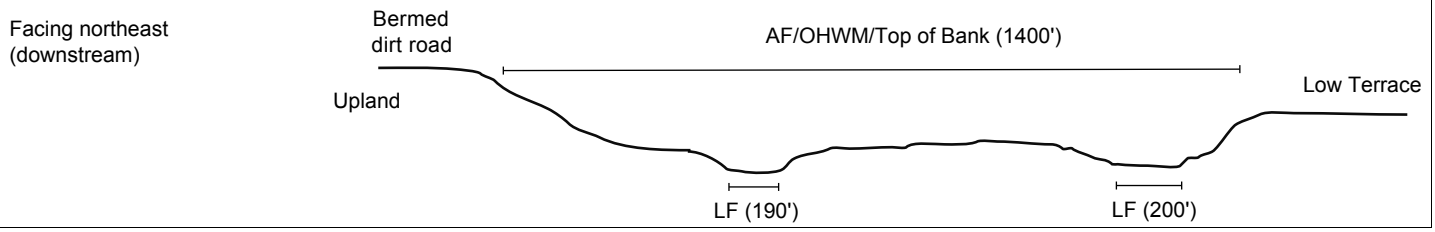
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 28 **Date:** 10/20/2021 **Time:** 1325

Cross section drawing:



OHWM

GPS point: 34.852444, -117.182596

Indicators:

- ☑ Change in average sediment texture
- ☑ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1,400-foot wide OHWM defined by a break in bank slope, change in average sediment texture, change in vegetation species, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography. Note that the entire delineated extent of the OHWM does not occur within the review area.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: 34.852637, -117.182880

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 5 % Tree: 0 % Shrub: 5 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☑ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: Finer sediment
- ☐ Other: _____
- ☐ Other: _____

Comments:

Two low-flow (LF) channels measuring approximately 190 feet and 200 feet wide. Vegetation dominated by cheesebush (Ambrosia salsola). Some areas of ripples likely attributed to past flows rather than wind. Medium sand sediment texture throughout.

Project ID: Big Barstow **Cross section ID:** ODP 28 **Date:** 10/20/2021 **Time:** 1325

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1,400-foot wide active floodplain (AF). Vegetation dominated by cheesebush (Ambrosia salsola) and honey mesquite (Prosopis glandulosa). Drift/debris present as dead branches not located at the base of and/or not associated with cheesebush or honey mesquite. Coarse sand sediment texture with pebbles.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: 34.852257, -117.182333

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 40 % Tree: 0 % Shrub: 10 % Herb: 30 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low terrace present at southeast bank (within review area); no true low terrace (i.e., uplands) present at northwest bank (outside of review area). More uniform sediment texture throughout layers within low terrace. Vegetation dominated by desert panicgrass (Panicum urvilleanum), cheesebush (Ambrosia salsola), and honey mesquite (Prosopis glandulosa). Surface relief defines uplands/low terrace. Fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 29
Investigator(s): Kelsey Woldt, Ryan Layden

Date: 06/20/2022 **Time:** 1200
Town: Barstow **State:** CA
Photo begin file#: 39 **Photo end file#:** 39

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.791535, -117.240448

Potential anthropogenic influences on the channel system:
Cement bank on northwest side of feature; channel used as road based on presence of tire tracks.

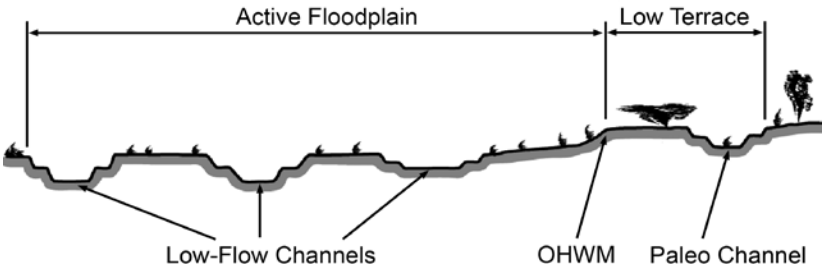
Brief site description:
Within Wild Wash, which also serves as a road.S ite occurs along existing railroad line; disturbed conditions prevalent.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

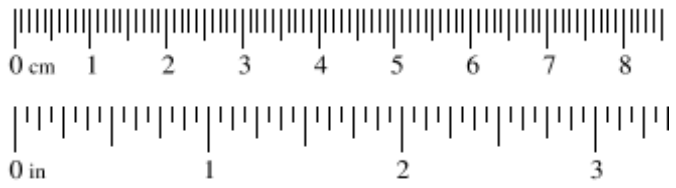


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

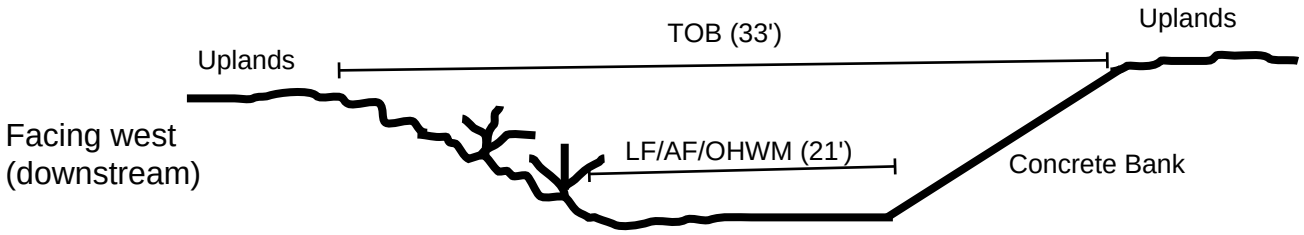
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 29 **Date:** 06/20/2022 **Time:** 1200

Cross section drawing:



OHWM

GPS point: 34.791535, -117.240448

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 21-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF)

Project ID: Big Barstow **Cross section ID:** ODP 29 **Date:** 06/20/2022 **Time:** 1200

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 21-foot wide AF with a defined break in bank slope. Granule sediment texture with some pebbles.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine silt

Total veg cover: 34 % Tree: 0 % Shrub: 30 % Herb: 4 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

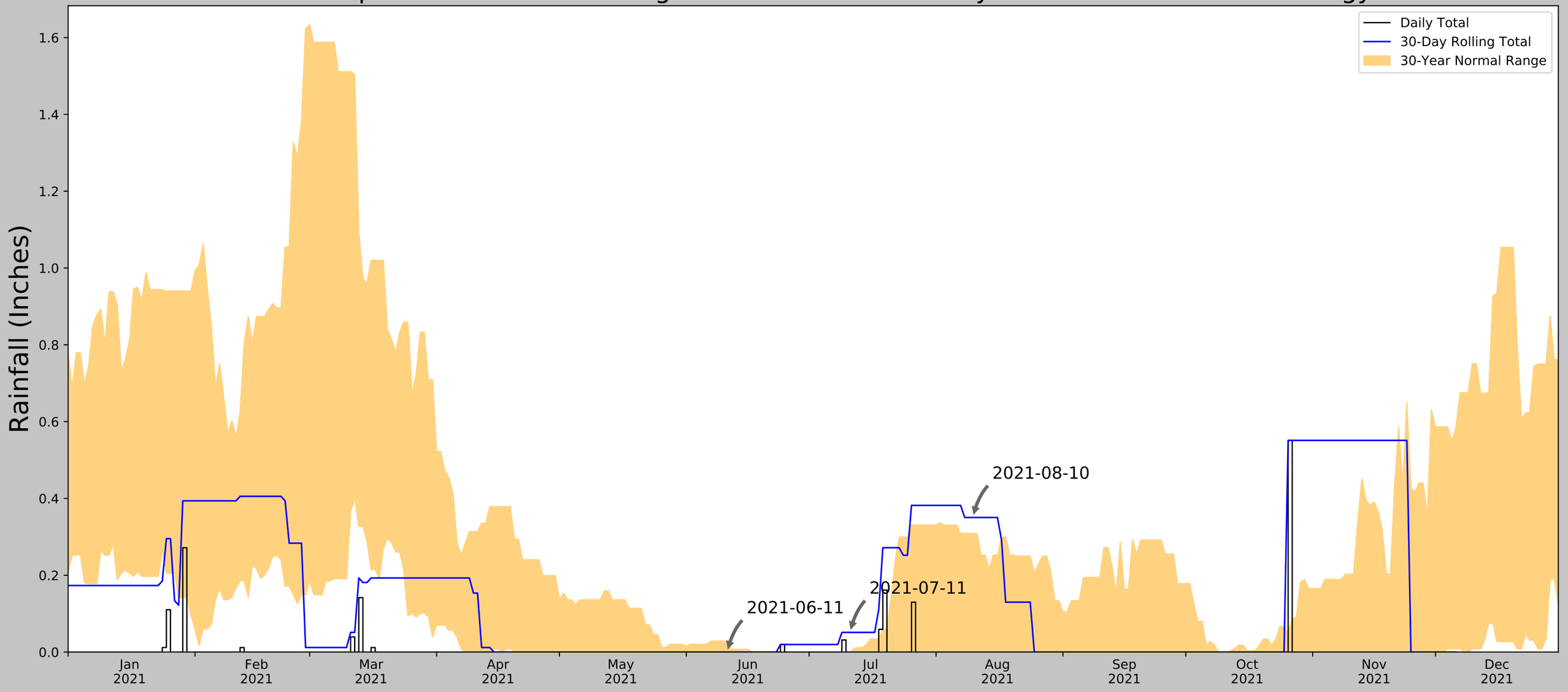
Comments:

No true low terrace present; continues from AF to upland. Northern bank/upland is composed of concrete; southern bank/upland is vegetated and dominated by Atriplex polycarpa and Larrea tridentata. Surface relief defines uplands on southern bank. Fine silt sediment texture with some granules.

APPENDIX F

ANTECEDENT PRECIPITATION TOOL OUTPUT

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.845561, -117.162790
Observation Date	2021-08-10
Elevation (ft)	2297.43
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

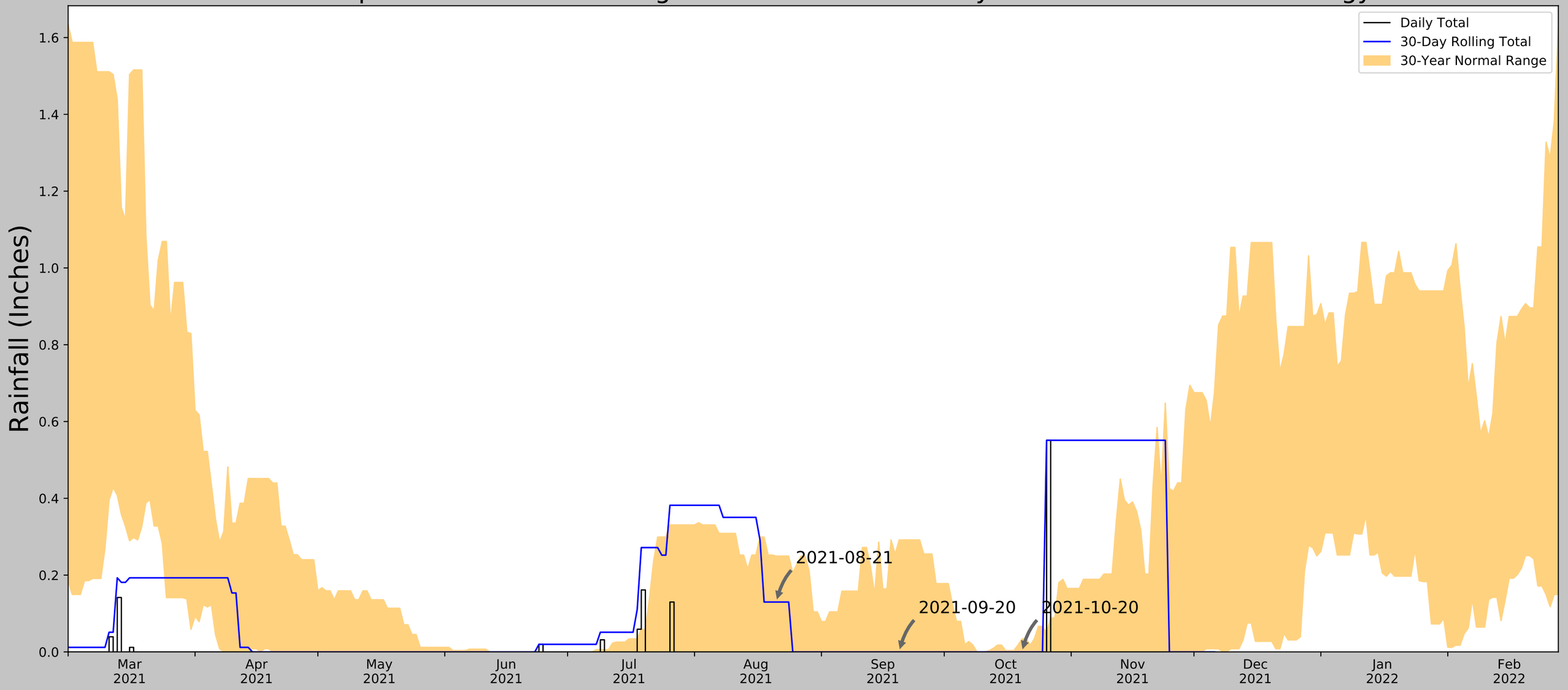
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-08-10	0.0	0.308661	0.350394	Wet	3	3	9
2021-07-11	0.0	0.0	0.051181	Wet	3	2	6
2021-06-11	0.0	0.028346	0.0	Normal	2	1	2
Result							Wetter than Normal - 17

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	8.628	77.286	4.549	11044	90
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	2	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	306	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.845561, -117.162790
Observation Date	2021-10-20
Elevation (ft)	2297.43
Drought Index (PDSI)	Severe drought
WebWIMP H_2O Balance	Dry Season

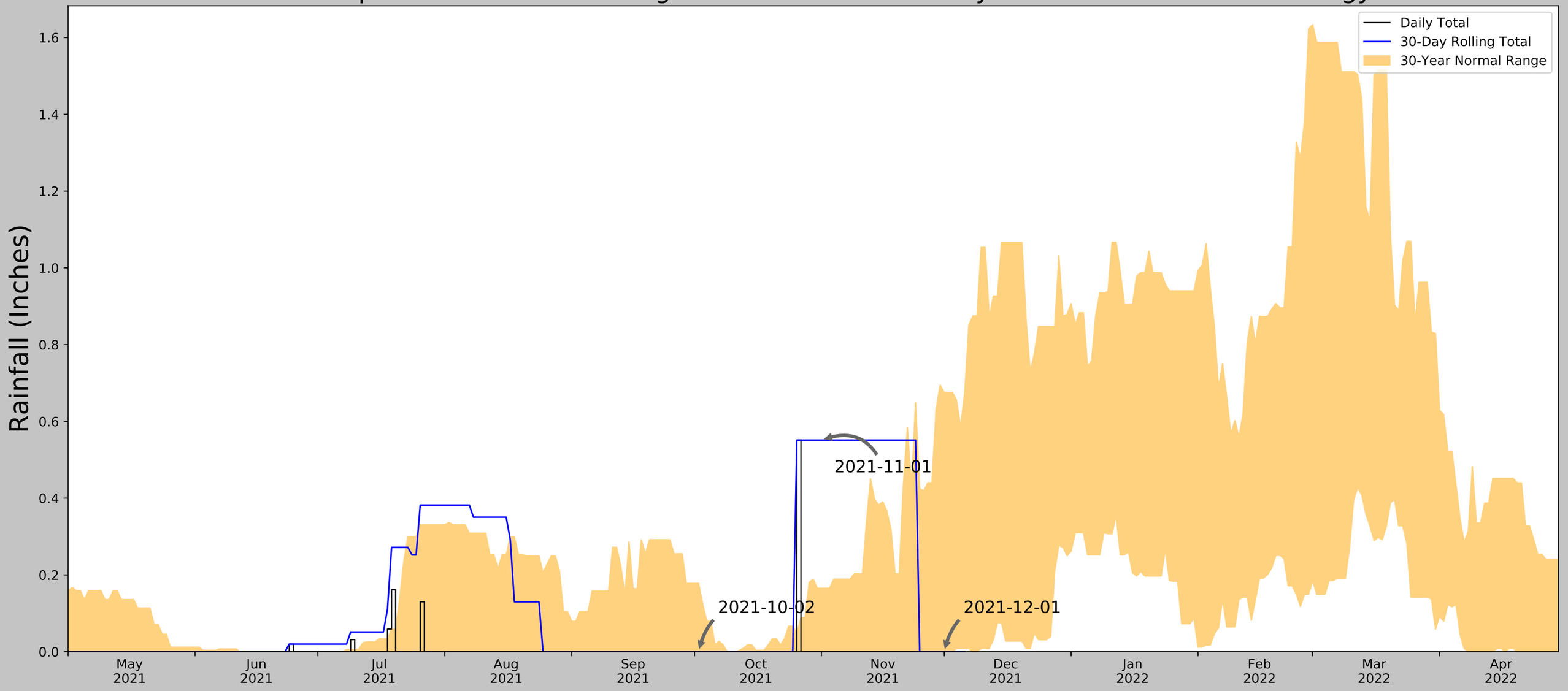
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-10-20	0.0	0.033858	0.0	Normal	2	3	6
2021-09-20	0.0	0.291732	0.0	Normal	2	2	4
2021-08-21	0.0	0.249606	0.129921	Normal	2	1	2
Result							Normal Conditions - 12

Figure and tables made by the **Antecedent Precipitation Tool** Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	8.628	77.286	4.549	11098	90
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	247	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.845561, -117.162790
Observation Date	2021-12-01
Elevation (ft)	2297.43
Drought Index (PDSI)	Severe drought (2021-11)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-12-01	0.0	0.675197	0.0	Normal	2	3	6
2021-11-01	0.0	0.165354	0.551181	Wet	3	2	6
2021-10-02	0.0	0.177953	0.0	Normal	2	1	2
Result							Normal Conditions - 14

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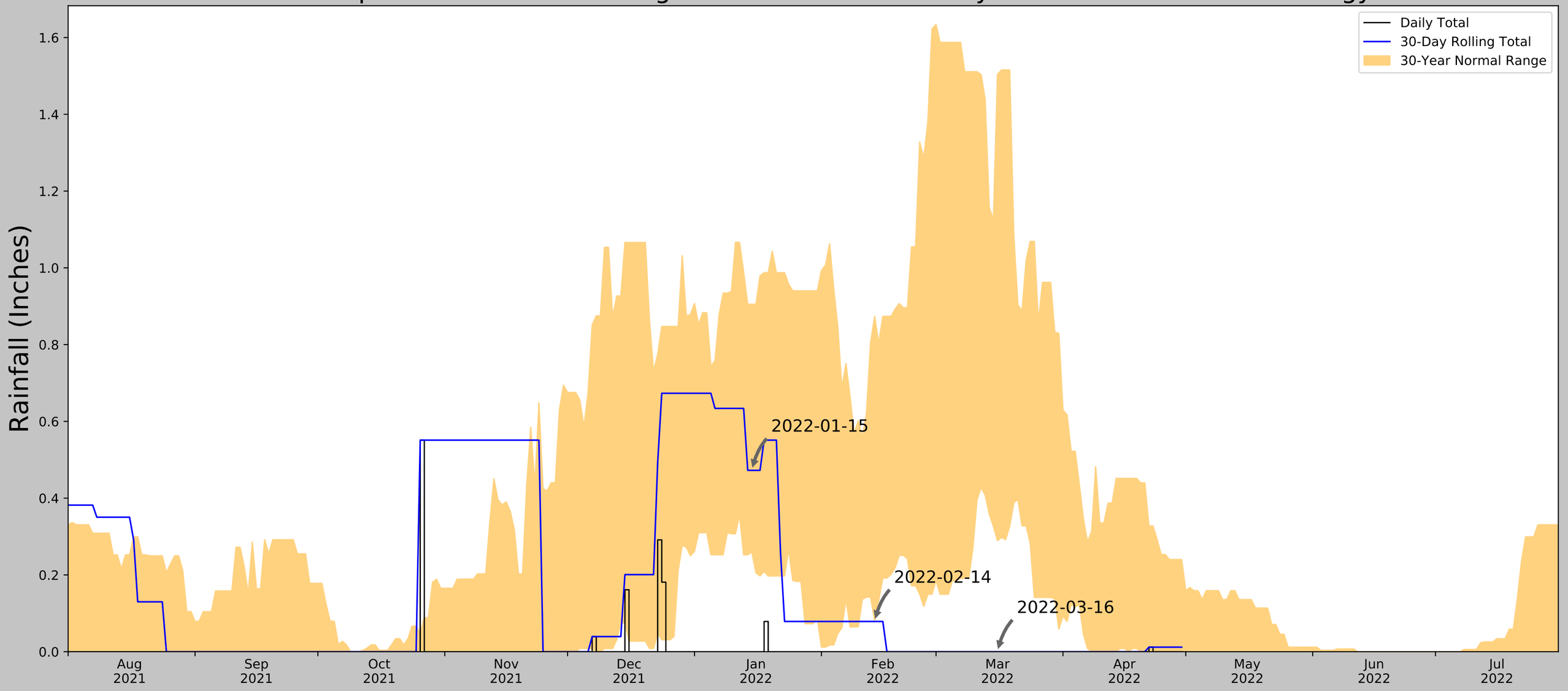
Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	8.628	77.286	4.549	11098	90
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	247	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-03-16
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

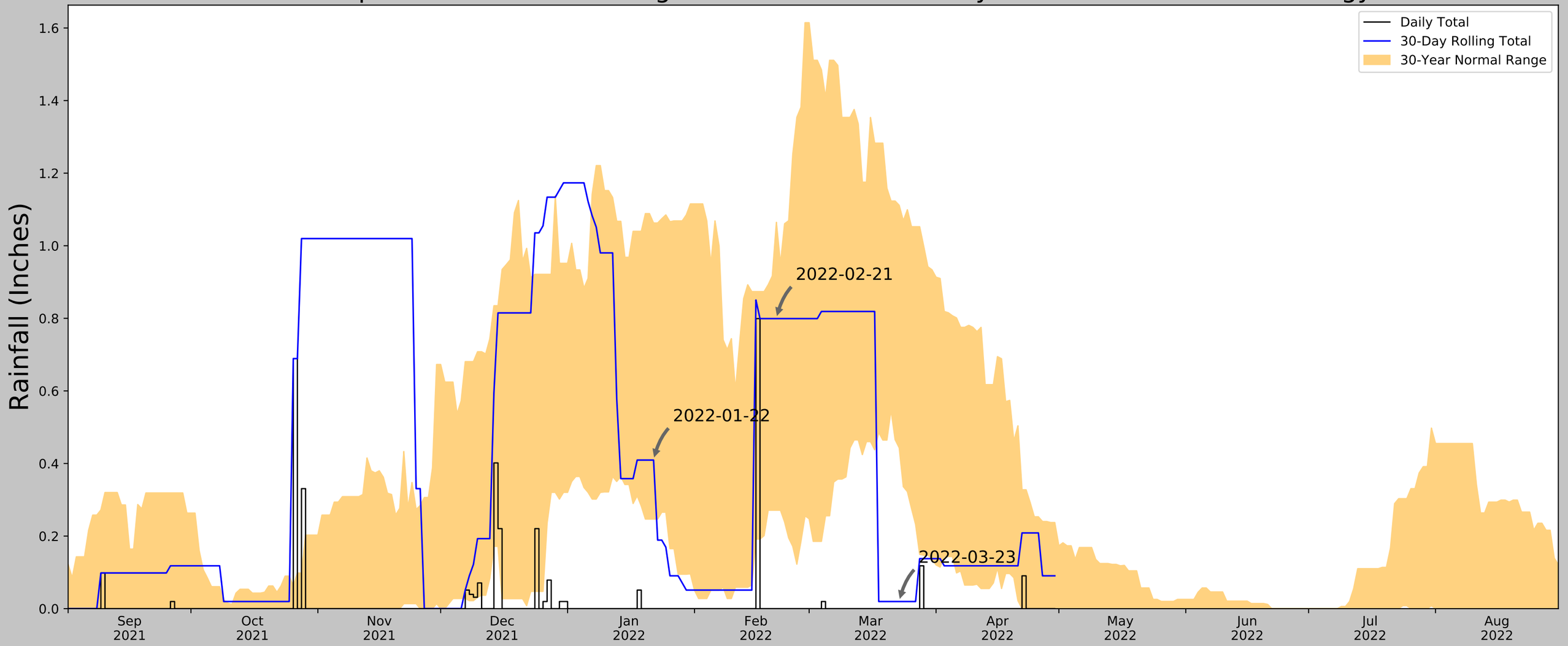
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-03-16	0.28937	1.503937	0.0	Dry	1	3	3
2022-02-14	0.081496	0.873622	0.07874	Dry	1	2	2
2022-01-15	0.259449	0.905118	0.472441	Normal	2	1	2
Result							Drier than Normal - 7

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	11098	89
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	247	1

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-03-23
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-03-23	0.443307	1.111417	0.019685	Dry	1	3	3
2022-02-21	0.27126	1.064567	0.799213	Normal	2	2	4
2022-01-22	0.24685	1.062598	0.409449	Normal	2	1	2
Result							Drier than Normal - 9

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

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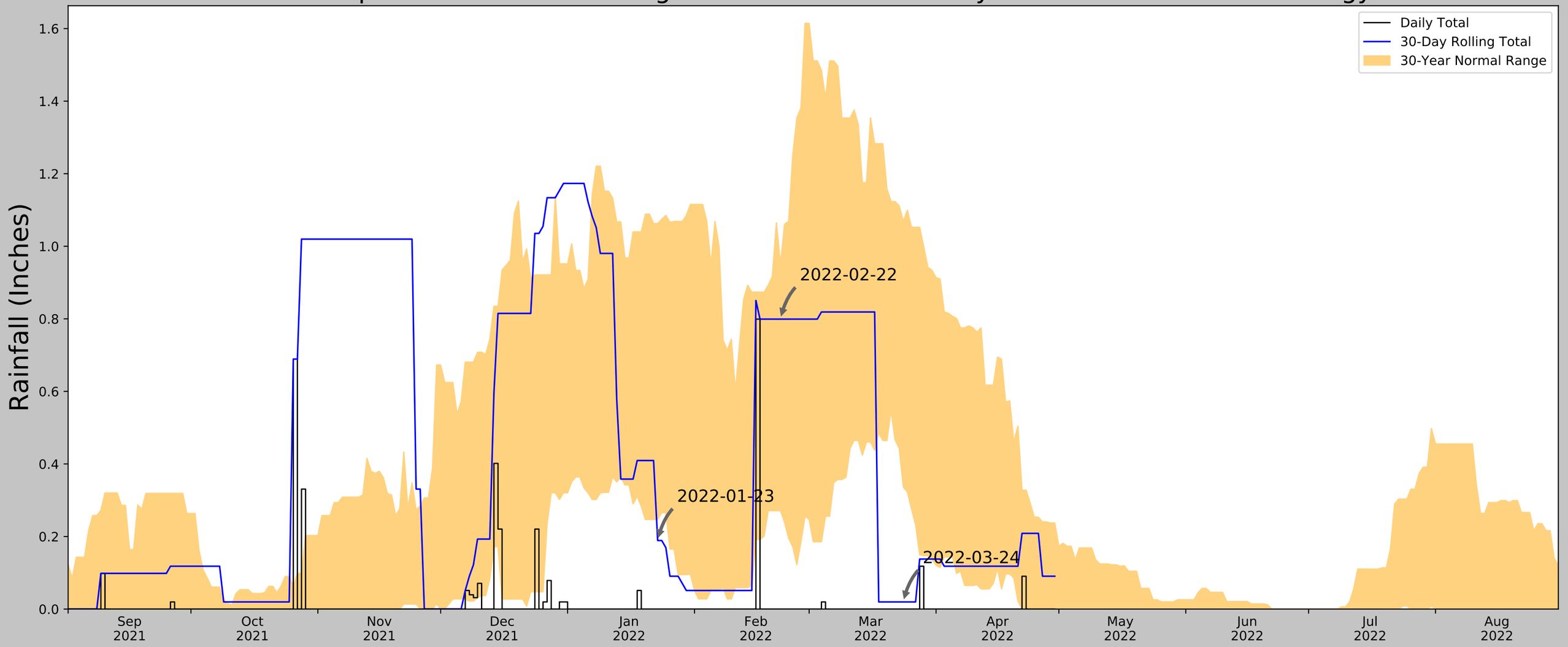
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
APPLE VALLEY 2.6 SSW	34.4957, -117.2353	2880.906	25.685	649.916	28.251	1447	0
BARSTOW 0.8 SSE	34.8667, -117.0592	2608.924	5.124	377.934	4.242	155	4
ADELANTO 3.1 S	34.5253, -117.4331	3084.974	28.229	853.984	36.81	79	1
BARSTOW 3.0 W	34.88, -117.118	2229.003	2.22	1.987	1.003	2	0
APPLE VALLEY 2.6 SE	34.5043, -117.1808	2940.945	24.687	709.955	28.636	1301	3
APPLE VALLEY 1.9 N	34.556, -117.2111	2935.039	21.341	704.049	24.629	34	0
VICTORVILLE 2.6 SSW	34.4901, -117.3518	3110.892	28.07	879.902	37.33	401	0
APPLE VALLEY 4.1 ENE	34.5588, -117.1516	3119.095	20.857	888.105	27.909	273	50
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	8.636	61.042	4.413	90	9
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	7333	23
VICTORVILLE	34.5292, -117.2928	2879.921	24.31	648.931	26.715	238	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-03-24
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-03-24	0.33622	1.068898	0.019685	Dry	1	3	3
2022-02-22	0.27126	0.950394	0.799213	Normal	2	2	4
2022-01-23	0.24685	1.062598	0.188976	Dry	1	1	1
Result							Drier than Normal - 8

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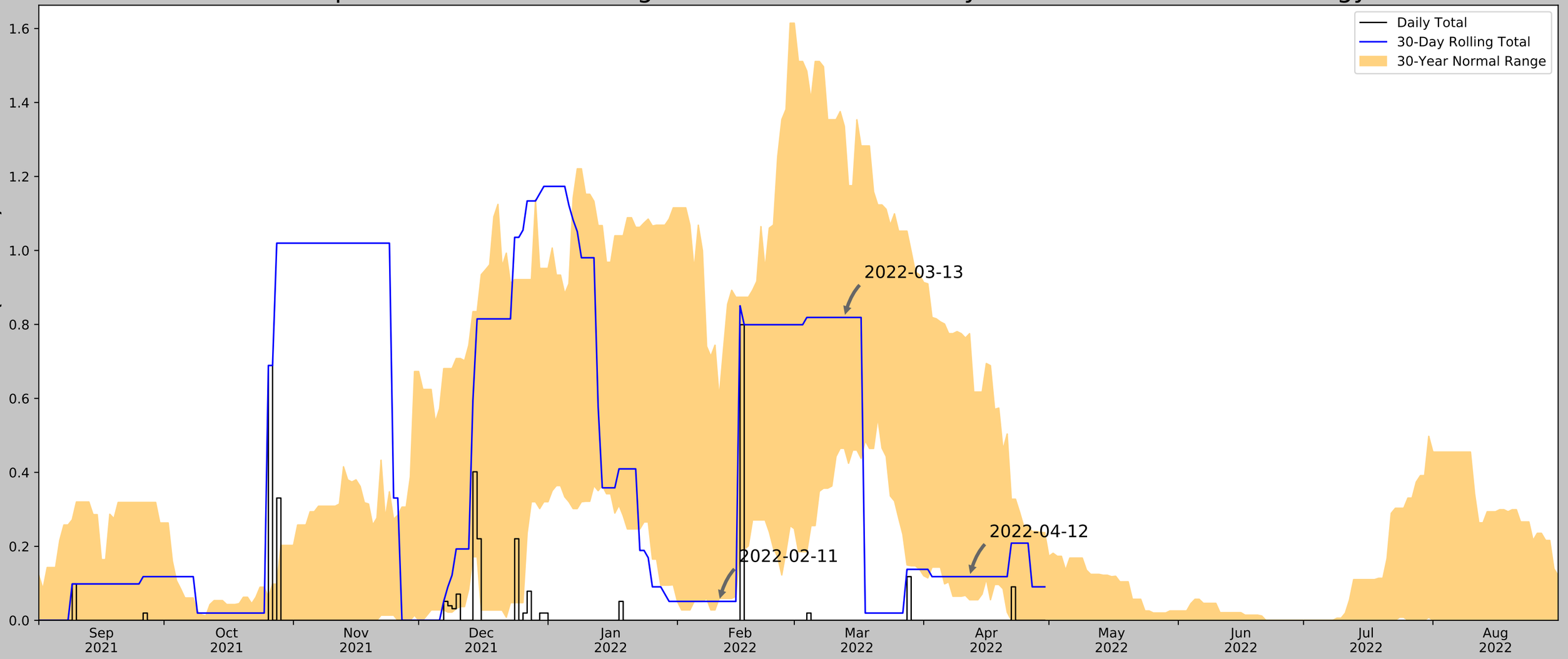
Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
APPLE VALLEY 2.6 SSW	34.4957, -117.2353	2880.906	25.685	649.916	28.251	1447	0
BARSTOW 0.8 SSE	34.8667, -117.0592	2608.924	5.124	377.934	4.242	155	3
ADELANTO 3.1 S	34.5253, -117.4331	3084.974	28.229	853.984	36.81	79	1
BARSTOW 3.0 W	34.88, -117.118	2229.003	2.22	1.987	1.003	2	0
APPLE VALLEY 2.6 SE	34.5043, -117.1808	2940.945	24.687	709.955	28.636	1301	3
APPLE VALLEY 1.9 N	34.556, -117.2111	2935.039	21.341	704.049	24.629	34	0
VICTORVILLE 2.6 SSW	34.4901, -117.3518	3110.892	28.07	879.902	37.33	401	0
APPLE VALLEY 4.1 ENE	34.5588, -117.1516	3119.095	20.857	888.105	27.909	273	51
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	8.636	61.042	4.413	90	9
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	7333	23
VICTORVILLE	34.5292, -117.2928	2879.921	24.31	648.931	26.715	238	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-04-12
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought (2022-03)
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-04-12	0.055512	0.775197	0.11811	Normal	2	3	6
2022-03-13	0.464961	1.335827	0.818898	Normal	2	2	4
2022-02-11	0.059055	0.601969	0.051181	Dry	1	1	1
Result							Normal Conditions - 11

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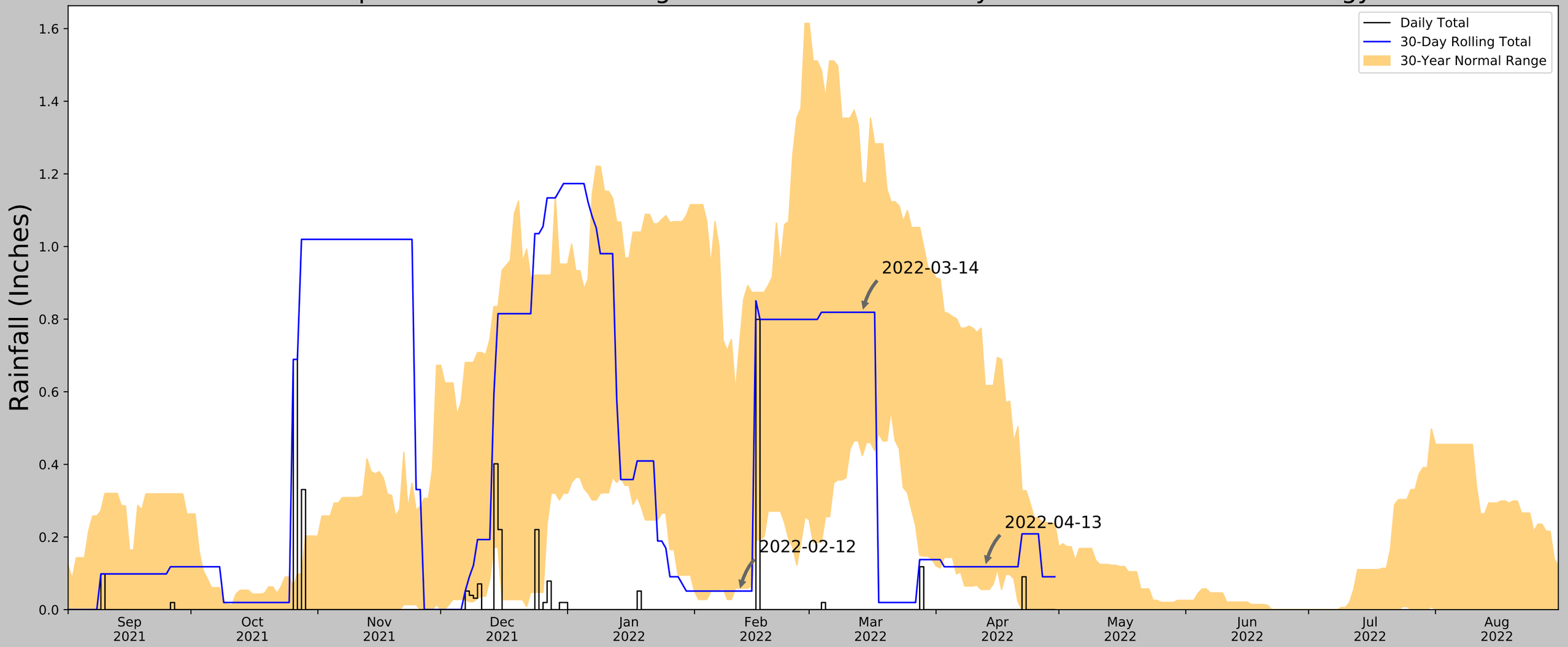
Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
APPLE VALLEY 2.6 SSW	34.4957, -117.2353	2880.906	25.685	649.916	28.251	1447	0
BARSTOW 0.8 SSE	34.8667, -117.0592	2608.924	5.124	377.934	4.242	155	1
ADELANTO 3.1 S	34.5253, -117.4331	3084.974	28.229	853.984	36.81	79	1
BARSTOW 3.0 W	34.88, -117.118	2229.003	2.22	1.987	1.003	2	0
APPLE VALLEY 2.6 SE	34.5043, -117.1808	2940.945	24.687	709.955	28.636	1301	3
APPLE VALLEY 1.9 N	34.556, -117.2111	2935.039	21.341	704.049	24.629	34	0
VICTORVILLE 2.6 SSW	34.4901, -117.3518	3110.892	28.07	879.902	37.33	401	0
APPLE VALLEY 4.1 ENE	34.5588, -117.1516	3119.095	20.857	888.105	27.909	273	58
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	8.636	61.042	4.413	90	7
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	7333	20
VICTORVILLE	34.5292, -117.2928	2879.921	24.31	648.931	26.715	238	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-04-13
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought (2022-03)
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-04-13	0.055512	0.617323	0.11811	Normal	2	3	6
2022-03-14	0.424409	1.175197	0.818898	Normal	2	2	4
2022-02-12	0.059055	0.729921	0.051181	Dry	1	1	1
Result							Normal Conditions - 11

Figure and tables made by the
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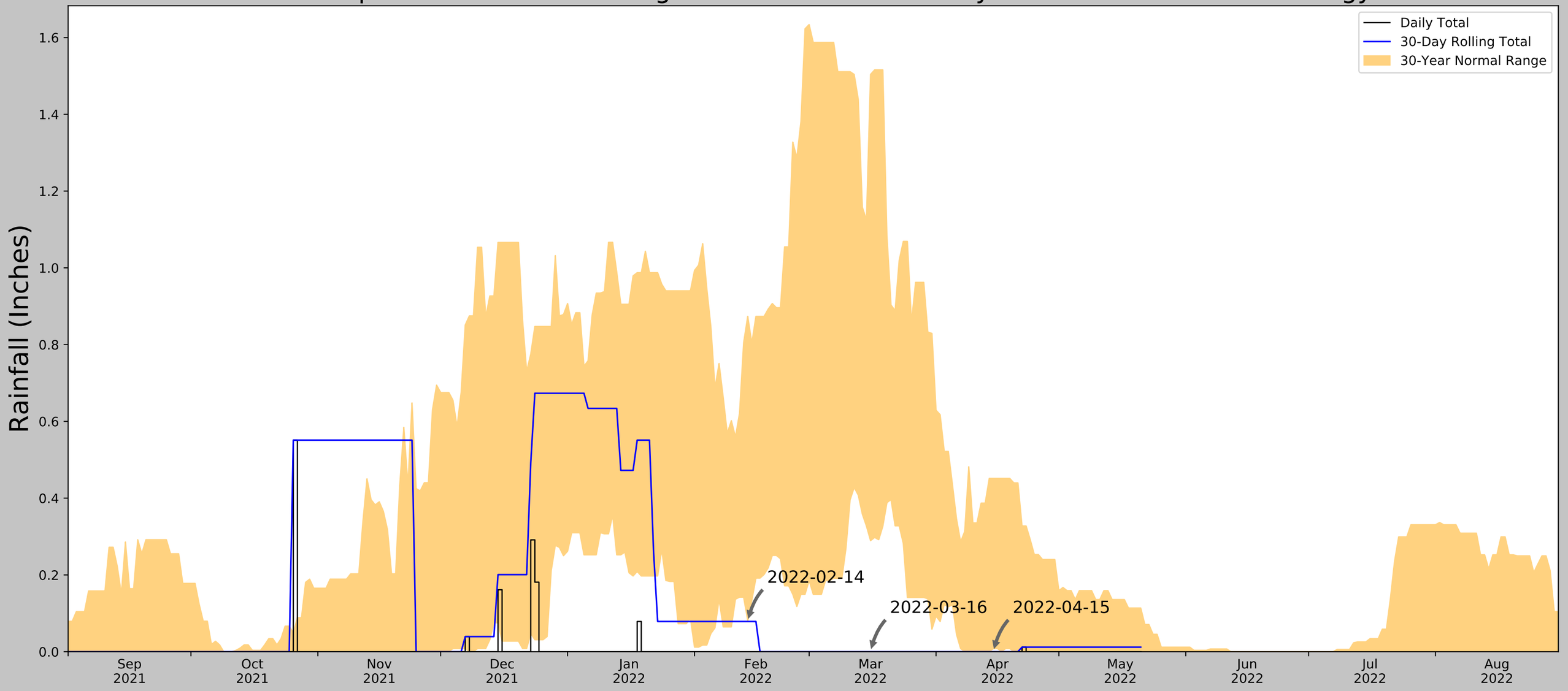
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
APPLE VALLEY 2.6 SSW	34.4957, -117.2353	2880.906	25.685	649.916	28.251	1447	0
BARSTOW 0.8 SSE	34.8667, -117.0592	2608.924	5.124	377.934	4.242	155	1
ADELANTO 3.1 S	34.5253, -117.4331	3084.974	28.229	853.984	36.81	79	1
BARSTOW 3.0 W	34.88, -117.118	2229.003	2.22	1.987	1.003	2	0
APPLE VALLEY 2.6 SE	34.5043, -117.1808	2940.945	24.687	709.955	28.636	1301	3
APPLE VALLEY 1.9 N	34.556, -117.2111	2935.039	21.341	704.049	24.629	34	0
VICTORVILLE 2.6 SSW	34.4901, -117.3518	3110.892	28.07	879.902	37.33	401	0
APPLE VALLEY 4.1 ENE	34.5588, -117.1516	3119.095	20.857	888.105	27.909	273	59
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	8.636	61.042	4.413	90	7
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	7333	19
VICTORVILLE	34.5292, -117.2928	2879.921	24.31	648.931	26.715	238	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-04-15
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

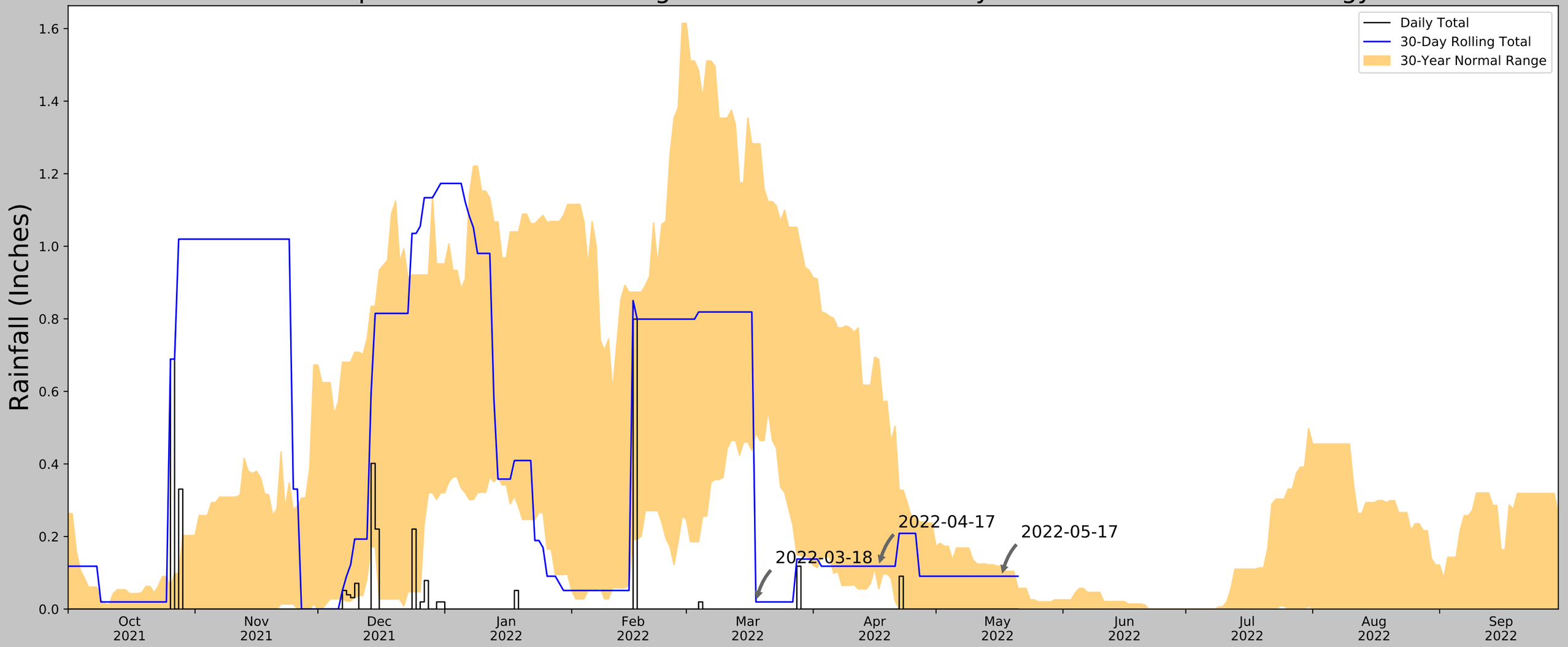
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-04-15	0.008268	0.451575	0.0	Dry	1	3	3
2022-03-16	0.28937	1.503937	0.0	Dry	1	2	2
2022-02-14	0.081496	0.873622	0.07874	Dry	1	1	1
Result							Drier than Normal - 6

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	11098	89
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	247	1

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-05-17
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought (2022-04)
WebWIMP H_2O Balance	Dry Season

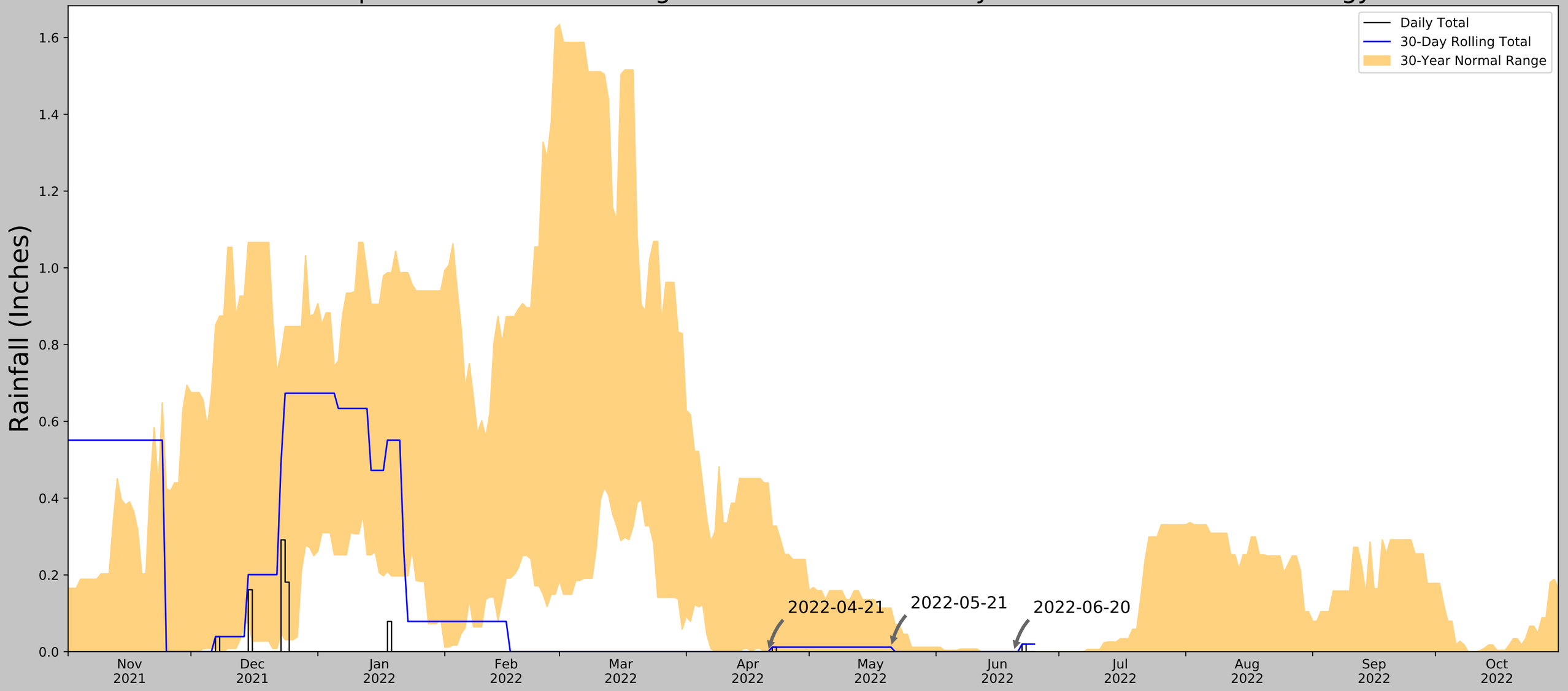
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-05-17	0.0	0.119291	0.090551	Normal	2	3	6
2022-04-17	0.055512	0.688583	0.11811	Normal	2	2	4
2022-03-18	0.485827	1.282677	0.019685	Dry	1	1	1
Result							Normal Conditions - 11

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
APPLE VALLEY 2.6 SSW	34.4957, -117.2353	2880.906	25.685	649.916	28.251	1447	0
BARSTOW 0.8 SSE	34.8667, -117.0592	2608.924	5.124	377.934	4.242	155	1
ADELANTO 3.1 S	34.5253, -117.4331	3084.974	28.229	853.984	36.81	79	1
BARSTOW 3.0 W	34.88, -117.118	2229.003	2.22	1.987	1.003	2	0
APPLE VALLEY 2.6 SE	34.5043, -117.1808	2940.945	24.687	709.955	28.636	1301	2
VICTORVILLE 2.6 SSW	34.4901, -117.3518	3110.892	28.07	879.902	37.33	401	0
APPLE VALLEY 1.9 N	34.556, -117.2111	2935.039	21.341	704.049	24.629	34	0
APPLE VALLEY 4.1 ENE	34.5588, -117.1516	3119.095	20.857	888.105	27.909	273	55
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	8.636	61.042	4.413	90	6
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	7333	25
VICTORVILLE	34.5292, -117.2928	2879.921	24.31	648.931	26.715	238	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-06-20
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought (2022-05)
WebWIMP H_2O Balance	Dry Season

Figure and tables made by the **Antecedent Precipitation Tool** Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-06-20	0.0	0.0	0.0	Normal	2	3	6
2022-05-21	0.0	0.11378	0.011811	Normal	2	2	4
2022-04-21	0.0	0.439764	0.0	Normal	2	1	2
Result							Normal Conditions - 12

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	11098	90
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	247	0

APPENDIX G

SITE PHOTOGRAPHS

Appendix G

Site Photographs[1]

Big Barstow Aquatic Resources Delineation – August 10, 2021; October 20, 2021; December 1, 2021; March 16, 23, 24, 2022; April 12, 13, 15, 2022; May 17, 2022; June 20, 2022



Photo 1. Downstream view of Ordinary High Water Mark (OHWM) Datasheet Point (ODP) 1 within Non-Wetland Waters (NWW-) 97, facing north, within disturbed habitat. ODP 1 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.879568, -117.105532). April 13, 2022.



Photo 2. View of Wetland Data Form Point (WDP) 1 (white arrow) within NWW-96, facing south, within tamarisk thickets. WDP 1 did not meet any of the three wetland parameters (34.878453, -117.108756). April 13, 2022.



Photo 3. Upstream view of ODP 2 within NWW-95, facing south, within disturbed habitat. ODP 2 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.877416, -117.111049). April 13, 2022.



Photo 4. Downstream view of ODP 3 within NWW-94, facing north, within disturbed habitat. ODP 3 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.873981, -117.117320). April 13, 2022.

[1] See corresponding Figure 5 series for photo point locations. See Aquatic Resources Delineation Report Sections 6 through 8 for a discussion of each feature. Photos of culvert crossings within the review area are available upon request.



Photo 5. View of WDP 2 (white arrow) within NWW-94, facing south, within disturbed habitat. WDP 2 met the wetland hydrology parameter; however, WDP 2 did not meet the hydrophytic vegetation or hydric soil parameters (34.873798, -117.117380). April 13, 2022.



Photo 6. Downstream view of ODP 4 within NWW-92, facing northwest, within unvegetated channel. ODP 4 exhibited a break in bank slope and change in average sediment texture (34.868920, -117.128573). April 13, 2022.



Photo 7. View of WDP 3 (white arrow) within NWW-89, facing north, within allscale scrub. WDP 3 did not meet any of the three wetland parameters (34.863976, -117.131649). April 13, 2022.



Photo 8. View of ODP 5 within NWW-89, facing south, within allscale scrub. ODP 5 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.864056, -117.131616). April 13, 2022.



Photo 9. Upstream view of ODP 6 within NWW-89, facing east, within allscale scrub. ODP 6 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.865275, -117.133289). April 13, 2022.



Photo 10. Upstream view of ODP 7 within NWW-89, facing south, within allscale scrub. ODP 7 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.864610, -117.135505). April 13, 2022.



Photo 11. Upstream view of ODP 8 within NWW-90, facing east, within allscale scrub. ODP 8 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.861717, -117.142712). April 13, 2022.



Photo 12. Downstream view of ODP 9 within NWW-91, facing northwest, within allscale scrub. ODP 9 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.862985, -117.140461). April 13, 2022.



Photo 13. Downstream view of ODP 10 within NWW-87, facing west, within allscale scrub. ODP 10 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.858535, -117.148911). April 13, 2022.



Photo 14. Downstream view of ODP 11 within NWW-85, facing west, within allscale scrub. ODP 11 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.85783, -117.151636). April 13, 2022.



Photo 15. View of WDP 5 (white arrow), facing west, within tamarisk thickets. WDP 5 did not meet any of the three wetland parameters (34.858121, -117.152981). April 13, 2022.



Photo 16. Downstream view of ODP 12 within NWW-82, facing northeast, within disturbed allscale scrub. ODP 12 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.856230, -117.154700). April 12, 2022.



Photo 17. Downstream view of ODP 13 within NWW-80, facing north, within allscale scrub. ODP 13 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.853895, -117.157272). April 12, 2022.



Photo 18. Downstream view of ODP 14 within NWW-73, facing north, within allscale scrub. ODP 14 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.848316, -117.165825). April 12, 2022.



Photo 19. Upstream view of ODP 15 within NWW-70, facing south, within allscale scrub. ODP 15 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.843796, -117.167803). April 12, 2022.



Photo 20. Upstream view of ODP 16 near WDP 4 within NWW-45, facing east, within allscale scrub. ODP 16 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover. WDP 4 met the wetland hydrology parameter; however, WDP 4 did not meet the hydrophytic vegetation or hydric soil parameters (34.834131, -117.182665). April 12, 2022.



Photo 21. Downstream view of ODP 17 within NWW-44, facing northwest, within unvegetated channel. ODP 17 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.829592, -117.183445). April 13, 2022.



Photo 22. View of WDP 6 (white arrow), facing west, within disturbed allscale scrub. WDP 6 did not meet any of the three wetland parameters (34.823361, -117.187915). April 13, 2022.



Photo 23. Upstream view of ODP 18 within NWW-36, facing southeast, within allscale scrub. ODP 18 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.808714, -117.201562). April 13, 2022.



Photo 24. Upstream view of ODP 19 within NWW-69, facing south, within allscale scrub. ODP 19 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.843462, -117.168631). April 12, 2022.



Photo 25. View of ODP 20 within Swale (S-) 1, facing south, within disturbed habitat. ODP 20 exhibited a change in vegetation cover; however, no other OHWM indicators were observed (34.819464, -117.189726). April 13, 2022.



Photo 26. View of WDP 7 (white arrow), facing east, within tamarisk thickets. WDP 7 met the wetland hydrology parameter; however, WDP 7 did not meet the hydrophytic vegetation or hydric soil parameters (34.814805, -117.195132). April 13, 2022.



Photo 27. Downstream view of ODP 21 within NWW-68, facing west, within creosote bush scrub. ODP 21 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.840159, -117.169936). April 12, 2022.



Photo 28. Upstream view of ODP 22 within NWW-80, facing east, within creosote bush scrub. ODP 22 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.847573, -117.153050). December 1, 2021.



Photo 29. Upstream view of ODP 23 within NWW-89, facing west, within creosote bush scrub. ODP 23 exhibited a break in slope, change in average sediment texture, and change in vegetation cover (34.858002, -117.140602). December 1, 2021.



Photo 30. Upstream view of ODP 24 within NWW-76, facing south, within creosote bush scrub. ODP 24 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.848365, -117.159487). March 16, 2022.



Photo 31. View of WDP 8 (white arrow), facing south, within tamarisk thickets. WDP 8 met the hydrophytic vegetation parameter; however, WDP 8 did not meet the wetland hydrology or hydric soil parameters (34.802127, -117.215285). April 13, 2022.



Photo 32. Downstream view of ODP 25 within NWW-89, facing north, within allscale scrub. ODP 25 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.862511, -117.131726). March 16, 2022.



Photo 33. Downstream view of ODP 26 within NWW-109 (Mojave River), facing north, within active desert dunes. ODP 26 exhibited a break in bank slope and change in vegetation species (34.875604, -117.156870). March 24, 2022.



Photo 34. View of WDP 9, facing north, within tamarisk thickets. WDP 9 met the hydrophytic vegetation parameter; however, it did not meet the wetland hydrology or hydric soil parameters (34.837722, -117.184100). April 12, 2022.



Photo 35. Upstream view of ODP 27 within NWW-60, facing west, within creosote bush scrub. ODP 27 exhibited a break in bank slope and change in vegetation species and cover (34.840443, -117.179781). March 24, 2022.



Photo 36. View of WDP 10 within NWW-60, facing north, within creosote bush scrub. WDP 10 met the wetland hydrology parameter; however, WDP 10 did not meet the hydrophytic vegetation or hydric soil parameters (34.840073, -117.179764). March 24, 2022.



Photo 37. Upstream view of ODP 28 within NWW-109 (Mojave River), facing southwest, within active desert dunes. ODP 28 exhibited a break in bank slope, change in average sediment texture, and change in vegetation species and cover (34.852795, -117.183066). October 20, 2021.



Photo 38. Downstream view of ODP 28, facing northeast, within NWW-109 (Mojave River) (34.852790, -117.183067). October 20, 2021.



Photo 39. Upstream view of ODP 29 within NWW-20, facing east, within disturbed habitat. ODP 29 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.791510, -117.240752). June 20, 2022.



Photo 40. View of WDP 11, facing north, within allscale scrub. WDP 11 met the wetland hydrology parameter; however, WDP 11 did not meet the hydrophytic vegetation or hydric soil parameters (34.883779, -117.094422). June 20, 2022.



Photo 41. View of watercouse associated with NWW-49, facing north, within allscale scrub (34.837243, -117.181167). April 12, 2022



Photo 42. View of watercouse associated with NWW-59, facing west, within allscale scrub (34.839333, -117.178218). April 13, 2022



Photo 43. View of secondary channel (white dashed line), facing west, within active desert dunes habitat. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; however, this area qualified as CDFW streambed associated with the Mojave River (34.870457, -117.152712). March 24, 2022



Photo 44. View of evidence of ponding (mud cracks), facing north, within active desert dunes habitat. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; however, this area qualified as CDFW streambed associated with the Mojave River (34.860885, -117.158040). October 20, 2021



Photo 45. View of active desert dunes habitat north of the agriculture fields, facing west. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; however, this area qualified as CDFW streambed associated with the Mojave River (34.858790, -117.171585). October 20, 2021



Photo 46. View of active desert dunes habitat, facing north. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; this area also did not qualify as CDFW streambed associated with the Mojave River (34.858790, -117.171585). October 20, 2021



Photo 47. View of active desert dunes habitat, facing north. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; this area also did not qualify as CDFW streambed associated with the Mojave River (34.878000, -117.130945). August 10, 2021



Photo 48. View of active desert dunes habitat, facing north. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; this area also did not qualify as CDFW streambed associated with the Mojave River (34.878558, -117.133787). August 10, 2021

APPENDIX H

AQUATIC RESOURCE SUMMARY TABLES

Table H-1. Aquatic Resource Summary: Corps/RWQCB

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-1	R6	4 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.772787, -117.284653	0.02	123
NWW-2	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.772847, -117.284610	0.01	121
NWW-3	R6	6 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773221, -117.283817	0.02	132
NWW-4	R6	3 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773653, -117.283036	0.01	113
NWW-5	R6	3 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773734, -117.282869	0.01	109
NWW-6	R6	3 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.774652, -117.281701	0.01	126
NWW-7	R6	3 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.776674, -117.278786	0.01	119
NWW-8	R6	3 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.776786, -117.278705	0.01	96
NWW-9	R6	10 – 10	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as road runoff from dirt road north of and parallel to railroad tracks.	34.778794, -117.277384	0.03	107
NWW-10	R6	1 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.778399, -117.276743	<0.01	52
NWW-11	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub; originates south of review area.	34.778377, -117.276478	0.02	223

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-12	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778670, -117.276121	0.01	127
NWW-13	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778712, -117.276024	0.01	113
NWW-14	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778886, -117.275827	0.01	133
NWW-15	R6	3 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub; originates south of review area.	34.778978, -117.275585	0.01	184
NWW-16	R6	14 – 24	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.784276, -117.262668	0.07	214
NWW-17	R6	24 – 24	CAST, CVC, BBS[4]	WH[5]	Yes/No	Disturbed Habitat[6]	Primarily unvegetated, single-thread feature within allscale scrub.	34.784361, -117.262104	0.05	81
NWW-18	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.786948, -117.252605	0.01	104
NWW-19	R6	3 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.787318, -117.251761	0.01	114
NWW-20	R6	21 – 48	CAST, CVC, BBS; See ODP 29	WH[5]	Yes/No	Disturbed Habitat[6]	Primarily unvegetated, single-thread feature within disturbed habitat; originates south of review area. (See Photo 39 on Figures 5A – 5B and Appendix G.)	34.791189, -117.241868	0.65	852
NWW-21	R6	3 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub that originates as runoff from National Trails Hwy/Main St.	34.795810, -117.228450	0.03	428
NWW-22	R6	2 – 7	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates downstream of NWW-21.	34.796559, -117.227801	0.02	176

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-23	R6	3 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.795776, -117.228162	0.02	221
NWW-24	R6	3 – 12	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.797160, -117.227759	0.11	801
NWW-25	R6	3 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.796981, -117.225815	0.07	727
NWW-26	R6	3 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.797595, -117.225008	0.07	522
NWW-27	R6	2 – 13	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, partially braided feature within allscale scrub; originates as runoff from National Trails Hwy/Main St and/or features south of National Trails Hwy (NWW-103 and NWW-104).	34.798258, -117.223204	0.18	1,155
NWW-28	R6	3 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub south of National Trails Hwy.	34.797819, -117.222127	0.01	109
NWW-29	R6	1 – 1	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub.	34.798766, -117.222983	<0.01	96
NWW-30	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.798508, -117.221906	0.03	311
NWW-31	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, small, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.798583, -117.221247	0.01	145

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-32	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub south of National Trails Hwy.	34.798456, -117.220065	<0.01	32
NWW-33	R6	3 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.799322, -117.219846	0.02	171
NWW-34	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.800955, -117.215818	0.03	572
NWW-35	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.807290, -117.203290	0.01	66
NWW-36	R6	4 – 4	CAST, CVC, BBS; See ODP 18	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area. (See Photo 23 on Figures 5A– 5B and Appendix G.)	34.808738, -117.201555	0.01	183
NWW-37	R6	6 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.809189, -117.201054	0.01	150
NWW-38	R6	5 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.809316, -117.200892	0.01	141
NWW-39	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.809671, -117.200471	<0.01	182
NWW-40	R6	6 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.810099, -117.199975	0.01	155
NWW-41	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.810323, -117.199718	0.01	172
NWW-42	R6	8 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.811425, -117.198424	0.02	175

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-43	R6	12 – 12	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; indicators of flow not present before dirt road.	34.826693, -117.188511	0.13	475
NWW-44	R6	2 – 80	CAST, CVC, BBS; See ODP 17	WH[5]	Yes/No	Unvegetated Channel	Large, primarily unvegetated feature fed by culvert along Hinkley Road and road runoff from National Trails Hwy and/or features south of National Trails Hwy (NWW-105 and NWW-106).; located within unvegetated channel and allscale scrub; feature runs along berm (earthen-lined and partially concrete); feature enlarges near railroad crossing. (See Photo 21 on Figures 5A– 5B and Appendix G.)	34.829248, -117.186429	3.13	5,956
NWW-45	R6	2 – 6	CAST, CVC, BBS; See ODP 16	WH; see WDP 4	Yes/No	Allscale Scrub[6]; See WDP 4	Primarily unvegetated braided feature within allscale scrub; feature initiates at and is sourced by a residential lot. (See Photo 20 on Figures 5A– 5B and Appendix G.)	34.834684, -117.182237	0.21	2,468
NWW-46	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated braided feature within allscale scrub between hillslopes.	34.835168, -117.181479	0.06	1,172
NWW-47	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from two dirt roads leading from National Trails Hwy.	34.833706, -117.176283	0.04	580
NWW-48	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.836991, -117.181122	0.03	481
NWW-49	R6	2 – 10	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, large braided and interwoven feature with multiple tributaries within allscale scrub between hillslopes.	34.836110, -117.179064	0.73	7,138
NWW-50	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.837239, -117.179203	0.02	461

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-51	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.837464, -117.178078	0.04	842
NWW-52	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.837867, -117.177679	0.04	562
NWW-53	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.837648, -117.177101	0.07	1,131
NWW-54	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.835210, -117.172619	0.02	354
NWW-55	R6	2 – 10	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.835454, -117.171863	0.02	170
NWW-56	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.835773, -117.172617	0.02	252
NWW-57	R6	2 – 7	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.836014, -117.172631	0.02	264
NWW-58	R6	2 – 14	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub.	34.838348, -117.176084	0.50	4,358
NWW-59	R6	1- 13	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Large, primarily unvegetated, fan feature with multiple braids and heavily interwoven throughout; upstream portion of the feature runs through various hillslopes and fans downstream; within allscale scrub and creosote bush scrub; portions originate as runoff from National Trails Hwy and/or feature south of National Trails Hwy (NWW-107).	34.838248, -117.174160	0.75	8,262
NWW-60	R6	6 – 51	CVS, CVC, BBS; See ODP 27	WH; See WDP 10	Yes/No	Creosote Bush Scrub	Vegetated feature north of railroad tracks within creosote bush scrub; receives sheet flows from dirt road north of and parallel to railroad tracks. (See Photos 35 and 36 on Figures 5A– 5B and Appendix G.)	34.840401, -117.179750	0.17	188

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-61	R6	1 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from National Trails Hwy/Main St.	34.837031, -117.169791	0.05	910
NWW-62	R6	2 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated feature within allscale scrub between hillslopes; multiple tributaries.	34.840397, -117.175307	0.14	1,696
NWW-63	R6	2 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated feature within allscale scrub between hillslopes; multiple tributaries.	34.840934, -117.174275	0.20	2,174
NWW-64	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.841711, -117.174418	0.04	538
NWW-65	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub within hillslopes.	34.842293, -117.173643	0.02	482
NWW-66	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, double-thread feature within allscale scrub within hillslopes.	34.843147, -117.172457	0.08	1,260
NWW-67	R6	1 – 12	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated feature with multiple tributaries upstream within creosote bush scrub.	34.841131, -117.171984	0.22	2,373
NWW-68	R6	1 – 12	CAST, CVC, BBS; See ODP 21	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, braided feature within creosote bush scrub; originates as runoff from National Trails Hwy/Main St. (See Photo 27 on Figures 5A– 5B and Appendix G.)	34.839992, -117.170094	0.34	5,708
NWW-69	R6	2 – 8	CAST, CVC, BBS; See ODP 19	WH[5]	Yes/No	Allscale Scrub[6]	Large, primarily unvegetated, braided and interwoven feature within allscale scrub and creosote bush scrub between hillslopes. (See Photo 24 on Figures 5A– 5B and Appendix G.)	34.842933, -117.168625	0.68	6,858

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-70	R6	1 – 20	CAST, CVC, BBS; See ODP 15	WH[5]	Yes/No	Creosote Bush Scrub[6]	Large, primarily unvegetated, braided and interwoven feature with multiple mainstems fed by various tributaries; located within allscale scrub and creosote bush scrub between hillslopes; originates as runoff from unnamed dirt roads leading from National Trails Hwy. (See Photo 19 on Figures 5A– 5B and Appendix G.)	34.842209, -117.166408	2.09	18,554
NWW-71	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.844554, -117.165718	0.10	1,128
NWW-72	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.845370, -117.166236	0.04	427
NWW-73	R6	2 – 12	CAST, CVC, BBS; See ODP 14	WH[5]	Yes/No	Allscale Scrub[6]	Large, primarily unvegetated, interwoven feature with multiple mainstems fed by various tributaries within allscale scrub and creosote bush scrub; originates as runoff from unnamed dirt roads leading from National Trails Hwy. (See Photo 18 on Figures 5A– 5B and Appendix G.)	34.844453, -117.163545	1.24	13,348
NWW-74	R6	2 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from unnamed dirt road.	34.846950, -117.162756	0.17	1,582
NWW-75	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub.	34.845550, -117.159978	0.04	487
NWW-76	R6	2 – 13	CAST, CVC, BBS; See ODP 24	WH[5]	Yes/No	Allscale Scrub[6]	Large, primarily unvegetated, braided feature with multiple tributaries within allscale scrub; originates as runoff from unnamed dirt road leading from National Trails Hwy. (See Photo 30 on Figures 5A– 5B and Appendix G.)	34.848019, -117.159133	0.86	8,649

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-77	R6	2 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated feature with one tributary within allscale scrub in between hillslopes; originates as runoff from unnamed dirt road leading from National Trails Hwy.	34.847129, -117.156396	0.16	1,677
NWW-78	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.848845, -117.157242	0.01	278
NWW-79	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, braided feature within allscale scrub; originates as runoff from unnamed dirt road.	34.850248, -117.158057	0.13	1,874
NWW-80	R6	1 – 20	CAST, CVC, BBS; See ODP 13 and 22	WH[5]	Yes/No	Creosote Bush Scrub[6]	Large, primarily unvegetated, braided and interwoven feature with multiple mainstems fed by various tributaries within creosote bush scrub; originates as runoff from National Trails Hwy/Main St and/or feature south of National Trails Hwy (NWW-108); portions of feature display disturbance by off-road vehicle usage. (See Photos 17 and 28 on Figures 5A– 5B and Appendix G.)	34.850680, -117.154564	2.02	15,877
NWW-81	R6	2 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub.	34.853340, -117.156269	0.12	1,229
NWW-82	R6	1 – 15	CAST, CVC, BBS; See ODP 12	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, braided feature within allscale scrub and creosote bush scrub; heavily eroded where feature runs parallel to railroad tracks. (See Photo 16 on Figures 5A– 5B and Appendix G.)	34.854433, -117.152784	0.64	8,328
NWW-83	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.856239, -117.153167	0.01	250
NWW-84	R6	1 – 1	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub.	34.854958, -117.146066	0.02	909

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-85	R6	1 – 5	CAST, CVC, BBS; See ODP 11	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated feature with multiple tributaries within allscale scrub; originates as runoff from unnamed dirt road. (See Photo 11 on Figures 5A– 5B and Appendix G.)	34.857281, -117.149898	0.31	3,921
NWW-86	R6	3 – 3	CAST, CVC, BBS[5]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unnamed dirt road.	34.856698, -117.147965	0.02	218
NWW-87	R6	2 – 4	CAST, CVC, BBS; See ODP 10	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, double-thread feature within creosote bush scrub; originates as runoff from unnamed dirt road. (See Photo 13 on Figures 5A– 5B and Appendix G.)	34.857936, -117.147949	0.13	2,162
NWW-88	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from unnamed dirt road.	34.858906, -117.148308	0.04	403
NWW-89	R6	1 – 18	CAST, CVC, BBS; see ODP 5, 6, 7, 23, 25	None; See WDP 3	Yes/No	Allscale Scrub[6]	Large, primarily unvegetated feature within allscale scrub, creosote bush scrub, and disturbed habitat that consists of two large mainstems with several tributaries; eastern main stem originates south of National Trails Hwy/Main St before traveling through a culvert, western main stem originates as runoff from Mockingbird Rd (dirt road); disturbed by off-road vehicle use and obstructions (tree logs) likely placed by adjacent residential lot residents; heavily eroded downstream near manipulated and heavily used dirt roads adjacent to the railroad tracks. (See Photos 7 – 10, 29, and 32 on Figures 5A– 5B and Appendix G.)	34.863711, -117.134655	1.39	12,490

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-90	R6	2 – 6	CAST, CVC, BBS; See ODP 8	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from unnamed dirt road. (See Photo 11 on Figures 5A– 5B and Appendix G.)	34.860552, -117.142795	0.08	995
NWW-91	R6	2 – 2	CAST, CVC, BBS; See ODP 9	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, small, single-thread feature within allscale scrub near residential lots; originates as runoff from upstream residential lot and Dundee St. (See Photo 12 on Figures 5A– 5B and Appendix G.)	34.863147, -117.140564	0.01	150
NWW-92	R6	8 – 40	CAST, BBS; See ODP 4	WH[5]	Yes/No	Unvegetated Channel	Primarily unvegetated, large, trapezoidal feature (San Bernardino County Flood Control District Channel) within heavily manipulated, unvegetated channel; evidence of off-road vehicle use; originates south of Main St/National Trails Hwy. (See Photo 6 on Figures 5A– 5B and Appendix G.)	34.874455, -117.131291	1.32	4,629
NWW-93	R6	3 – 20	CAST, CVC, BBS[4]	WH[5]	Yes/No	Disturbed Habitat[6]	Rip-rap feature within developed and fenced area; originates at culvert outlet near intersection of National Trails Hwy and Lenwood Rd; downstream extent is large, rip-rap, circular, unvegetated drainage area containing a culvert inlet.	34.873485, -117.118709	0.06	409
NWW-94	R6	6 – 6	CAST, CVC, BBS; See ODP 3	WH; See WDP 2	Yes/No	Disturbed Habitat[6]	Primarily unvegetated feature within disturbed habitat; feature initiates from large stormwater concrete channelized structure. (See Photos 4 and 5 on Figures 5A– 5B and Appendix G.)	34.874055, -117.117372	0.06	401
NWW-95	R6	2 – 5	CAST, CVC, BBS; See ODP 2	WH[5]	Yes/No	Disturbed Habitat[6]	Primarily unvegetated, single-thread feature within disturbed habitat that outlets from culvert along National Trails Hwy; manipulation on the eastern slopes. (See Photo 3 on Figures 5A– 5B and Appendix G.)	34.877087, -117.110926	0.03	307

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-96	R6	5 – 5	CAST, CVC, BBS[4]	None; See WDP 1	Yes/No; See WDP 1	Disturbed Habitat	Primarily heavily vegetated, disturbed, single-thread feature within disturbed habitat and tamarisk thickets; originates as road runoff from National Trails Hwy. (See Photo 2 on Figures 5A– 5B and Appendix G.)	34.878268, -117.108708	0.05	439
NWW-97	R6	3 – 3	CAST, CVC, BBS; See ODP 1	WH[5]	Yes/No	Disturbed Habitat[6]	Primarily unvegetated, single-thread feature generally within disturbed habitat; feature drains through private commercial lots and outputs across a culvert crossing. (See Photo 1 on Figures 5A– 5B and Appendix G.)	34.879422, -117.105552	0.03	506
NWW-98	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub – Disturbed[6]	Small, unvegetated single-thread feature within allscale scrub – disturbed habitat that originates as runoff from dirt road parallel to the north side of railroad tracks.	34.880017, -117.105950	0.01	124
NWW-99	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Disturbed Habitat	Vegetated, single-thread feature within disturbed habitat that originates at culvert north of Main St/National Trails Hwy.	34.880936, -117.101226	0.03	353
NWW-100	R6	2 – 13	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated feature within allscale scrub with several tributaries that travels through several culverts; originates as runoff from and at a culvert north of Main St/National Trails Hwy.	34.882602, -117.095407	0.34	2,524
NWW-101	R6	3 – 28	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated feature within allscale scrub with multiple tributaries that travels through several culverts; originates as runoff from and at a culvert north of Main St/National Trails Hwy.	34.883416, -117.092671	0.29	1,003
NWW-102	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated feature within allscale scrub that originates as runoff from Main St/National Trails Hwy.	34.883038, -117.091930	0.01	99

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-103	R6	4 – 15	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy and converge with NWW-27.	34.797426, -117.223080	0.01	43
NWW-104	R6	4 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy and converge with NWW-27.	34.797510, -117.222886	0.01	70
NWW-105	R6	8 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy and converge with NWW-44.	34.828712, -117.182373	0.01	29
NWW-106	R6	12 – 12	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy and converge with NWW-44.	34.828907, -117.182084	0.01	36
NWW-107	R6	3 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub that may continue over Main St/National Trails Hwy converge with NWW-59.	34.835555, -117.169501	<0.01	51
NWW-108	R6	16 – 16	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub – Disturbed[6]	Primarily unvegetated, single-thread feature within creosote bush scrub – disturbed that may continue over Main St/National Trails Hwy and converge with NWW-80.	34.847053, -117.151904	0.01	36
NWW-109 (Mojave River)	R4	500 – 1400	CAST, CVS, CVC, BBS; See ODP 26 and 28	WH[5]	Yes/No	Active Desert Dunes	Sparsely vegetated, dry, sandy wash that comprises the on-site extent of the Mojave River; generally flows southwest to northeast before continuing off site. (See Photos 33, 37, and 38 on Figures 5A – 5B and Appendix G.)	34.863277, -117.170128	104.30	4,818
								Total	125.58	177,864

[1] OHWM Indicators: CAST = Change in average sediment texture; CVS = Change in vegetation species; CVC = Change in vegetation cover; BBS = Break in bank slope

[2] Wetland Indicators: WH = Wetland Hydrology
[3] See Figure 6 for all vegetation communities present within/around each aquatic resource.
[4] Based on a representative ODP taken within an aquatic resource with similar conditions.
[5] Based on a representative WDP taken within an aquatic resource with similar conditions.
[6] Unvegetated within mapped vegetation community; however, no vegetation technically present within the OHWM.
[7] Acreages and linear feet totals were summed using raw numbers provided during GIS analysis (available upon request) and thus, the sum of the total rounded numbers may not directly add up in this table.

Table H-2. Aquatic Resource Summary: CDFW

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-1	Unvegetated Streambed[3]	Allscale Scrub[4]	6 – 12	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.772787, -117.284653	0.02	123
NWW-2	Unvegetated Streambed[3]	Allscale Scrub[4]	6 – 6	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.772847, -117.284610	0.02	121
NWW-3	Unvegetated Streambed[3]	Allscale Scrub[4]	6 – 6	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773221, -117.283817	0.02	132
NWW-4	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 8	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773653, -117.283036	0.02	113
NWW-5	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 8	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773734, -117.282869	0.01	109
NWW-6	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 8	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.774652, -117.281701	0.02	126
NWW-7	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 5	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.776674, -117.278786	0.01	119
NWW-8	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.776786, -117.278705	0.01	96
NWW-9	Unvegetated Streambed[3]	Allscale Scrub[4]	35 – 35	Primarily unvegetated, single-thread feature within allscale scrub; originates as road runoff from dirt road north of and parallel to railroad tracks.	34.778794, -117.277384	0.10	107
NWW-10	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.778399, -117.276743	<0.01	52
NWW-11	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 4	Small, primarily unvegetated, double-thread feature within allscale scrub; originates south of review area.	34.778377, -117.276478	0.02	223
NWW-12	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778670, -117.276121	0.01	127
NWW-13	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 6	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778712, -117.276024	0.01	113

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-14	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778886, -117.275827	0.01	133
NWW-15	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 4	Small, primarily unvegetated, double-thread feature within allscale scrub; originates south of review area.	34.778978, -117.275585	0.01	184
NWW-16	Unvegetated Streambed[3]	Allscale Scrub[4]	16 – 24	Primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.784276, -117.262668	0.08	214
NWW-17	Unvegetated Streambed[3]	Allscale Scrub[4]	27 – 27	Primarily unvegetated, single-thread feature within allscale scrub.	34.784361, -117.262104	0.06	81
NWW-18	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.786948, -117.252605	0.01	104
NWW-19	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 5	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.787318, -117.251761	0.01	114
NWW-20	Unvegetated Streambed[3]	Disturbed Habitat[4]	33 – 96	Primarily unvegetated, single-thread feature within disturbed habitat; originates south of review area. (See Photo 39 on Figure 5C and Appendix G.)	34.791189, -117.241868	1.32	852
NWW-21	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 15	Primarily unvegetated, single-thread feature within allscale scrub that originates as runoff from National Trails Hwy/Main St.	34.795810, -117.228450	0.09	428
NWW-22	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 7	Primarily unvegetated, single-thread feature within allscale scrub; originates downstream of NWW-21.	34.796559, -117.227801	0.02	176
NWW-23	Unvegetated Streambed[3]	Allscale Scrub[4]	8 – 16	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.795776, -117.228162	0.07	221
NWW-24	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 20	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.797160, -117.227759	0.22	801
NWW-25	Unvegetated Streambed[3]	Allscale Scrub[4]	5 – 15	Primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.796981, -117.225815	0.16	727

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-26	Unvegetated Streambed[3]	Allscale Scrub[4]	5 – 15	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.797595, -117.225008	0.16	522
NWW-27	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 20	Primarily unvegetated, partially braided feature within allscale scrub; originates as runoff from National Trails Hwy/Main St and/or features south of National Trails Hwy (NWW-103 and NWW-104); watercourse mapped throughout.	34.798258, -117.223204	0.26	1,155
	Watercourse[5]	Allscale Scrub	N/A			2.58	–
NWW-28	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 5	Small, primarily unvegetated, double-thread feature within allscale scrub south of National Trails Hwy; watercourse mapped throughout	34.797819, -117.222127	0.01	109
	Watercourse[5]	Allscale Scrub	N/A			0.16	–
NWW-29	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Primarily unvegetated, single-thread feature within allscale scrub; occurs within watercourse mapped as associated with NWW-27.	34.798766, -117.222983	<0.01	96
NWW-30	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 12	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.798508, -117.221906	0.05	311
NWW-31	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 10	Primarily unvegetated, small, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.798583, -117.221247	0.03	145
NWW-32	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub south of National Trails Hwy; watercourse mapped throughout.	34.798456, -117.220065	<0.01	32
	Watercourse[5]	Allscale Scrub	N/A			0.16	–
NWW-33	Unvegetated Streambed[3]	Allscale Scrub[4]	5 – 18	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.799322, -117.219846	0.05	171
NWW-34	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.800955, -117.215818	0.03	572
NWW-35	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.807290, -117.203290	0.01	66

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-36	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area; watercourse mapped throughout. (See Photo 23 on Figure 5C and Appendix G.)	34.808738, -117.201555	0.01	183
	Watercourse[5]	Allscale Scrub	N/A			0.11	–
NWW-37	Unvegetated Streambed[3]	Allscale Scrub[4]	6 – 6	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area; watercourse mapped throughout.	34.809189, -117.201054	0.01	150
	Watercourse[5]	Allscale Scrub	N/A			0.21	–
NWW-38	Unvegetated Streambed[3]	Allscale Scrub[4]	5 – 5	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area; occurs within watercourse mapped as associated with NWW-37.	34.809316, -117.200892	0.01	141
NWW-39	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.809671, -117.200471	<0.01	182
NWW-40	Unvegetated Streambed[3]	Allscale Scrub[4]	6 – 6	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area; watercourse mapped throughout.	34.810099, -117.199975	0.01	155
	Watercourse[5]	Allscale Scrub	N/A			0.29	–
NWW-41	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area; occurs within watercourse mapped as associated with NWW-40.	34.810323, -117.199718	0.01	172
NWW-42	Unvegetated Streambed[3]	Allscale Scrub[4]	8 – 8	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.811425, -117.198424	0.02	175
NWW-43	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	20 – 20	Primarily unvegetated, single-thread feature within creosote bush scrub; indicators of flow not present before dirt road.	34.826693, -117.188511	0.34	475

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-44	Unvegetated Streambed[3]	Unvegetated Channel	2 - 150	Large, primarily unvegetated feature fed by culvert along Hinkley Road and road runoff from National Trails Hwy and/or features south of National Trails Hwy (NWW-105 and NWW-106).; located within unvegetated channel and allscale scrub; feature runs along berm (earthen-lined and partially concrete); feature enlarges near railroad crossing. (See Photo 21 on Figure 5C and Appendix G.)	34.829248, -117.186429	3.72	5,956
NWW-45	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 6	Primarily unvegetated braided feature within allscale scrub; feature initiates at and is sourced by a residential lot; watercourse present throughout some portions of feature. (See Photo 20 on Figure 5C and Appendix G.)	34.834684, -117.182237	0.21	2,468
	Watercourse[5]	Allscale Scrub	N/A			0.66	–
NWW-46	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 4	Primarily unvegetated braided feature within allscale scrub between hillslopes.	34.835168, -117.181479	0.06	1,172
NWW-47	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 4	Small, primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from two dirt roads leading from National Trails Hwy.	34.833706, -117.176283	0.04	580
NWW-48	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; portion occurs within watercourse mapped as associated with NWW-49.	34.836991, -117.181122	0.03	481
NWW-49	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 10	Primarily unvegetated, large braided and interwoven feature with multiple tributaries within allscale scrub between hillslopes; watercourse present throughout some portions of feature. (See Photo 41 on Figure 5C and Appendix G.)	34.836110, -117.179064	0.73	7,138
	Watercourse[5]	Allscale Scrub	N/A			1.62	–
NWW-50	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.837239, -117.179203	0.02	461
NWW-51	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.837464, -117.178078	0.04	842
NWW-52	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.837867, -117.177679	0.04	562

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-53	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 3	Primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.837648, -117.177101	0.07	1,131
NWW-54	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.835210, -117.172619	0.02	354
NWW-55	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 10	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.835454, -117.171863	0.02	170
NWW-56	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 5	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.835773, -117.172617	0.02	252
NWW-57	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 7	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.836014, -117.172631	0.02	264
NWW-58	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 14	Primarily unvegetated, single-thread feature within allscale scrub.	34.838348, -117.176084	0.50	4,358
NWW-59	Unvegetated Streambed[3]	Allscale Scrub[4]	1 – 16	Large, primarily unvegetated, fan feature with multiple braids and heavily interwoven throughout; upstream portion of the feature runs through various hillslopes and fans downstream; within allscale scrub and creosote bush scrub; portions originate as runoff from National Trails Hwy and/or feature south of National Trails Hwy (NWW-107); watercourse present throughout some portions of feature. (See Photo 42 on Figure 5C and Appendix G.)	34.838248, -117.174160	0.82	8,262
	Watercourse[5]	Allscale Scrub	N/A			9.45	–
NWW-60	Vegetated Streambed[3]	Creosote Bush Scrub	6 – 51	Vegetated feature north of railroad tracks within creosote bush scrub; receives sheet flows from dirt road north of and parallel to railroad tracks. (See Photos 35 and 36 on Figure 5C and Appendix G.)	34.840401, -117.179750	0.17	188
NWW-61	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 12	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from National Trails Hwy/Main St.	34.837031, -117.169791	0.08	910
NWW-62	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 8	Primarily unvegetated feature within allscale scrub between hillslopes; multiple tributaries.	34.840397, -117.175307	0.14	1,696

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-63	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 6	Primarily unvegetated feature within allscale scrub between hillslopes; multiple tributaries.	34.840934, -117.174275	0.20	2,174
NWW-64	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 4	Small, primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.841711, -117.174418	0.04	538
NWW-65	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, single-thread feature within allscale scrub within hillslopes.	34.842293, -117.173643	0.02	482
NWW-66	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 3	Primarily unvegetated, double-thread feature within allscale scrub within hillslopes.	34.843147, -117.172457	0.08	1,260
NWW-67	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 12	Primarily unvegetated feature with multiple tributaries upstream within creosote bush scrub.	34.841131, -117.171984	0.22	2,373
NWW-68	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 12	Primarily unvegetated, braided feature within creosote bush scrub; originates as runoff from National Trails Hwy/Main St; watercourse present throughout some portions of feature. (See Photo 27 on Figure 5C and Appendix G.)	34.839992, -117.170094	0.36	5,708
	Watercourse[5]	Creosote Bush Scrub	N/A			0.51	–
NWW-69	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 8	Large, primarily unvegetated, braided and interwoven feature within allscale scrub and creosote bush scrub between hillslopes; watercourse present throughout some portions of feature. (See Photo 24 on Figure 5C and Appendix G.)	34.842933, -117.168625	0.68	6,858
	Watercourse[5]	Allscale Scrub	N/A			0.83	–
NWW-70	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 20	Large, primarily unvegetated, braided and interwoven feature with multiple mainstems fed by various tributaries; located within allscale scrub and creosote bush scrub between hillslopes; originates as runoff from unnamed dirt roads leading from National Trails Hwy; watercourse present throughout some portions of feature. (See Photo 19 on Figure 5C and Appendix G.)	34.842209, -117.166408	2.10	18,554
	Watercourse[5]	Allscale Scrub	N/A			6.25	–
NWW-71	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.844554, -117.165718	0.10	1,128
NWW-72	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.845370, -117.166236	0.04	427

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-73	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 12	Large, primarily unvegetated, interwoven feature with multiple mainstems fed by various tributaries within allscale scrub and creosote bush scrub; originates as runoff from unnamed dirt roads leading from National Trails Hwy. (See Photo 18 on Figure 5C and Appendix G.)	34.844453, -117.163545	1.24	13,348
NWW-74	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 8	Primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from unnamed dirt road.	34.846950, -117.162756	0.17	1,582
NWW-75	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 4	Small, primarily unvegetated, double-thread feature within allscale scrub.	34.845550, -117.159978	0.04	487
NWW-76	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 13	Large, primarily unvegetated, braided feature with multiple tributaries within allscale scrub; originates as runoff from unnamed dirt road leading from National Trails Hwy; watercourse present throughout some portions of feature. (See Photo 30 on Figure 5C and Appendix G.)	34.848019, -117.159133	0.86	8,649
	Watercourse[5]	Allscale Scrub	N/A			15.45	–
NWW-77	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	2 – 8	Primarily unvegetated feature with one tributary within allscale scrub in between hillslopes; originates as runoff from unnamed dirt road leading from National Trails Hwy; downstream extent continues into watercourse associated with NWW-76.	34.847129, -117.156396	0.17	1,677
NWW-78	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.848845, -117.157242	0.01	278
NWW-79	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 5	Primarily unvegetated, braided feature with island within allscale scrub; originates as runoff from unnamed dirt road.	34.850248, -117.158057	0.13	1,874

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-80	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 20	Large, primarily unvegetated, braided and interwoven feature with multiple mainstems fed by various tributaries within creosote bush scrub; originates from National Trails Hwy/Main St and/or feature south of National Trails Hwy (NWW-108); portions of feature display disturbance by off-road vehicle usage; watercourse present throughout some portions of feature. (See Photos 17 and 18 on Figure 5C and Appendix G.)	34.850680, -117.154564	2.02	15,877
	Watercourse[5]	Creosote Bush Scrub	N/A			13.99	–
NWW-81	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 8	Primarily unvegetated, single-thread feature within allscale scrub.	34.853340, -117.156269	0.12	1,229
NWW-82	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 15	Primarily unvegetated, braided feature within allscale scrub and creosote bush scrub; heavily eroded where feature runs parallel to railroad tracks. (See Photo 16 on Figure 5C and Appendix G.)	34.854433, -117.152784	0.64	8,328
NWW-83	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.856239, -117.153167	0.01	250
NWW-84	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 1	Primarily unvegetated, single-thread feature within creosote bush scrub.	34.854958, -117.146066	0.02	909
NWW-85	Unvegetated Streambed[3]	Allscale Scrub[4]	1 – 5	Primarily unvegetated feature with multiple tributaries within allscale scrub; originates as runoff from unnamed dirt road. (See Photo 11 on Figure 5C and Appendix G.)	34.857281, -117.149898	0.31	3,921
NWW-86	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	3 – 3	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unnamed dirt road.	34.856698, -117.147965	0.02	218
NWW-87	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	2 – 4	Primarily unvegetated, double-thread feature within creosote bush scrub; originates as runoff from unnamed dirt road. (See Photo 13 on Figure 5C and Appendix G.)	34.857936, -117.147949	0.13	2,162

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-88	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from unnamed dirt road.	34.858906, -117.148308	0.04	403
NWW-89	Unvegetated Streambed[3]	Allscale Scrub[4]	1 – 22	Large, primarily unvegetated feature within allscale scrub, creosote bush scrub, and disturbed habitat that consists of two large mainstems with several tributaries; eastern main stem originates south of National Trails Hwy/Main St before traveling through a culvert, western main stem originates as runoff from Mockingbird Rd (dirt road); disturbed by off-road vehicle use and obstructions (tree logs) likely placed by adjacent residential lot residents; heavily eroded downstream near manipulated and heavily used dirt roads adjacent to the railroad tracks; watercourse present throughout some portions of feature. (See Photos 7 – 10, 29, and 32 on Figure 5C and Appendix G.)	34.863711, -117.134655	1.57	12,490
	Watercourse[5]	Allscale Scrub	N/A			1.84	–
NWW-90	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 6	Primarily unvegetated, single-thread feature within allscale scrub between residential lots; originates as runoff from unnamed dirt road. (See Photo 11 on Figure 5C and Appendix G.)	34.860552, -117.142795	0.08	995
NWW-91	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Primarily unvegetated, small, single-thread feature within allscale scrub near residential lots; originates as runoff from upstream residential lot and Dundee Street. (See Photo 12 on Figure 5C and Appendix G.)	34.863147, -117.140564	0.01	150
NWW-92	Unvegetated Streambed[3]	Unvegetated Channel	8 – 45	Primarily unvegetated, large, trapezoidal feature (San Bernardino County Flood Control District Channel) within heavily manipulated, unvegetated channel; evidence of off-road vehicle use; originates south of Main St/National Trails Hwy. (See Photo 6 on Figure 5C and Appendix G.)	34.874455, -117.131291	1.77	4,629

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-93	Unvegetated Streambed[3]	Disturbed Habitat[4]	3 – 20	Rip-rap feature within developed and fenced area; originates at culvert outlet near intersection of National Trails Hwy and Lenwood Rd; downstream extent is large, rip-rap, circular, unvegetated drainage area containing a culvert inlet.	34.873485, -117.118709	0.06	409
NWW-94	Unvegetated Streambed[3]	Disturbed Habitat[4]	10 – 10	Primarily unvegetated feature within disturbed habitat; feature initiates from large stormwater concrete channelized structure. (See Photos 4 and 5 on Figure 5C and Appendix G.)	34.874055, -117.117372	0.09	401
NWW-95	Unvegetated Streambed[3]	Disturbed Habitat[4]	2 – 10	Primarily unvegetated, single-thread feature within disturbed habitat that outlets from culvert along National Trails Hwy; manipulation on the eastern slopes. (See Photo 3 on Figure 5C and Appendix G.)	34.877087, -117.110926	0.06	307
NWW-96	Unvegetated Streambed[3]	Disturbed Habitat[4]	5 – 5	Primarily heavily vegetated, disturbed, single-thread feature within disturbed habitat and tamarisk thickets; originates as road runoff from National Trails Hwy. (See Photo 2 on Figure 5C and Appendix G.)	34.878268, -117.108708	0.01	439
	Vegetated Streambed[3]	Disturbed Habitat	5 – 5			0.04	
NWW-97	Unvegetated Streambed[3]	Disturbed Habitat[4]	3 – 3	Primarily unvegetated, single-thread feature generally within disturbed habitat; feature drains through private commercial lots and outputs across a culvert crossing. (See Photo 1 on Figure 5C and Appendix G.)	34.879422, -117.105552	0.03	506
NWW-98	Unvegetated Streambed[3]	Allscale Scrub – Disturbed[4]	5 – 5	Small, unvegetated single-thread feature within allscale scrub – disturbed habitat that originates as runoff from dirt road parallel to the north side of railroad tracks.	34.880017, -117.105950	0.01	124
NWW-99	Vegetated Streambed[3]	Disturbed Habitat	5 – 12	Vegetated, single-thread feature within disturbed habitat that originates at culvert north of Main St/National Trails Hwy.	34.880936, -117.101226	0.07	353

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-100	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 13	Primarily unvegetated feature within allscale scrub with several tributaries that travels through several culverts; originates as runoff from and at a culvert north of Main St/National Trails Hwy.	34.882602, -117.095407	0.34	2,524
NWW-101	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 36	Primarily unvegetated feature within allscale scrub with multiple tributaries that travels through several culverts; originates as runoff from and at a culvert north of Main St/National Trails Hwy.	34.883416, -117.092671	0.35	1,003
NWW-102	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 5	Small, primarily unvegetated feature within allscale scrub that originates as runoff from Main St/National Trails Hwy.	34.883038, -117.091930	0.01	99
NWW-103	Unvegetated Streambed[3]	Allscale Scrub[4]	13 – 17	Primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy during storm events and converge with NWW-27.	34.797426, -117.223080	0.02	43
NWW-104	Unvegetated Streambed[3]	Allscale Scrub[4]	6 - 12	Small, primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy and converge with NWW-27.	34.797510, -117.222886	0.02	70
NWW-105	Unvegetated Streambed[3]	Allscale Scrub[4]	8 – 8	Small, primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy and converge with NWW-44; occurs within watercourse mapped as associated with NWW-106.	34.828712, -117.182373	0.01	29
NWW-106	Unvegetated Streambed[3]	Allscale Scrub[4]	12 – 12	Primarily unvegetated, single-thread feature generally within disturbed habitat; feature drains through private commercial lots and outputs across a culvert crossing.	34.828907, -117.182084	0.01	36
	Watercourse[5]	Allscale Scrub	N/A			0.15	–
NWW-107	Unvegetated Streambed[3]	Creosote Bush Scrub[6]	3 – 5	Small, primarily unvegetated, single-thread feature within creosote bush scrub that may continue over Main St/National Trails Hwy and converge with NWW-59.	34.835555, -117.169501	<0.01	51

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-108	Unvegetated Streambed[3]	Creosote Bush Scrub – Disturbed[6]	16 – 16	Primarily unvegetated, single-thread feature within creosote bush scrub – disturbed that may continue over Main St/National Trails Hwy and converge with NWW-80.	34.847053, -117.151904	0.01	36
NWW-109 (Mojave River)	Unvegetated Streambed[3]	Unvegetated Channel	50 – 3,100	Sparsely vegetated, dry, sandy wash that comprises the on-site extent of the Mojave River; extends into active desert dune habitat; generally flows southwest to northeast before continuing off site. (See Photos 33, 37, 38, and 43 – 45 on Figure 5C and Appendix G.)	34.863277, -117.170128	10.33	22,078
	Vegetated Streambed[3]	Active Desert Dunes				580.02	
Watercourse A	Watercourse[5]	Allscale Scrub	N/A	Watercourse associated with a streambed that occurs off site and upstream.	34.789811, -117.245502	0.94	–
					Total[6]	**669.96**	**195,124**

[1] Corresponds with the approximate stream bank widths observed during delineation. Width range accounts for entirety of streambed delineated, not individual vegetation communities.
[2] Linear feet not calculated for watercourse to avoid redundant linear foot calculation where such areas overlap with streambed.
[3] A "streambed" under CFGC Section 1602 includes the channel of a watercourse that is generally defined to include the depression between the banks worn by the regular and usual flow of water.
[4] Unvegetated streambed within mapped vegetation community; however, no vegetation technically present within the streambed.
[5] A "watercourse" extends beyond the streambed and can consist of associated features such as low-flow, active, and braided channels and banks associated with islands, and secondary channels within the bounds of a larger channel complex (Vyverberg & Brady 2013)
[6] Acreages and linear feet totals were summed using raw numbers provided during GIS analysis (available upon request) and thus, the sum of the total rounded numbers may not directly add up in this table.

APPENDIX I

ORM BULK UPLOAD AQUATIC RESOURCES OR CONSOLIDATED EXCEL SPREADSHEET (PROVIDED AS AN EXCEL FILE TO THE CORPS)

APPENDIX J

LITERATURE CITATIONS AND REFERENCES

APPENDIX J. LITERATURE CITATIONS AND REFERENCES

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APPENDIX K

GIS DATA (PROVIDED ELECTRONICALLY TO AGENCIES)

ATTACHMENT B

BIG BARSTOW AQUATIC RESOURCES DELINEATION REPORT 2023 ADDENDUM, PREPARED BY RBC AND DATED AUGUST 16, 2023

August 16, 2023

Ms. Deanna Cummings
U.S. Army Corps of Engineers
Los Angeles District, Regulatory Division
North Coast Branch, Los Angeles and San Bernardino Counties Section
915 Wilshire Boulevard, Suite 930
Los Angeles, CA 90017

Subject: **Request for a Preliminary Jurisdictional Determination, Big Barstow (Barstow International Gateway Project), San Bernardino County, California**

Ms. Cummings:

On behalf of Burlington Northern Santa Fe (BNSF) Railway Company, Rocks Biological Consulting (RBC) submits the attached *Big Barstow (Barstow International Gateway Project) Aquatic Resources Delineation Report Addendum* (2023 ARDR Addendum), prepared by RBC and dated August 9, 2023. The *Big Barstow Aquatic Resources Delineation Report* (2022 ARDR), prepared by RBC and dated September 2022, which RBC previously submitted to you on September 26, 2022, is included as Attachment A to the 2023 ARDR Addendum. The *Request for Corps Jurisdictional Determination (JD)* and the *Preliminary Jurisdictional Determination (PJD) Form* (PJD form), prepared by RBC, are included as Attachment B to the 2023 ARDR Addendum, for your review and consideration with submittal of the 2023 ARDR Addendum and 2022 ARDR.

The 2023 ARDR Addendum includes the following components:

- Figures
    - Figure 1. Project Location
    - Figure 2. USGS Topo and NHD
    - Figure 3. Watershed
    - Figure 4. NRCS Soils Survey Data and NWI
    - Figure 5A. Corps Aquatic Resources
    - Figure 5B. RWQCB Aquatic Resources
    - Figure 5C. CDFW Streambed and Watercourse
    - Figure 6. Vegetation

- Attachment A. *Big Barstow Aquatic Resources Delineation Report*, prepared by RBC and dated September 23, 2022
    - Figures:
        - Figure 1. Project Location
        - Figure 2. USGS Topo and NHD
        - Figure 3. Watershed
        - Figure 4. NRCS Soils Survey Data and NWI
        - Figure 5A. Corps Aquatic Resources
        - Figure 5B. RWQCB Aquatic Resources
        - Figure 5C. CDFW Streambed and Watercourse
        - Figure 6. Vegetation
    - Appendix A. Checklist: Minimum Standards for Acceptance of Aquatic Resource
    - Appendix B. Jurisdictional Determination Request Forms
    - Appendix C. Applicable Aquatic Resource Protection Regulations
    - Appendix D. Recent and Historic Aerials Analysis
    - Appendix E. Arid West Wetland Determination Data Forms and Ephemeral and Intermittent Streams OHWM Datasheets
    - Appendix F. Antecedent Precipitation Tool Output
    - Appendix G. Site Photographs
    - Appendix H. Aquatic Resource Summary Tables
    - Appendix I. ORM Bulk Upload Aquatic Resources or Consolidated Excel Spreadsheet
    - Appendix J. Literature Citations and References
    - Appendix K. GIS Data (provided electronically to agencies)
- Attachment B. Jurisdictional Determination Request Forms (*supersedes Appendix B of the 2022 ARDR*)
- Attachment C. Arid West Wetland Determination Data Forms and Ephemeral and Intermittent Streams OHWM Datasheets
- Attachment D. Site Photographs
- Attachment E. Aquatic Resource Summary Tables for 2023 ARDR Addendum Review Area
- Attachment F. Connectivity to Mojave River
- Attachment G. ORM Bulk Upload Aquatic Resources or Consolidated Excel Spreadsheet (*supersedes Appendix I of the 2022 ARDR*)

  Attachment H. GIS Data (provided electronically to agencies)

Assuming concurrence with the findings of the 2023 ARDR Addendum, 2022 ARDR, and draft PJD form, per RGL 16-01, **RBC respectfully requests the Corps provide the Applicant with a final PJD.**

Thank you for your consideration of our request. Please do not hesitate to contact me with any questions or clarifications needed to assist your evaluation of this project and associated 2023 ARDR Addendum, 2022 ARDR, and PJD form. I can be reached directly at 619-813-8790 or via email at sarah@rocksbio.com.

Respectfully,

Sarah Krejca

Sarah Krejca
Senior Regulatory Specialist/Biologist

ROCKS
BIOLOGICAL CONSULTING

To: Deanna Cummings, U.S. Army Corps of Engineers

From: Sarah Krejca, Rocks Biological Consulting

Date: August 9, 2023

Subject: Big Barstow (Barstow International Gateway Project) Aquatic Resources Delineation Report Addendum

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This memorandum serves as an addendum to the September 23, 2022 *Big Barstow Aquatic Resources Delineation Report* (2022 ARDR; Attachment A) to address the updated project footprint for the Barstow International Gateway Project (project; formerly 'Big Barstow') per files received on May 2 and May 23, 2023. Specifically, the overall project footprint was expanded to include project limits that occur outside of the review area used in the 2022 ARDR (2022 ARDR review area), including additional off-site improvement areas along Hinkley Road, along the County of San Bernardino Flood Control District Channel/Lenwood Channel, and within the Tortilla Substation work limits plus a 100-foot survey buffer. As such, the review area discussed in this addendum (2023 ARDR addendum review area) only encompasses the project areas (plus a 100-foot survey buffer) that occur beyond the limits of the 2022 ARDR review area (i.e., the original project footprint plus a 100-foot survey buffer) (Figure 1).

This addendum serves as a request for the U.S. Army Corps of Engineers (Corps) to complete a Preliminary Jurisdictional Determination (PJD) based on the information provided in this addendum and the 2022 ARDR (Attachment A). Attachment B provides the required forms associated with the PJD request and supersedes Appendix B of the 2022 ARDR.

1.1 SITE DESCRIPTIONS, LANDSCAPE SETTING

The 223.70-acre 2023 ARDR addendum review area is generally flat with elevations ranging from approximately 2,210 to 2,745 feet above mean sea level (amsl) (Figure 2). The 2023 ARDR addendum review area is within the Mojave Hydrologic Unit Code [HUC] 8 (18090208), Daggett Wash-Mojave River HUC 10 (1809020811), Stoddard Valley HUC 10 (1809020810), Wild Wash HUC 10 (1809020808), Town of Lenwood-Mojave River HUC 12 (180902081102), Town of Johnstons Corner HUC 12 (180902081101), Stoddard Valley HUC 12 (180902081004), and City of Barstow-Mojave River HUC 12 (180902081105) (Figure 3).

1.2 METHODS

Rocks Biological Consulting (RBC) conducted aquatic resources delineation field visits for the 2023 ARDR addendum review area on April 18, 2023, June 14, 2023, and June 27 – 28, 2023. Field conditions during these field visits are provided below in Table 1. Complete methods are provided in Section 3 of the 2022 ARDR (Attachment A).

Table 1. Field Conditions

Date	Survey Time Start – End	Temperature (°F) Start – End	Wind Speed Range (miles per hour) Start – End	Cloud Cover (%) Start – End	Personnel[1]
4/18/2023	0645 – 1015	49 – 60	13 to 15 – 18 to 22	0 – 10	AG, KW
	1545 – 1715	68 – 67	22 to 25 – 25 to 28	50 – 80	
6/14/2023	1400 – 1530	84 – 86	3 to 5 – 3 to 5	15 – 15	SK
6/27/2023	0900 – 1530	73 – 93	10 to 15 – 1 to 3	0 – 0	AG, KW, SK
6/28/2023	0600 – 0700	62 – 65	5 to 8 – 3 to 5	0 – 0	AG, KW, SK

[1] *AG = Alec Goodman, KW = Kelsey Woldt, SK = Sarah Krejca*

Figure 1 and Figures 5A to 5C depict the 223.70-acre 2023 ARDR addendum review area.

1.3 SITE ALTERATIONS, CURRENT AND PAST LAND USE

1.3.1 SOILS

Based on the Natural Resources Conservation Service (NRCS) soils map (Figure 4), 14 soil map units occur within the 2023 ARDR addendum review area (Table 2).

Table 2. Soils Mapped within 2023 ARDR Addendum Review Area

Soil Map Unit	Soil Series/Unit	Taxonomic Class	NRCS Hydric Status[1]
Cajon gravelly sand, 2 to 15 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	No
Cajon loamy sand, 5 to 9 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	No
Cajon sand, 0 to 2 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	Yes
Cajon sand, 2 to 9 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	No
Cajon-Wasco, cool complex[2], 2 to 9 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	Yes
	Wasco	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Torriorthents	
Dune land	Dune land	–	Yes
Helendale loamy sand, 2 to 5 percent slopes	Helendale	Coarse-loamy, mixed, superactive, thermic Typic Haplargids	No
Nebona-Cuddeback complex[2], 2 to 9 percent slopes	Nebona	Loamy, mixed, superactive, thermic, shallow Typic Haplodurids	Yes
	Cuddeback	Fine-loamy, mixed, superactive, thermic Typic Argidurids	
	Norob	Fine-loamy, mixed, superactive, thermic Typic Natrargids	Yes

Soil Map Unit	Soil Series/Unit	Taxonomic Class	NRCS Hydric Status[1]
Norob-Halloran complex[2], 0 to 5 percent slopes	Halloran	Coarse-loamy, mixed, superactive, thermic Typic Natrargids	
Riverwash	Riverwash	–	Yes
Rock Outcrop-Lithic Torriorthents complex, 15 to 50 percent slopes	Rock Outcrop	–	No
	Torriorthents	Loamy-skeletal, mixed, superactive, calcareous, mesic Lithic Torriorthents	
Victorville sandy loam	Victorville	Coarse-loamy, mixed, superactive, calcareous, thermic Typic Torrifluvents	Yes
Villa loamy sand	Villa	Sandy, mixed, thermic Typic Torrifluvents	Yes
Villa loamy sand, hummocky	Villa	Sandy, mixed, thermic Typic Torrifluvents	Yes

Source: NRCS Official Soil Series Description and Series Classification database (NRCS n.d.a); *Soil Survey of San Bernardino County California, Mojave River Area* (USDA 1986); NRCS Soil Data Access (SDA) Hydric Soils List (NRCS n.d.b).
[1] Based on the NRCS Soil Data Access (SDA) Hydric Soils List (NRCS n.d.b). As stated in the Arid West Supplement (Corps 2008), RBC used the hydric soils list as a tool and made final hydric soils determinations based on field-collected data at representative wetland delineation sample points deemed appropriate on site as recorded on the attached Arid West Wetland Determination Data Forms (Attachment C) discussed further in Section 1.5.1.
[2] A complex consists of two or more soils or miscellaneous areas that either contain such small areas or are so complexly mapped that they are unable to be displayed separately (Ditzler 2015).

The National Technical Committee for Hydric Soils defines hydric soils; *Changes in Hydric Soils Database Selection Criteria* (77 FR 12234) outlines the current four hydric soil criteria. As shown above in Table 2, the NRCS Soil Data Access (SDA) Hydric Soils List specifies nine soil map units within the review area as hydric (NRCS n.d.b).

1.3.2 VEGETATION

Table 3 provides vegetation community acreages within the 2023 ARDR addendum review area based on vegetation mapping conducted by RBC on June 27 and July 20, 2023. Vegetation communities within the 2023 ARDR addendum review area are shown on Figure 6. The vegetation community classifications generally follow *A Manual of California Vegetation* (Sawyer et al. 2009) and *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986).

Table 3. Vegetation Communities within 2023 ARDR Addendum Review Area

Vegetation Community/Land Cover Type	Acre(s)[1]
Active Desert Dunes	10.44
Active Desert Dunes – Disturbed	4.96
Allscale Scrub	30.61
Allscale Scrub – Disturbed	17.70
Creosote Bush Scrub	85.21

Vegetation Community/Land Cover Type	Acre(s)[1]
Creosote Bush Scrub – Disturbed	0.28
Developed	19.97
Disturbed Habitat	26.66
Tamarisk Thickets	14.98
Unvegetated Channel	12.91
Total	223.70

[1] Acreages summed using raw numbers provided during GIS analysis (available upon request) and thus the sum of the total rounded numbers may not directly add up in this table.

1.4 PRECIPITATION DATA AND ANALYSIS

1.4.1 PRECIPITATION SUMMARY

Table 4 describes the estimated monthly total precipitation for the 2023 ARDR addendum review area from September 2022 to May 2023 to provide pertinent pre-site visit precipitation data from the NRCS database for the Barstow station (NRCS 2023).

Table 4. Precipitation Data for September 2022 – May 2023

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Monthly Total Precipitation (inch[es])	T[1]	T[1]	0.66	1.03	1.15	0.43	1.40	0.00	0.46

Source: NRCS Agricultural Applied Climate Information System (AgACIS) database (NRCS 2023)
[1] Per AgACIS database: Value of 'T' indicates a trace.

1.4.2 ANTECEDENT PRECIPITATION TOOL DATA

Table 5 summarizes the key data extrapolated from the Corps' Antecedent Precipitation Tool (APT) output to compare the current year 30-day rolling total to the averaged 30-year normal for the weather stations with comprehensive historical data within 30 miles of the review area: estimated drought conditions, wet or dry season determination, antecedent runoff condition (ARC) score, and antecedent precipitation condition. The APT output summarized in Table 5 noted a PDSI class of "moderate wetness" during the April 2023 and June 2023 field surveys (Corps 2023). The precipitation and climatic conditions were classified as "wetter than normal" for the review area during the April 18 and June 14, 2023 field surveys and "normal conditions" for the review area during the June 27 and 28, 2023 field surveys based on the 30-day rolling totals for the three months preceding the field survey dates (Corps 2023).

Table 5. Antecedent Precipitation Tool Data for 2023 ARDR Addendum Review Area

Field Survey Date	PDSI Value	PDSI Class	Season	ARC Score	Antecedent Precipitation Condition
4/18/2023	2.24	Moderate wetness	Dry season	16	Wetter than normal
6/14/2023	2.46	Moderate wetness	Dry season	16	Wetter than normal
6/27/2023	2.46	Moderate wetness	Dry season	14	Normal conditions
6/28/2023	2.46	Moderate wetness	Dry season	14	Normal conditions

Source: Antecedent Precipitation Tool (Corps 2023)

1.5 DESCRIPTION OF OBSERVED POTENTIAL AQUATIC RESOURCES

The following descriptions of observed potential aquatic resources within the review area document the presence or absence of aquatic resource indicators per the methods discussed in Section 3 of the 2022 ARDR. The subsections below are intended to be reviewed independently under each agency's purview unless otherwise directed in the text (i.e., the aquatic resource description is the same between two or more agencies) given the various regulatory definitions and standards per each agency and in conjunction with Section 6 of the 2022 ARDR.

Note that the nomenclature used in this report for the Wetland Data Form Points (WDPs), Ordinary High Water Mark (OHWM) Datasheet Points (ODPs), and aquatic resources is sequential with that used in the 2022 ARDR; therefore, within this addendum the WDP numbering begins at WDP 12 and the ODP numbering begins at ODP 30 (Attachment C).

Attachment D provides representative site photographs of the aquatic resources within the review area; all figures in the Figure 5 series display representative photo points.

1.5.1 CORPS/RWQCB WETLAND WATERS OF THE U.S./STATE

RBC collected data at two representative WDPs within the 2023 ARDR addendum review area to determine the presence or absence of jurisdictional wetland waters of the U.S./State (WDP 12 and 13; Figures 5A and 5B; Attachment C). The delineated aquatic features on site did not meet the appropriate wetland parameters to qualify as wetland waters of the U.S./State based on the data collected during the field delineation (Attachment C).

1.5.2 CORPS/RWQCB NON-WETLAND WATERS OF THE U.S./STATE

RBC collected data at seven representative ODPs within the 2023 ARDR addendum review area to determine the presence of potential waters of the U.S./State (ODP 30 through 36; Figures 5A and 5B; Attachment C). RBC selected representative ODP locations as there were multiple dry washes (i.e., features) with similar hydrology or OHWM characteristics. Overall, the 2023 ARDR addendum review area supports 78 features (portions of Non-Wetland Water [NWW-] 24, portions of NWW-89, portions of NWW-92, portions of NWW-109 [Mojave River], and NWW-110 through NWW-184), which vary from single-thread, small, unvegetated dry washes to the larger Mojave River. The OHWMs within the 2023 ARDR addendum review area for NWW-24, NWW-89, NWW-92, and NWW-110 through NWW-

184 varied in width from an average minimum of 3 feet and an average maximum of 5 feet. With the exception of NWW-113, which is primarily concrete-lined, these features were primarily unvegetated and generally surrounded by creosote bush (*Larrea tridentata*; Not Listed/Upland [NL/UPL]) and allscale (*Atriplex polycarpa*; Facultative Upland [FACU]). The OHWM for the portions of NWW-109 (Mojave River) within the 2023 ARDR addendum review area ranged from approximately 110 feet to 375 feet; this feature was sparsely vegetated and composed of unvegetated channel. See Attachment E, Table E-1 for the estimated OHWM and representative OHWM and wetland data for the portions of NWW-24, NWW-89, NWW-92, NWW-109 (Mojave River), and NWW-110 through NWW-184 within the 2023 ARDR addendum review area.

NWW-24, NWW-89, NWW-92, NWW-183, and NWW-184 generally drain southeast to northwest; NWW-110 through NWW-182 generally drain south to north (Figures 5A and 5B). Additionally, NWW-113 directs flows around the Tortilla substation and into earthen features (NWW-114 through NWW-119). The portion of NWW-109 (Mojave River) within the 2023 ARDR addendum review area is a sparsely vegetated, sandy wash that flows south to north before continuing off site (Figure 5A and 5B). Figures 5A and 5B display the limits of where OHWM indicators were observed within the review area. Attachment F provides a brief overview of the anticipated connectivity of NWW-110 through NWW-182 to NWW-109 (Mojave River).

Staff concluded based on field observations that NWW-24, NWW-89, NWW-92, and NWW-110 through NWW-184 were ephemeral features that only receive flows from runoff in direct response to precipitation; NWW-109 (Mojave River) is an intermittent feature based on field observations and the USGS NHD database (USGS 2021). The general characteristics of each of the observed features within the review area are provided in Attachment E, Table E-1. Staff observed flowing water within NWW-109 (Mojave River) during 2023 field surveys; however, staff did not observe standing water at any other features during the 2023 field surveys.

Staff determined the presence of an OHWM at one location within each of the following features within the 2023 ARDR addendum review area: NWW-113, NWW-114, NWW-146, and NWW-172 (Attachment C, ODP 33 – 36). Indicators of an OHWM for NWW-114, NWW-146, and NWW-172 generally included a change in average sediment texture and vegetation cover between the active floodplain and upland areas as well as a typically small break in bank slope along the active channel (Attachment C, ODP 33, 35, 36). The OHWMs present at these locations were representative of the OHWMs within NWW-24, NWW-89, NWW-110 through NWW-112, NWW-115 through NWW-145, NWW-147 through NWW-171, and NWW-173 through NWW-184. Indicators of an OHWM within the concrete-lined portion of NWW-113 included water staining and sediment deposits (Attachment C, ODP 34).

Staff determined the presence of an OHWM at two locations within NWW-92 (Attachment C, ODP 30 and 31). Indicators of an OHWM for NWW-92 generally included a change in average sediment texture, change in vegetation species or cover between the active floodplain and upland areas as well as a well-defined break in bank slope along the active channel (Attachment C, ODP 30 and 31). Staff also determined the presence of an OHWM at one location within NWW-109 (Mojave River) (Attachment C, ODP 32). Indicators of an

OHWM for NWW-109 (Mojave River) included a break in bank slope, change in vegetation cover, and change in average sediment texture between the active floodplain and upland/low terrace (Attachment C, ODP 32).

1.5.3 CDFW STREAMBED AND ASSOCIATED RIPARIAN AND WETLAND HABITATS

Figure 5C displays the estimated extent of streambed within the 2023 ARDR addendum review area. Overall, the 2023 ARDR addendum review area supports 78 features (portions of NWW-24, portions of NWW-89, portions of NWW-92, portions of the Mojave River [NWW-109], and NWW-110 through NWW-184), which vary from single-thread, small, unvegetated, dry streambeds with a well-defined bed and bank to the larger Mojave River (NWW-109). No associated riparian or wetland habitat occurs within the review area. NWW-24, NWW-89, NWW-92, and NWW-110 through NWW-184 vary in width from an average minimum of 3 feet and an average maximum of 16 feet and were primarily unvegetated and surrounded by creosote bush (NL/UPL) and allscale (FACU). The portion of the Mojave River (NWW-109) within the 2023 ARDR addendum review area varied in width from approximately 1,450 feet to 2,115 feet; the vegetated portion of this feature was generally composed of tamarisk thickets. See Attachment E, Table E-2 for the estimated extent of CDFW jurisdiction for NWW-24, NWW-89, NWW-92, the Mojave River (NWW-109), and NWW-110 through NWW-184 within the 2023 ARDR addendum review area.

NWW-24, NWW-89, NWW-92, NWW-183, and NWW-184 generally drain southeast to northwest; NWW-110 through NWW-182 generally drain south to north (Figure 5C). NWW-113 directs flows around the Tortilla substation and into earthen features (NWW-114 through NWW-119). The portion of the Mojave River (NWW-109) within the 2023 ARDR addendum review area is a sparsely vegetated, sandy wash that flows south to north before continuing off site (Figure 5C). No watercourse or riparian habitat was mapped within the 2023 ARDR addendum review area. As further detailed in Section 3.2.3 of the 2022 ARDR, the extent of the Mojave River (NWW-109) was delineated based on the presence of field indicators, including evidence of ponding (e.g., mud cracks and moist soils) and secondary channels, as well as topography and 50- and 100-year floodplain modeling for the Mojave River (NWW-109).

The general characteristics of each of the observed features within the 2023 ARDR addendum review area are provided in Attachment E, Table E-2.

1.6 RESULTS AND CONCLUSIONS

The results provided in this section include the extent of delineated aquatic resources within the 2023 ARDR addendum review area based on observed field indicators of potential waters of the U.S., waters of the State, and CDFW streambed and watercourse per the methodologies presented in Section 3 of the 2022 ARDR (Attachment A). Table 6 provides a summary of the aquatic resources delineated within the 2023 ARDR addendum review area and 2022 ARDR review area per agency. Further details for each aquatic resource mapped within the 2023 ARDR addendum review area (NWW-24, NWW-89, NWW-92, and NWW-109 [Mojave River] through NWW-184) are provided in Attachment E.

This section, however, does not analyze the Corps' jurisdictional status of the delineated features per the current regulations, guidance, and standard operating procedures. A request for the Corps to complete a PJD based on the information provided in this addendum and the 2022 ARDR (Attachment A) is included as Attachment B.

Table 6. Total Delineated Aquatic Resources within 2023 ARDR Addendum Review Area and 2022 ARDR Review Area

Agency	Aquatic Resource Type	2023 ARDR Addendum Review Area		2022 ARDR Review Area		TOTAL[1]	
		Acres	Linear Feet	Acres	Linear Feet	Acres	Linear Feet
Corps	Non-Wetland Waters of the U.S.	11.10	26,855	125.58	177,864	136.69	204,719
	Total Corps Aquatic Resources	***11.10***	***26,855***	***125.58***	***177,864***	***136.69***	***204,719***
RWQCB	Non-Wetland Waters of the U.S./State	11.10	26,855	125.58	177,864	136.69	204,719
	Total RWQCB Aquatic Resources	***11.10***	***26,855***	***125.58***	***177,864***	***136.69***	***204,719***
CDFW	Unvegetated Streambed	14.69	26,855	34.49	195,124	49.18	203,997
	Vegetated Streambed	14.13		580.30		594.43	17,982
	Watercourse	N/A	N/A	55.18	N/A[2]	55.18	N/A[2]
	Total CDFW Aquatic Resources[1]	***28.82***	***26,855***	***669.96***	***195,124***	***698.79***	***221,979***

[1] Acreages and linear feet totals were summed using raw numbers provided during GIS analysis (available upon request) and thus, the sum of the total rounded numbers may not directly add up in this table.
[2] Linear feet not calculated for watercourse to avoid redundant linear foot calculation where such areas overlap with streambed.

1.6.1 CORPS

NWW-24, NWW-89, NWW-92, and NWW-109 (Mojave River) through NWW-184 displayed clear indicators of an OHWM, such as a break in bank slope, change in average sediment texture, and change in vegetation cover and/or species between the drainage and adjacent uplands (Attachment C); however, these features did not meet the three wetland parameters.

As such, NWW-24, NWW-89, NWW-92, and NWW-109 (Mojave River) through NWW-184 may be considered non-wetland waters of the U.S. Approximately 11.10 acres (26,855 linear feet) of potential non-wetland waters of the U.S. associated with NWW-24, NWW-89, NWW-92, and NWW-109 (Mojave River) through NWW-184 occur within the 2023 ARDR addendum review area, as further detailed in Attachment E, Table E-1 and as shown on Figure 5A.

In sum, based on the results of this addendum and the 2022 ARDR, approximately 136.69 acres (204,719 linear feet) of potential non-wetland waters of the U.S. associated with NWW-1 through NWW-184 occur within the 2023 ARDR addendum review area and the 2022 ARDR review area. The ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet is included as Attachment G and supersedes Appendix I of the 2022 ARDR.

1.6.2 RWQCB

NWW-24, NWW-89, NWW-92, and NWW-109 (Mojave River) through NWW-184 displayed clear indicators of an OHWM, such as a break in bank slope, change in average sediment texture, and change in vegetation cover and/or species between the drainage and adjacent uplands (Attachment C); however, these features did not meet the three wetland parameters.

As such, NWW-24, NWW-89, NWW-92, and NWW-109 (Mojave River) through NWW-184 may be considered non-wetland waters of the U.S./State. Approximately 11.10 acres (26,855 linear feet) of potential non-wetland waters of the U.S./State associated with NWW-24, NWW-89, NWW-92, and NWW-109 (Mojave River) through NWW-184 occur within the 2023 ARDR addendum review area, as further detailed in Attachment E, Table E-1 and as shown on Figure 5B.

In sum, based on the results of this addendum and the 2022 ARDR, approximately 136.69 acres (204,719 linear feet) of potential non-wetland waters of the U.S./State associated with NWW-1 through NWW-184 occur within the 2023 ARDR addendum review area and the 2022 ARDR review area.

1.6.3 CDFW

NWW-24, NWW-89, NWW-92, the Mojave River (NWW-109), and NWW-110 through NWW-184 qualify as CDFW streambed (Figure 5C).

Approximately 14.13 acres (437 linear feet) of vegetated streambed and 14.69 acres (26,418 linear feet) of unvegetated streambed associated with NWW-24, NWW-89, NWW-92, the Mojave River (NWW-109), and NWW-110 through NWW-184 occur within the 2023 ARDR addendum review area, as further detailed in Attachment E, Table E-2 and as shown on Figure 5C. No additional watercourse was mapped within the 2023 ARDR addendum review area.

In sum, based on the results of this addendum and the 2022 ARDR, approximately 594.43 acres (17,982 linear feet) of vegetated streambed, 49.18 acres (203,997 linear feet) of unvegetated streambed, and 55.18 acres of watercourse associated with NWW-1 through NWW-184 occur within the 2023 ARDR addendum review area and the 2022 ARDR review area.

2 REFERENCES

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FIGURES

Figure 1. Project Location

Figure 2. USGS Topo and NHD

Figure 3. Watershed

Figure 4. NRCS Soils Survey Data and NWI

Figure 5A. Corps Aquatic Resources

Figure 5B. RWQCB Aquatic Resources

Figure 5C. CDFW Streambed and Watercourse

Figure 6. Vegetation

ATTACHMENTS

Attachment A. *Big Barstow Aquatic Resources Delineation Report*, prepared by RBC and dated September 23, 2022

Attachment B. Jurisdictional Determination Request Forms (*supersedes Appendix B of the 2022 ARDR*)

Attachment C. Arid West Wetland Determination Data Forms and Ephemeral and Intermittent Streams OHWM Datasheets

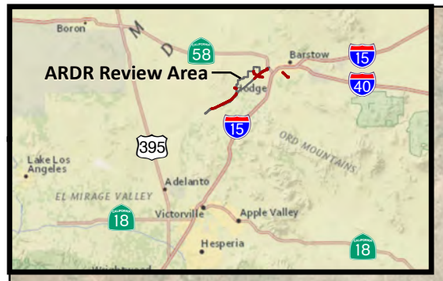
Attachment D. Site Photographs

Attachment E. Aquatic Resource Summary Tables for 2023 ARDR Addendum Review Area

Attachment F. Connectivity to Mojave River

Attachment G. ORM Bulk Upload Aquatic Resources or Consolidated Excel Spreadsheet (*supersedes Appendix I of the 2022 ARDR*)

Attachment H. GIS Data (provided electronically to agencies)



Hillview Truck Trl

Wheeler Rd

Indian Trl

Mojave River

Main St

Hodge Rd

Wild Rd

Lords Rd

National Trails Hwy

34.772232,
-117.285959

2023 ARDR Addendum Review Area (223.7 Ac)
2022 ARDR Review Area (5104.5 Ac)

Key Map

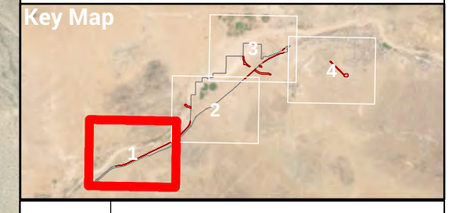


FIGURE 1
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Project Location

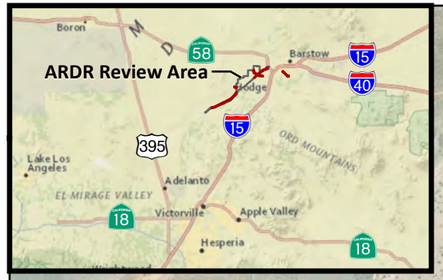
BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 2,000 FEET
1 INCH = 2,000 FEET

N

Date: 7/30/2023
Aerial Photo: Maxar, Esri 2020
Regional Map: National Geographic, Esri 2012



Mojave River

Oak Grove Rd

Gazana St

Burlington Northern Santa Fe RR

National Trails Hwy

Delaney Rd

Hinkley Rd

2023 ARDR Addendum Review Area (223.7 Ac)

2022 ARDR Review Area (5104.5 Ac)

Key Map

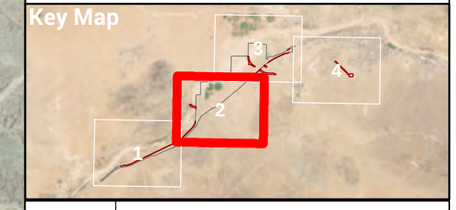


FIGURE 1

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Project Location

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 2,000 FEET

1 INCH = 2,000 FEET

N

Date: 7/30/2023

Aerial Photo: Maxar, Esri 2020

Regional Map: National Geographic, Esri 2012

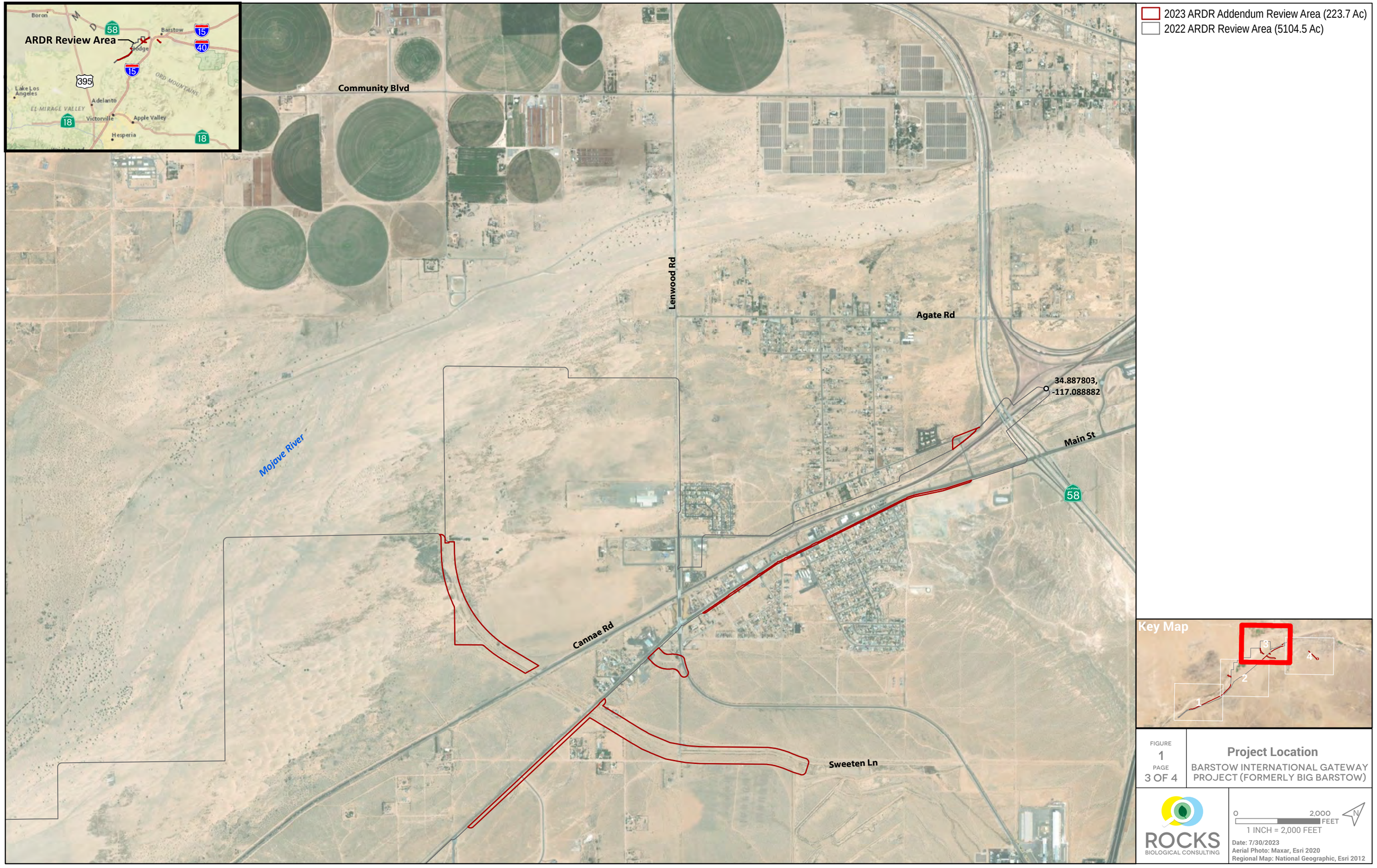


FIGURE 1
PAGE 3 OF 4

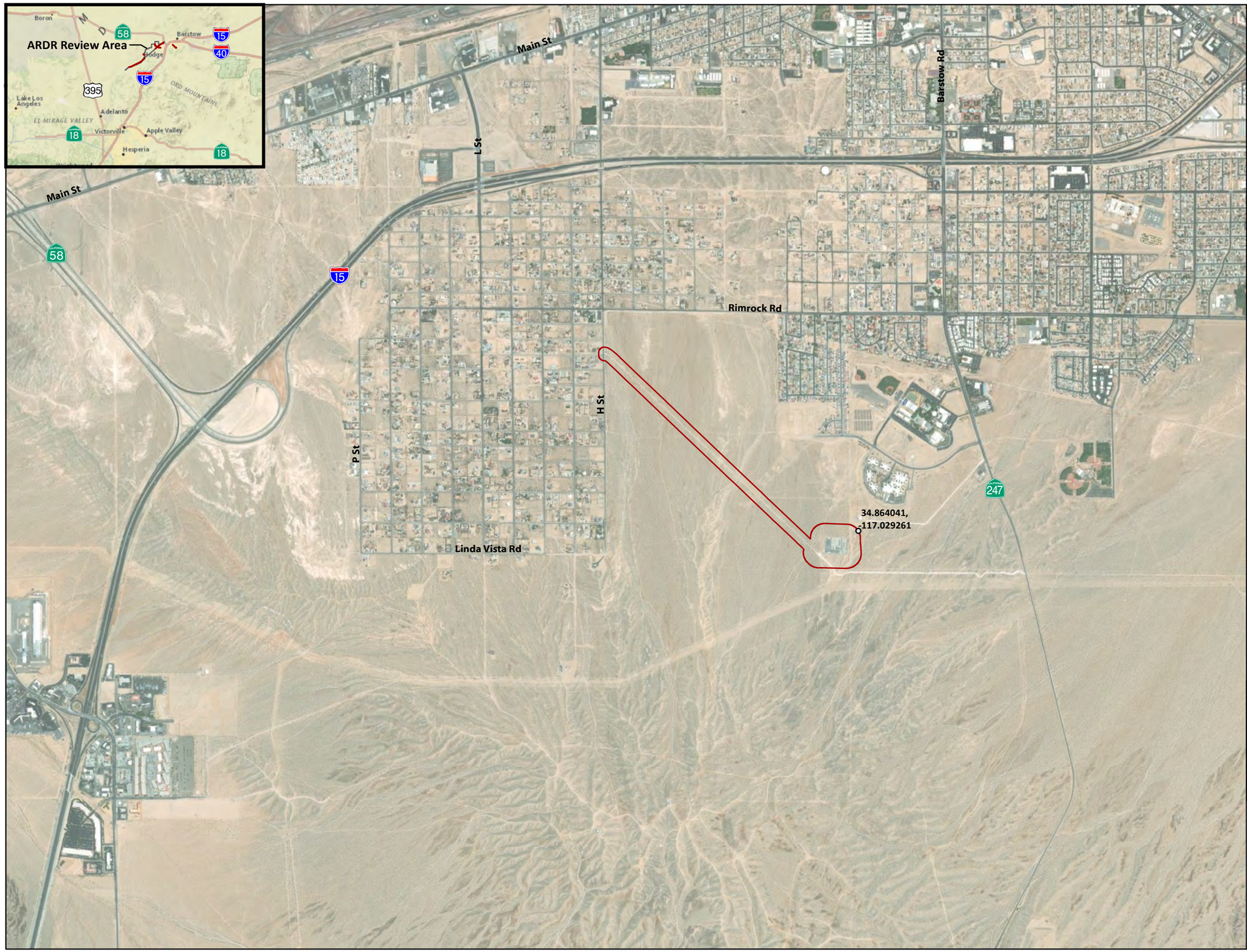
Project Location

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 2,000 FEET
1 INCH = 2,000 FEET

Date: 7/30/2023
Aerial Photo: Maxar, Esri 2020
Regional Map: National Geographic, Esri 2012



2023 ARDR Addendum Review Area (223.7 Ac)
2022 ARDR Review Area (5104.5 Ac)

Key Map

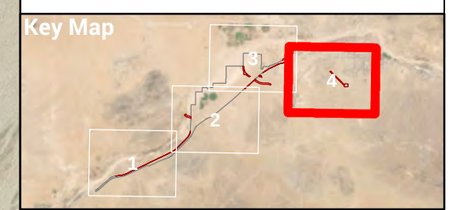


FIGURE 1
PAGE 4 OF 4

Project Location
BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 2,000 FEET
1 INCH = 2,000 FEET

Date: 7/30/2023
Aerial Photo: Maxar, Esri 2020
Regional Map: National Geographic, Esri 2012

2023 ARDR Addendum Review Area (223.7 Ac)
2022 ARDR Review Area (5104.5 Ac)
Township, Range and Section

USGS National Hydrography Dataset (NHD)

Wash
Lake/Pond
Reservoir
Stream/River

09N 02W 9
34.887803, -117.088882
09N 02W 7
09N 02W 8
09N 03W 12
09N 02W 18
09N 02W 17
09N 03W 14
09N 03W 13
09N 02W 19
09N 03W 22
09N 03W 23
09N 03W 24
09N 03W 25
09N 03W 28
09N 03W 27
09N 03W 26
09N 03W 35
09N 03W 33
09N 03W 34
08N 03W 3
08N 03W 4
08N 03W 5
08N 03W 9
08N 03W 7
08N 03W 8
08N 04W 12
08N 04W 14
08N 04W 13
08N 04W 15
34.772232, -117.285959
08N 04W 22

Mojave River
Oak Grove Rd
Burlington Northern Santa Fe RR
National Trails Hwy
Grandview
Lenwood
15

FIGURE 2A

USGS Topo and NHD

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 4,500 FEET
1 INCH = 4,500 FEET

Date: 6/27/2023
Source: USGS NHD 2020
USGS 7.5' Quadrangles (Hodge; Hinkley; Barstow SE; Barstow)

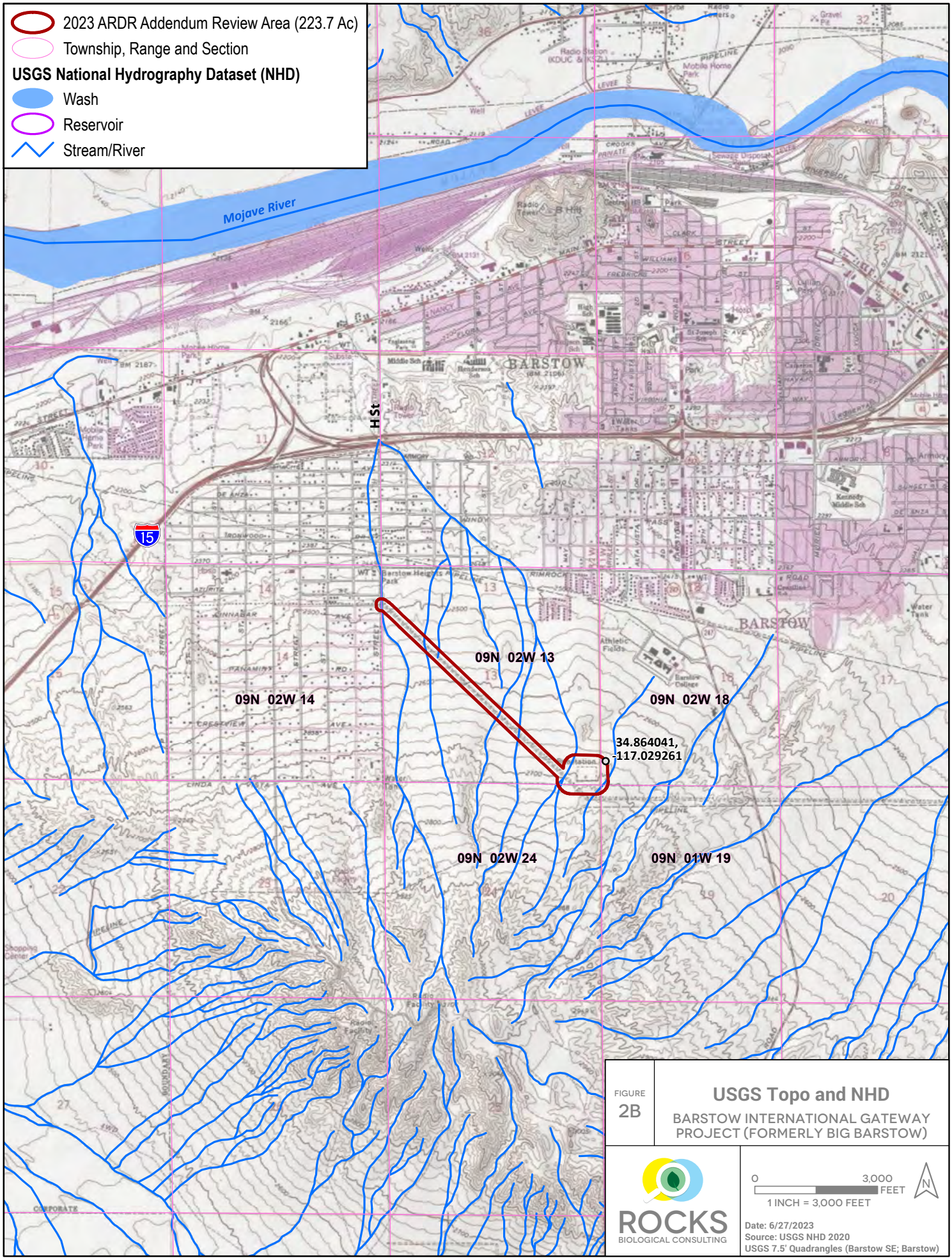


FIGURE 2B

USGS Topo and NHD

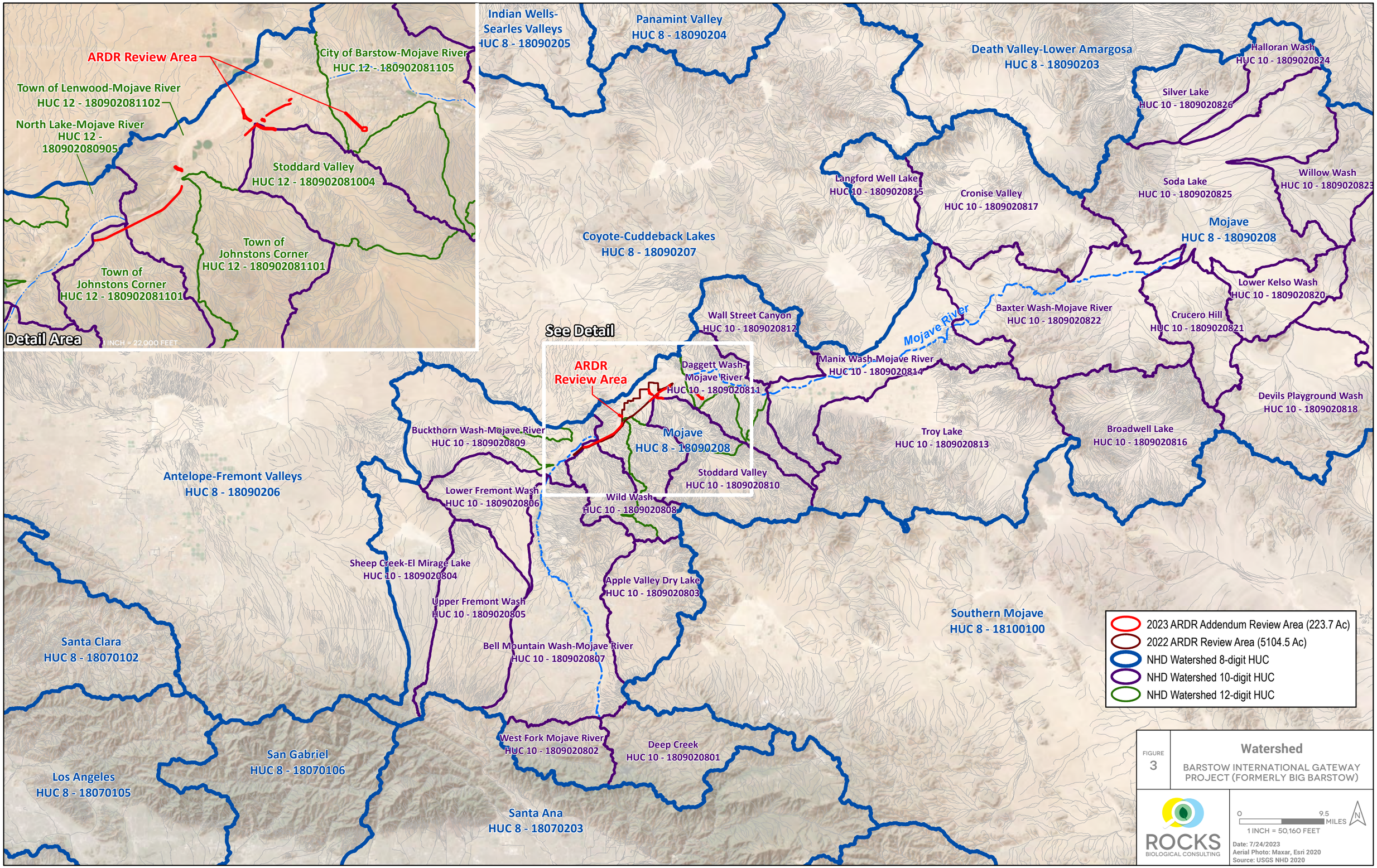
BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 3,000 FEET

1 INCH = 3,000 FEET

Date: 6/27/2023
Source: USGS NHD 2020
USGS 7.5' Quadrangles (Barstow SE; Barstow)


ARDR Review Area
City of Barstow-Mojave River
HUC 12 - 180902081105
Town of Lenwood-Mojave River
HUC 12 - 180902081102
North Lake-Mojave River
HUC 12 -
180902080905
Stoddard Valley
HUC 12 - 180902081004
Town of
Johnstons Corner
HUC 12 - 180902081101
Town of
Johnstons Corner
HUC 12 - 180902081101
Detail Area
1 INCH = 22,000 FEET
Indian Wells-
Searles Valleys
HUC 8 - 18090205
Panamint Valley
HUC 8 - 18090204
Death Valley-Lower Amargosa
HUC 8 - 18090203
Halloran Wash
HUC 10 - 1809020824
Silver Lake
HUC 10 - 1809020826
Langford Well Lake
HUC 10 - 1809020815
Cronise Valley
HUC 10 - 1809020817
Soda Lake
HUC 10 - 1809020825
Willow Wash
HUC 10 - 1809020823
Coyote-Cuddeback Lakes
HUC 8 - 18090207
Mojave
HUC 8 - 18090208
Lower Kelso Wash
HUC 10 - 1809020820
Wall Street Canyon
HUC 10 - 1809020812
Baxter Wash-Mojave River
HUC 10 - 1809020822
Mojave River
Crucero Hill
HUC 10 - 1809020821
See Detail
ARDR
Review Area
Daggett Wash-
Mojave River
HUC 10 - 1809020811
Manix Wash-Mojave River
HUC 10 - 1809020814
Devils Playground Wash
HUC 10 - 1809020818
Buckthorn Wash-Mojave River
HUC 10 - 1809020809
Mojave
HUC 8 - 18090208
Troy Lake
HUC 10 - 1809020813
Broadwell Lake
HUC 10 - 1809020816
Antelope-Fremont Valleys
HUC 8 - 18090206
Stoddard Valley
HUC 10 - 1809020810
Lower Fremont Wash
HUC 10 - 1809020806
Wild Wash
HUC 10 - 1809020808
Sheep Creek-El Mirage Lake
HUC 10 - 1809020804
Apple Valley Dry Lake
HUC 10 - 1809020803
Upper Fremont Wash
HUC 10 - 1809020805
Southern Mojave
HUC 8 - 18100100
Santa Clara
HUC 8 - 18070102
Bell Mountain Wash-Mojave River
HUC 10 - 1809020807
West Fork Mojave River
HUC 10 - 1809020802
Deep Creek
HUC 10 - 1809020801
San Gabriel
HUC 8 - 18070106
Los Angeles
HUC 8 - 18070105
Santa Ana
HUC 8 - 18070203
2023 ARDR Addendum Review Area (223.7 Ac)
2022 ARDR Review Area (5104.5 Ac)
NHD Watershed 8-digit HUC
NHD Watershed 10-digit HUC
NHD Watershed 12-digit HUC
FIGURE
3
Watershed
BARSTOW INTERNATIONAL GATEWAY
PROJECT (FORMERLY BIG BARSTOW)
ROCKS
BIOLOGICAL CONSULTING
0
9.5
MILES
N
1 INCH = 50,160 FEET
Date: 7/24/2023
Aerial Photo: Maxar, Esri 2020
Source: USGS NHD 2020

2023 ARDR Addendum Review Area (223.7 Ac)
2022 ARDR Review Area (5104.5 Ac)
Wetland Data Form Point (WDP)

National Wetlands Inventory (NWI)

Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Riverine
Freshwater Pond

NRCS Soils

Bryman Loamy Fine Sand, 2 to 5 Percent Slopes
Cajon Gravelly Sand, 2 to 15 Percent Slopes
Cajon Loamy Sand, 5 to 9 Percent Slopes
Cajon Sand, 0 to 2 Percent Slopes*
Cajon Sand, 2 to 9 Percent Slopes
Cajon-Arizo Complex, 2 to 15 Percent Slopes
Cajon-Wasco, Cool Complex, 2 to 9 Percent Slopes*
Cave Loam, Dry, 0 to 2 Percent Slopes*
Dune Land*
Helendale Loamy Sand, 0 to 2 Percent Slopes
Helendale Loamy Sand, 2 to 5 Percent Slopes
Joshua Loam, 2 to 5 Percent Slopes
Nebona-Cuddeback Complex, 2 to 9 Percent Slopes*
Norob-Halloran Complex, 0 to 5 Percent Slopes*
Riverwash*
Rock Outcrop-Lithic Torriorthents Complex, 15 to 50 Percent Slopes
Rosamond Loam, Saline-Alkali*
Victorville Sandy Loam*
Villa Loamy Sand*
Villa Loamy Sand, Hummocky*

*Soils rated as hydric per the NRCS.

34.887803, -117.088882
34.772232, -117.285959
WDP 1
WDP 2
WDP 3
WDP 4
WDP 5
WDP 6
WDP 7
WDP 8
WDP 9
WDP 10
WDP 11
WDP 12
Mojave River
Oak Grove Rd
Burlington Northern Santa Fe RR
National Trails Hwy
Lenwood Rd
58
15

FIGURE 4A

NRCS Soils Survey Data and NWI

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 4,500 FEET
1 INCH = 4,500 FEET

Date: 7/24/2023
Aerial Photo: San Bernardino County 2020, Esri
Source: USFWS NWI 2019; USDA NRCS 2018

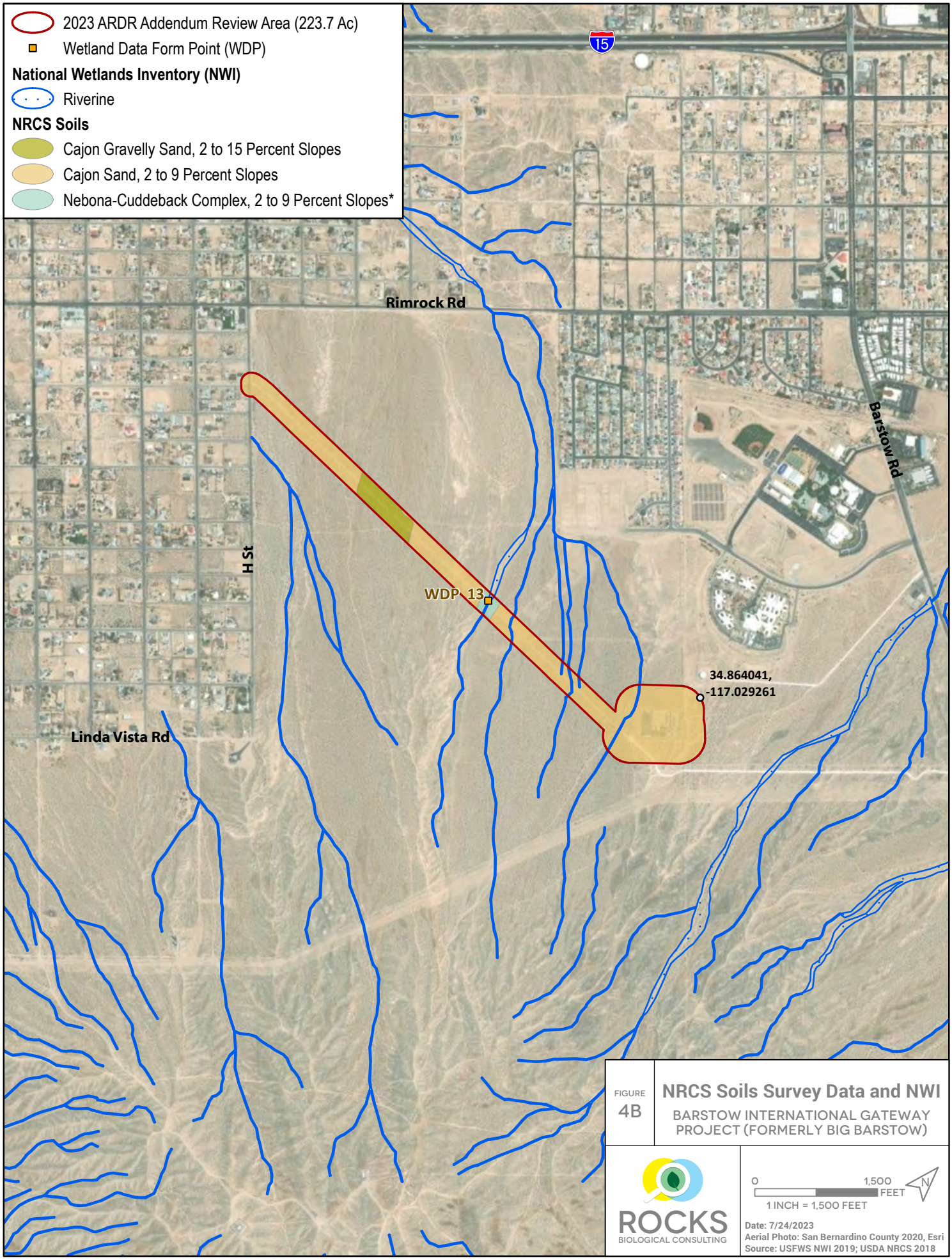


FIGURE 4B

NRCS Soils Survey Data and NWI

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 1,500 FEET

1 INCH = 1,500 FEET

N

Date: 7/24/2023

Aerial Photo: San Bernardino County 2020, Esri

Source: USFWS NWI 2019; USDA NRCS 2018



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Culvert
Railroad Crossing
Flow Direction

Corps Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'
11'-15'
24'-30'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

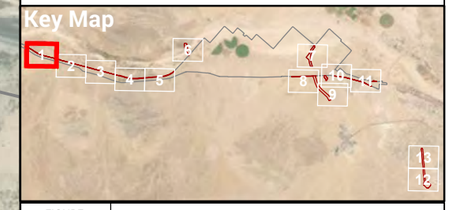


FIGURE 5A

PAGE 1 OF 13

Corps Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

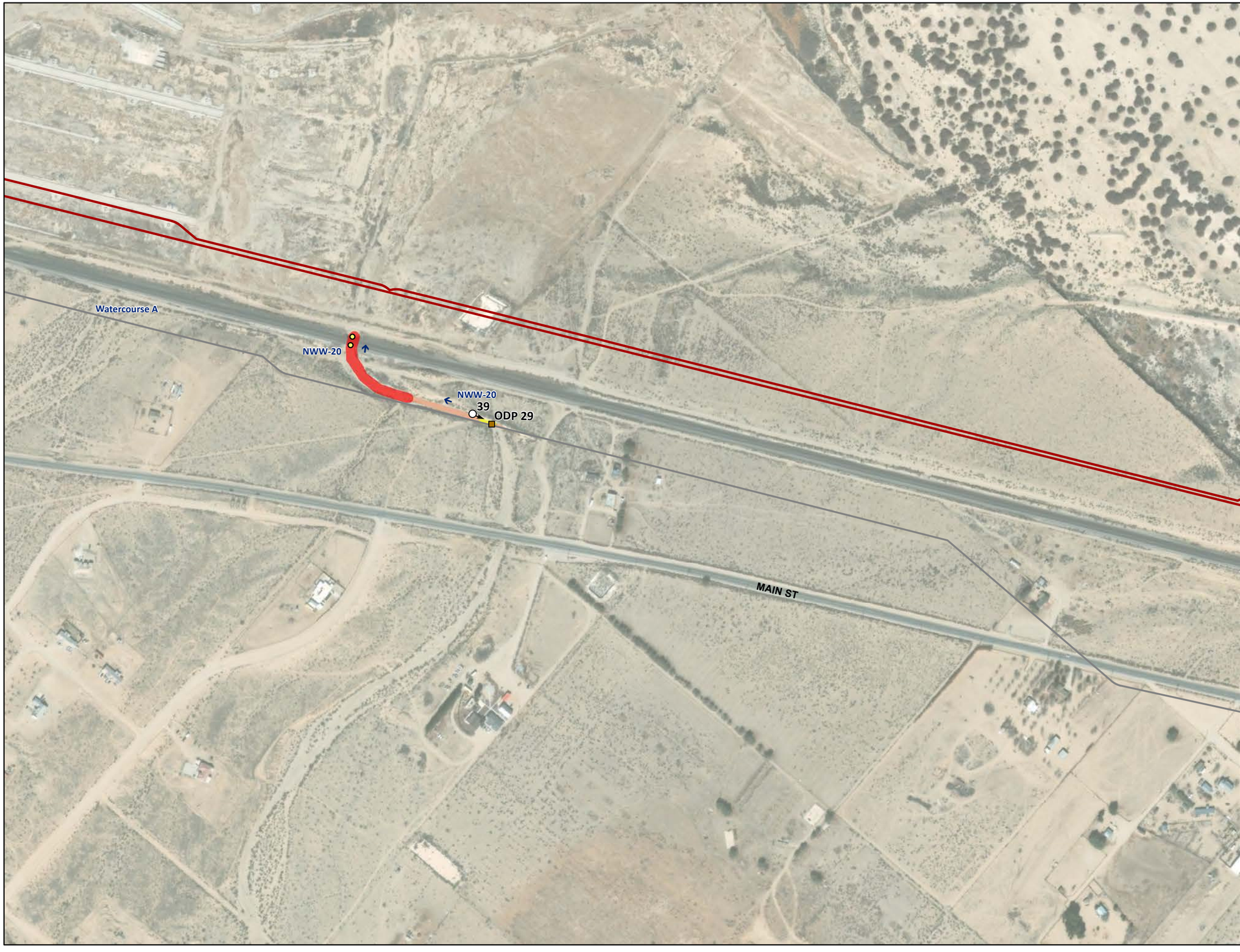
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Railroad Crossing
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

16'-21'
24'-30'
>30'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

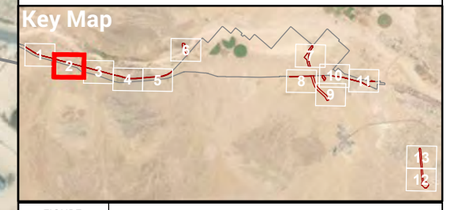


FIGURE 5A

PAGE 2 OF 13

Corps Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

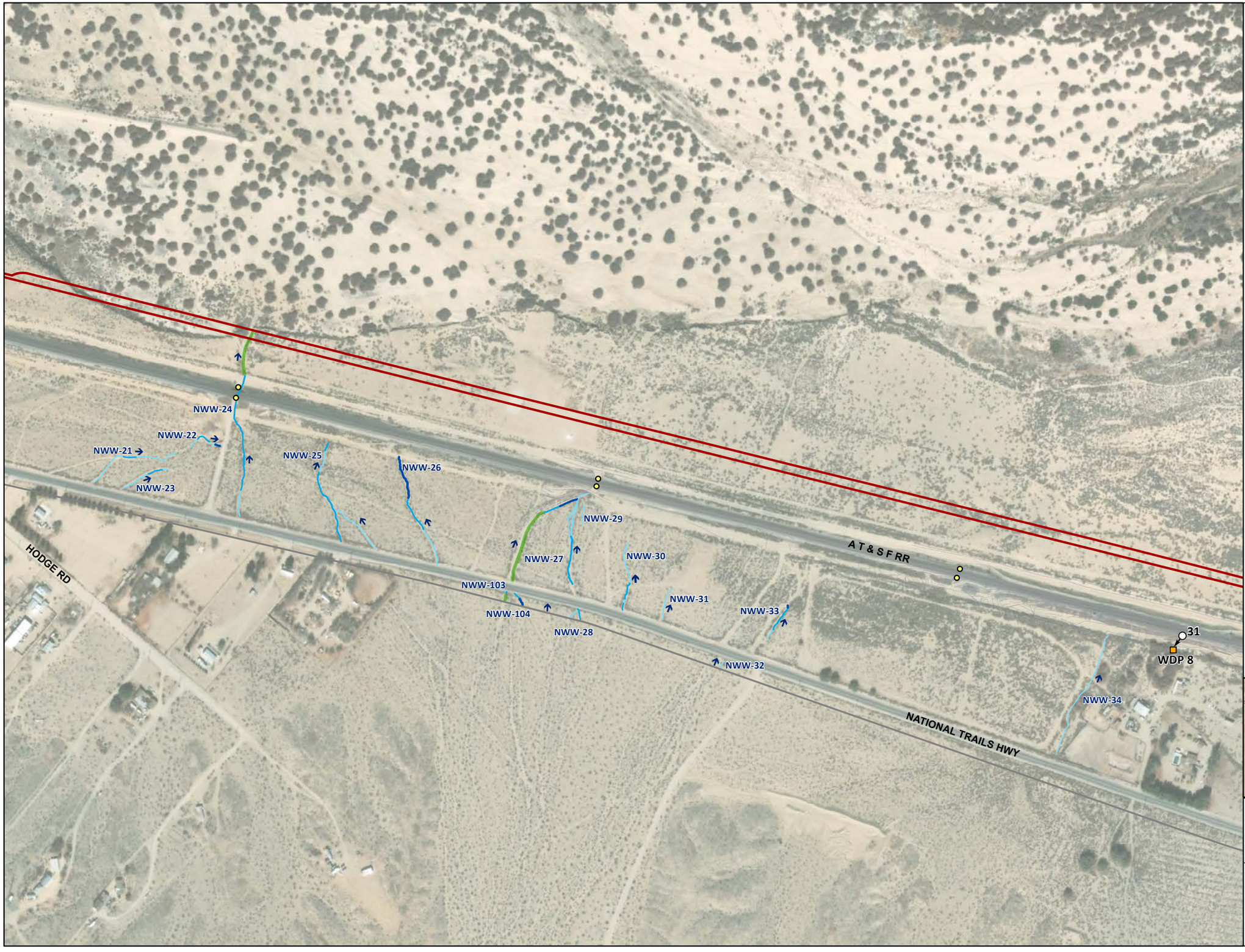
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Railroad Crossing
Wetland Data Form Point (WDP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

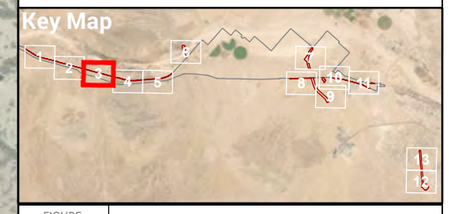


FIGURE 5A

PAGE 3 OF 13

Corps Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

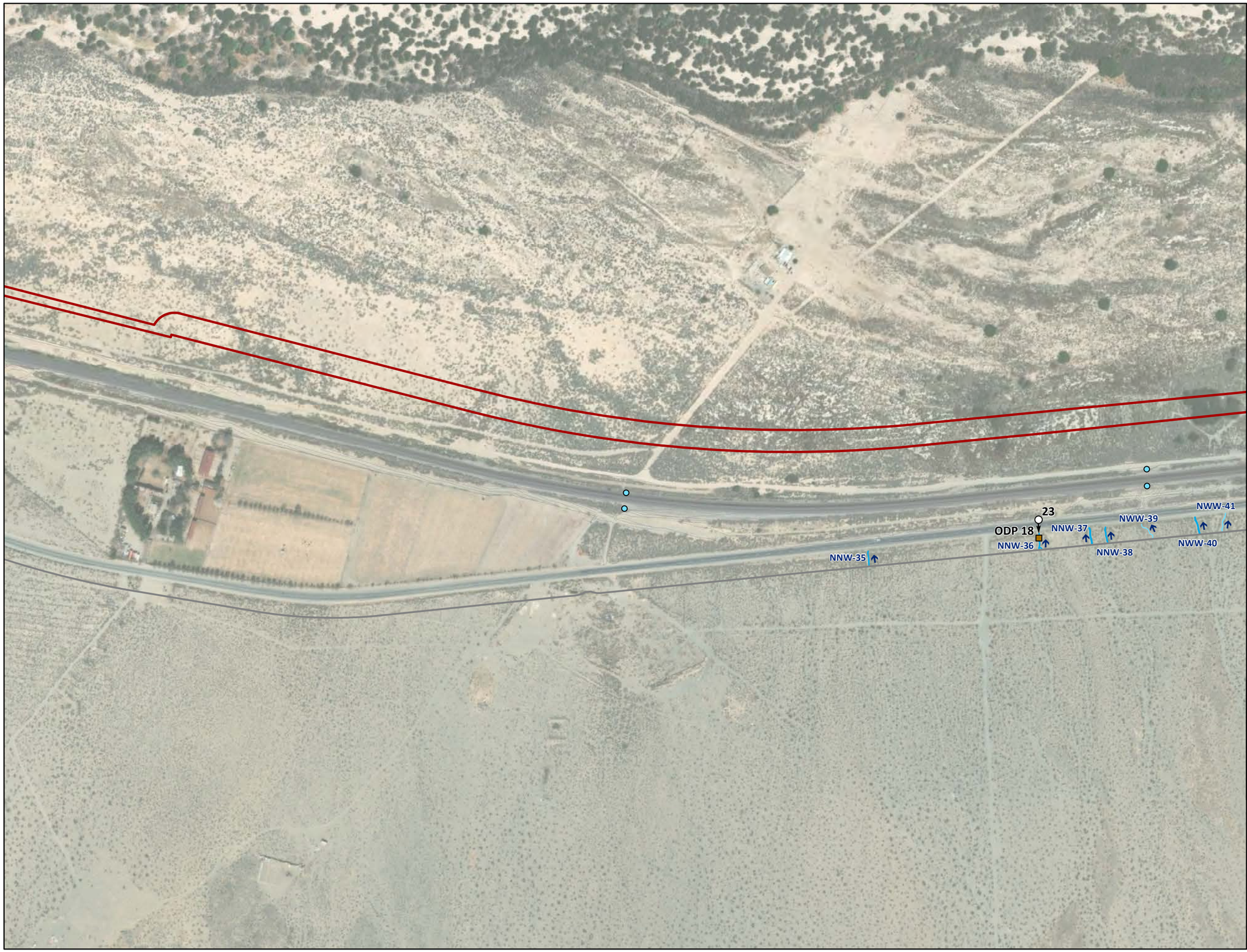
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Culvert
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5A

PAGE 4 OF 13

Corps Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

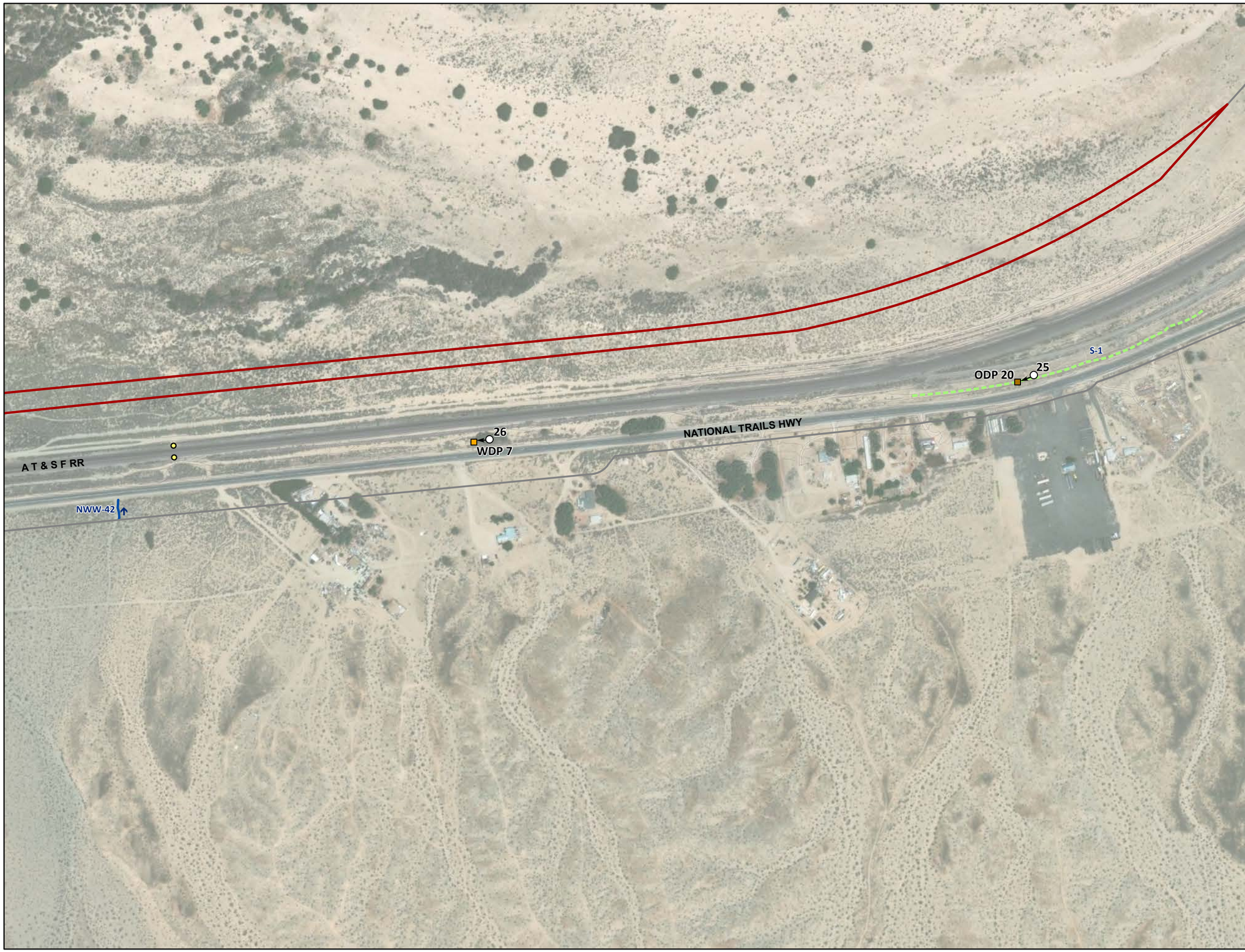
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Railroad Crossing
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

7'-10'

Other Features[3]

Swale

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking a defined OHWM, and thus anticipated to be non-jurisdictional.

Key Map

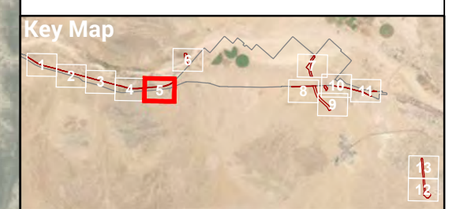


FIGURE 5A

PAGE 5 OF 13

Corps Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'
Mojave River Extent

Other Features[3]

Basin

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking a defined OHWM, and thus anticipated to be non-jurisdictional.

Key Map

FIGURE 5A

PAGE 6 OF 13

Corps Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Railroad Crossing
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
>30'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5A

PAGE 7 OF 13

Corps Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

N

Date: 8/3/2023
Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'
24'-30'
>30'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

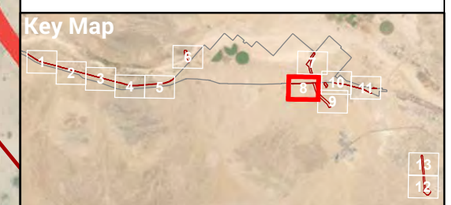


FIGURE 5A

PAGE 8 OF 13

Corps Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

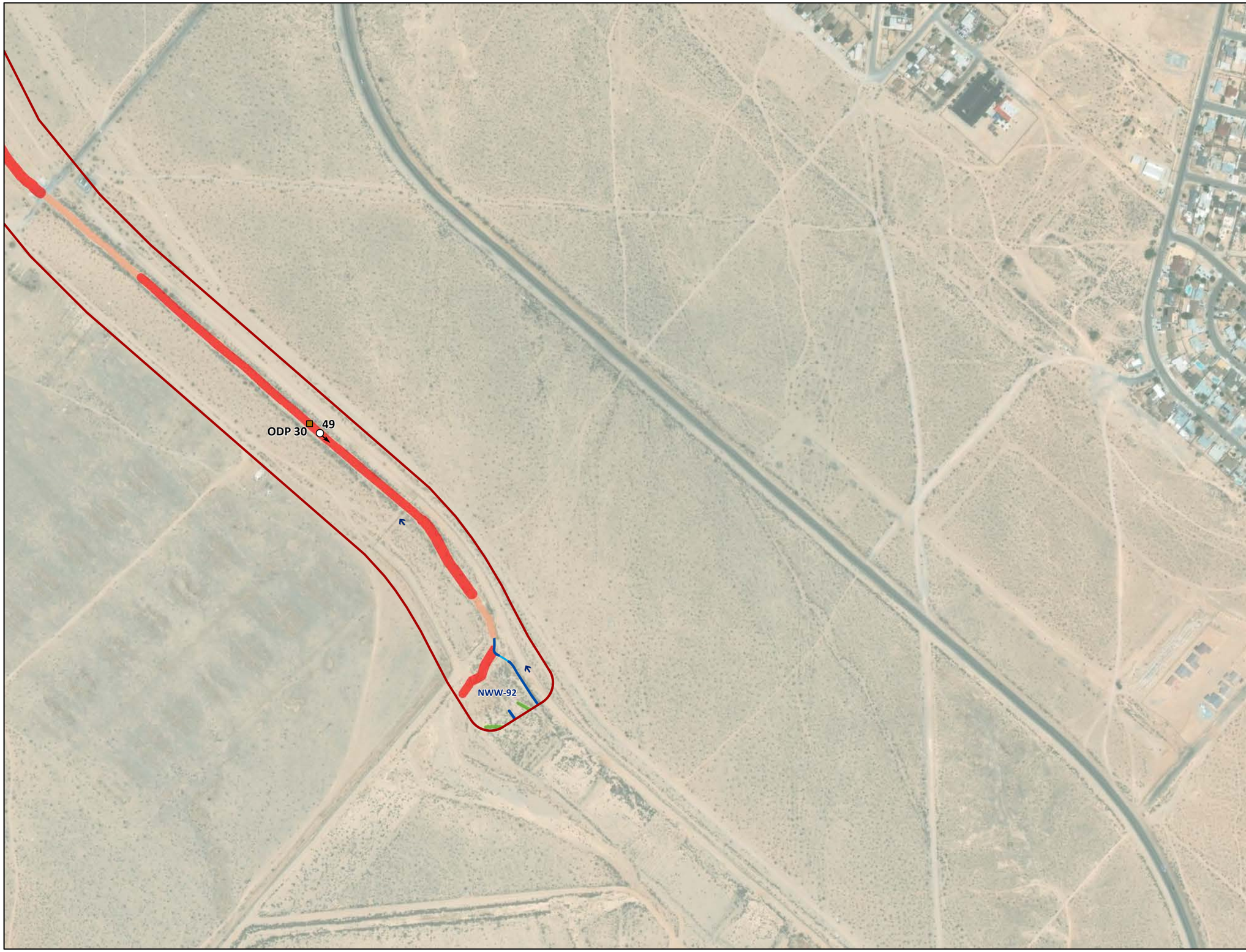
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

4'-6'
7'-10'
11'-15'
24'-30'
>30'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

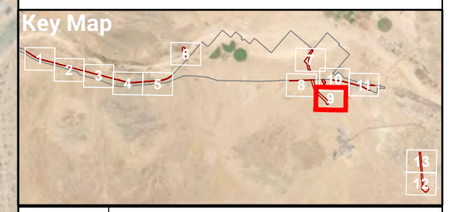


FIGURE 5A

PAGE 9 OF 13

Corps Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])
1'-3'
4'-6'

Non-Wetland Waters - Rip-rap (0.06 ac)[1] (widths[2])
3'
20'

Non-Wetland Waters - Concrete (0.12 ac)[1] (widths[2])
6'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

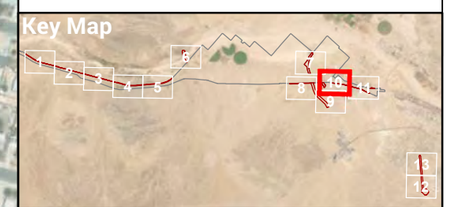


FIGURE 5A

PAGE 10 OF 13

Corps Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'
24'-30'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

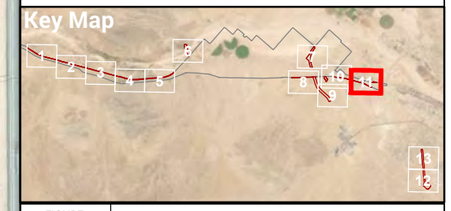


FIGURE 5A

PAGE 11 OF 13

Corps Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

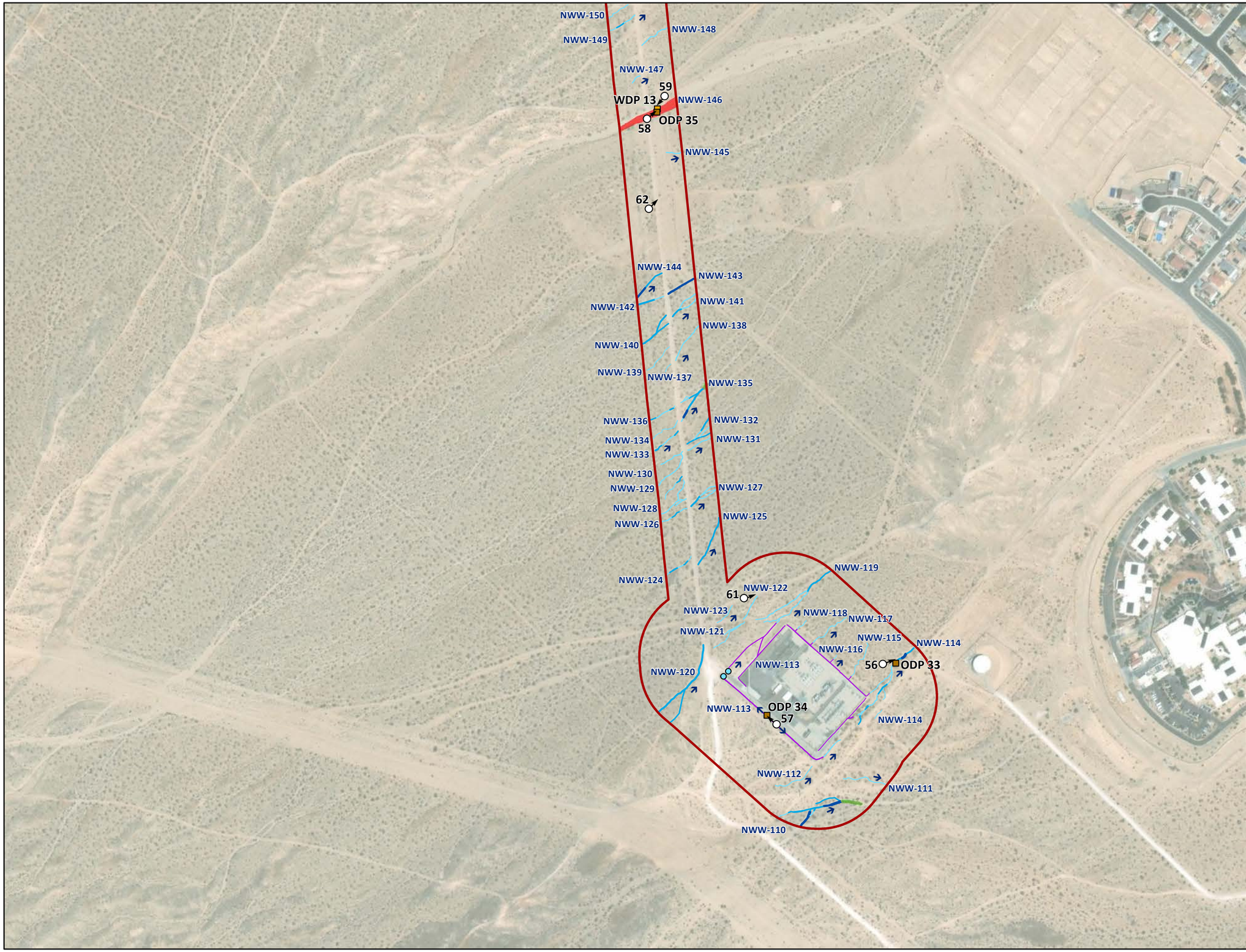
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
>30'

Non-Wetland Waters - Concrete (0.12 ac)[1] (widths[2])

1'-3'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

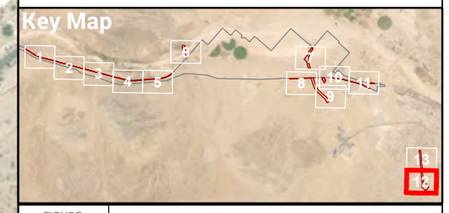


FIGURE 5A

PAGE 12 OF 13

Corps Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

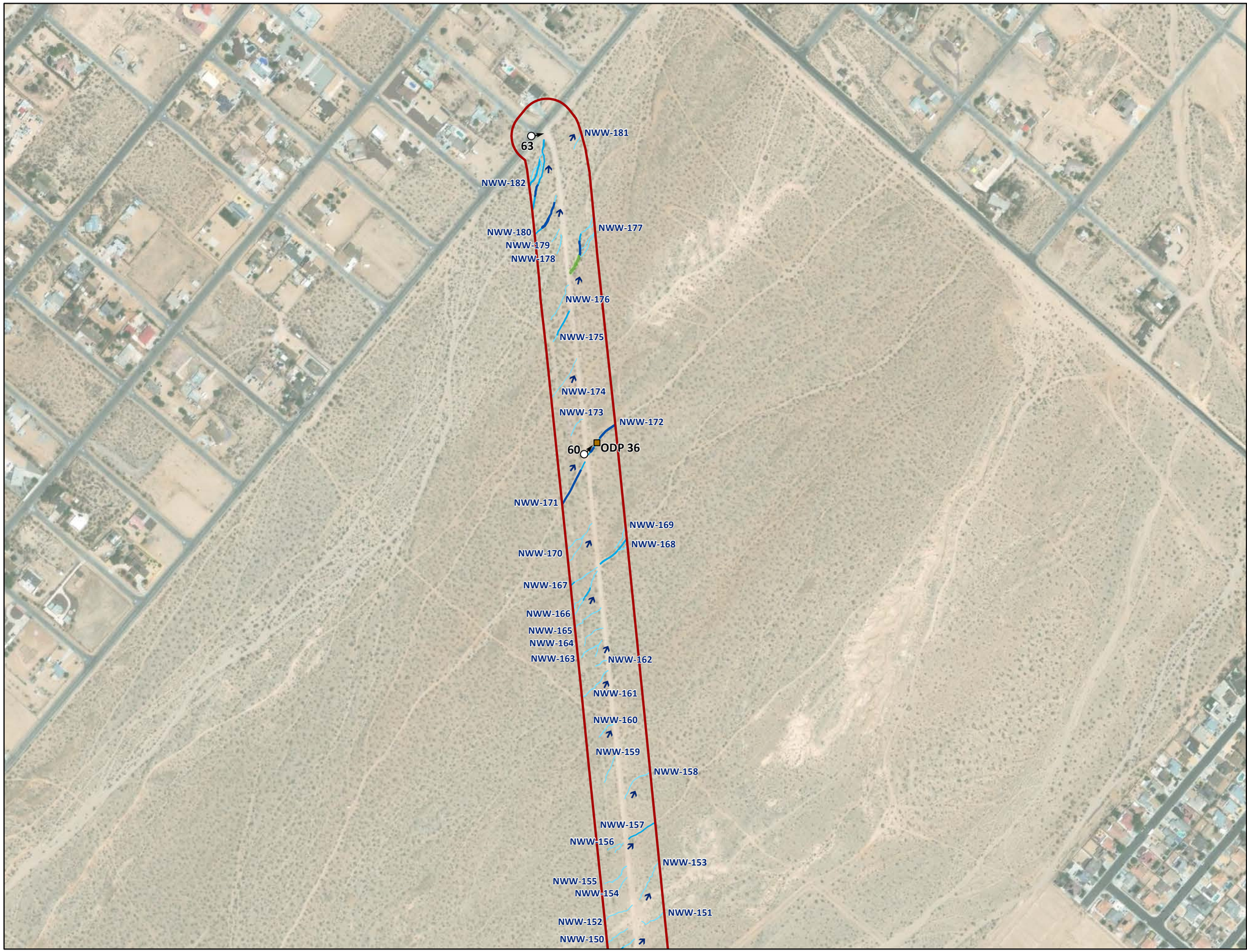
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

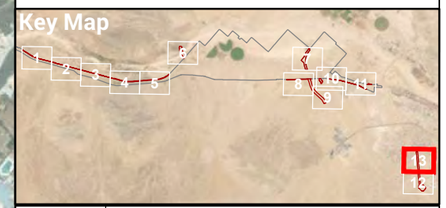


FIGURE 5A

PAGE 13 OF 13

Corps Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Culvert
Railroad Crossing
Flow Direction

RWQCB Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'
11'-15'
24'-30'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

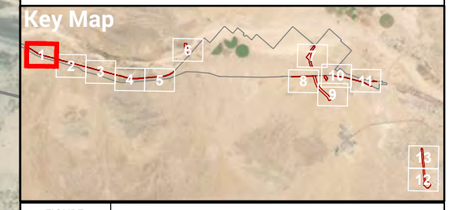


FIGURE 5B

PAGE 1 OF 13

RWQCB Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

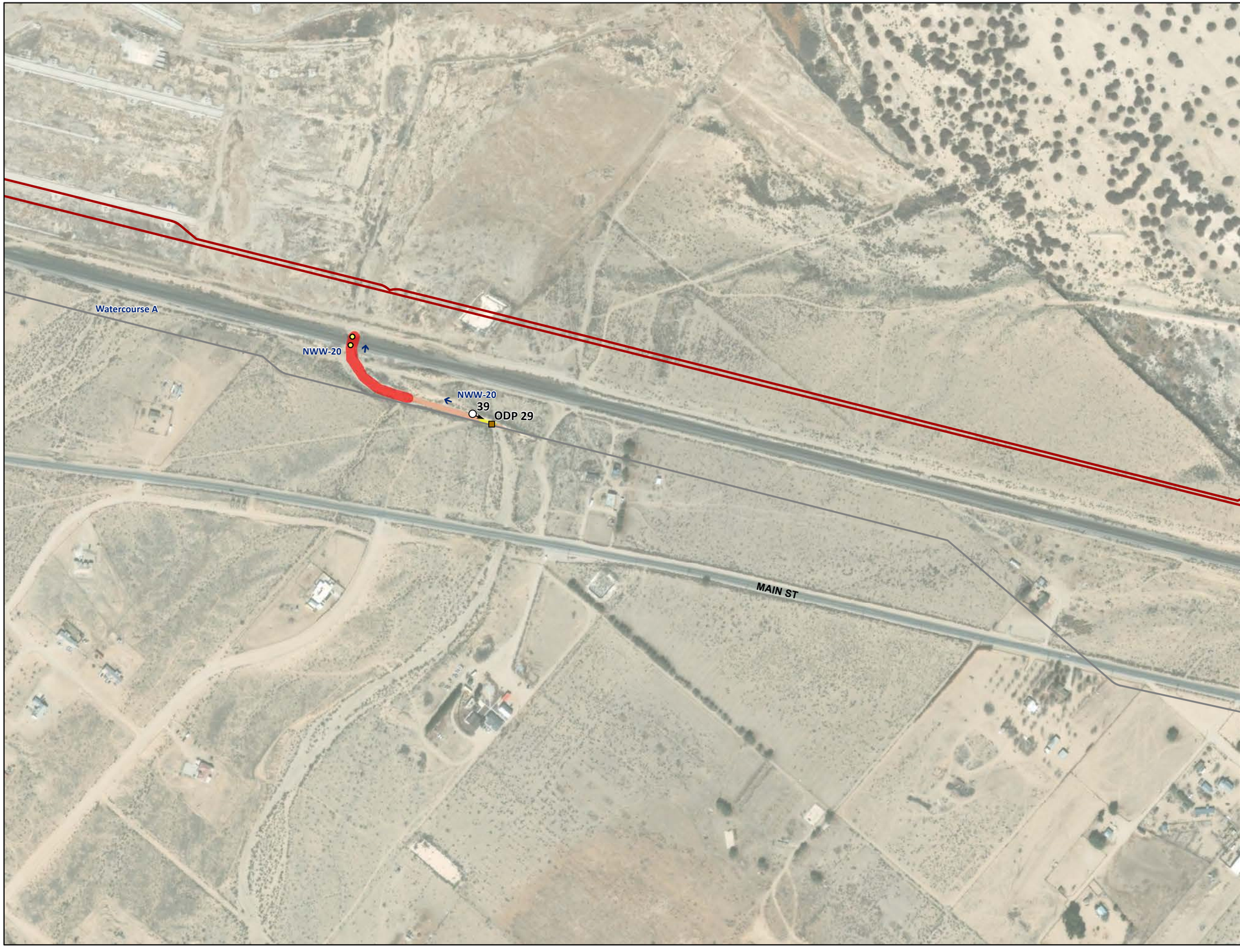
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Railroad Crossing
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

16'-21'
24'-30'
>30'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

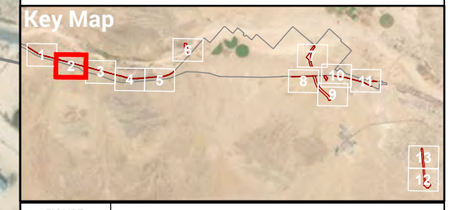


FIGURE 5B

PAGE 2 OF 13

RWQCB Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

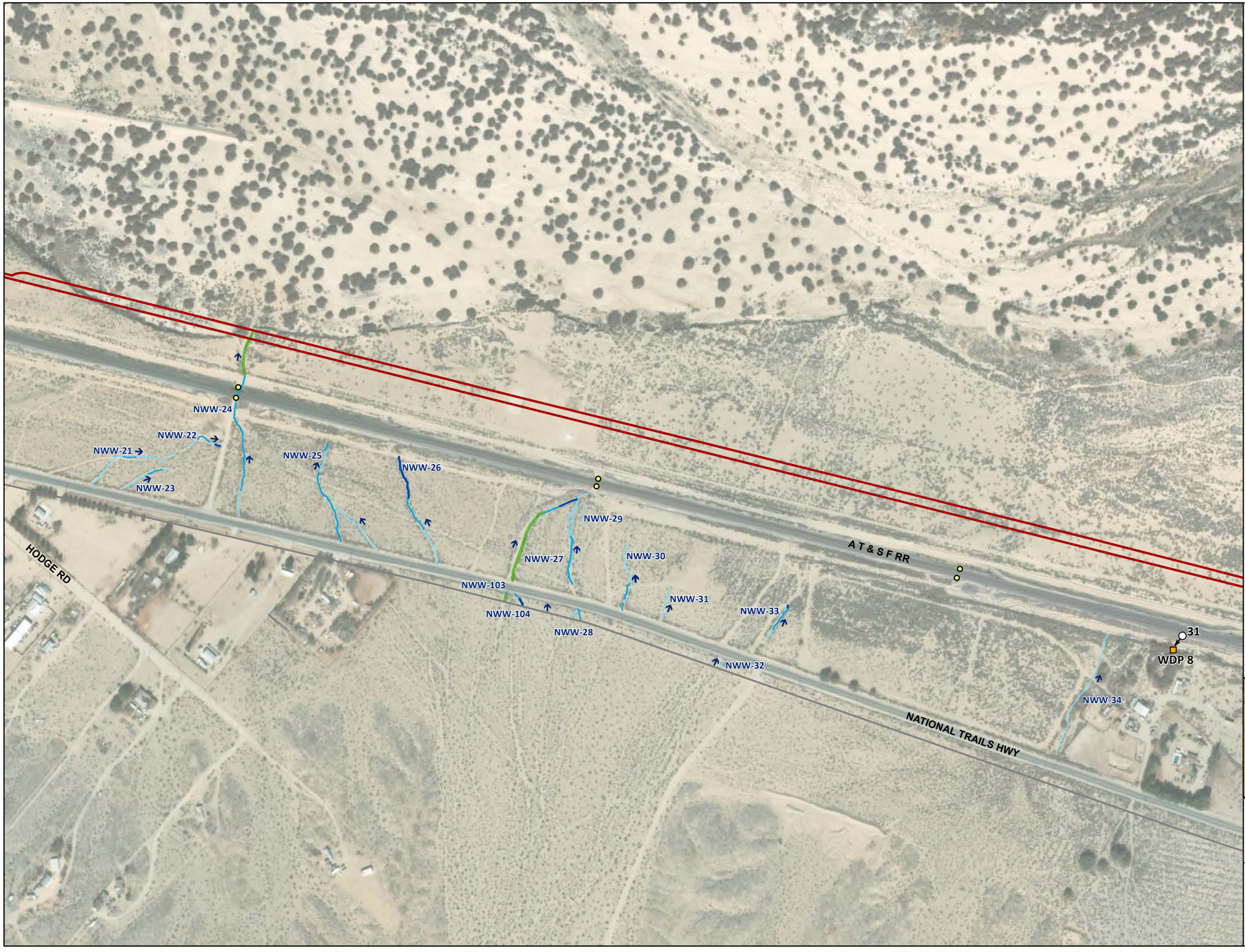
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Railroad Crossing
Wetland Data Form Point (WDP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

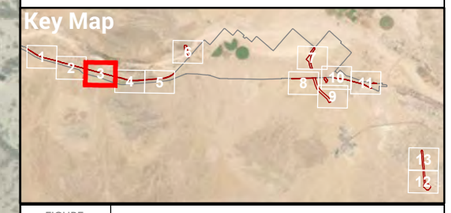


FIGURE 5B

PAGE 3 OF 13

RWQCB Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

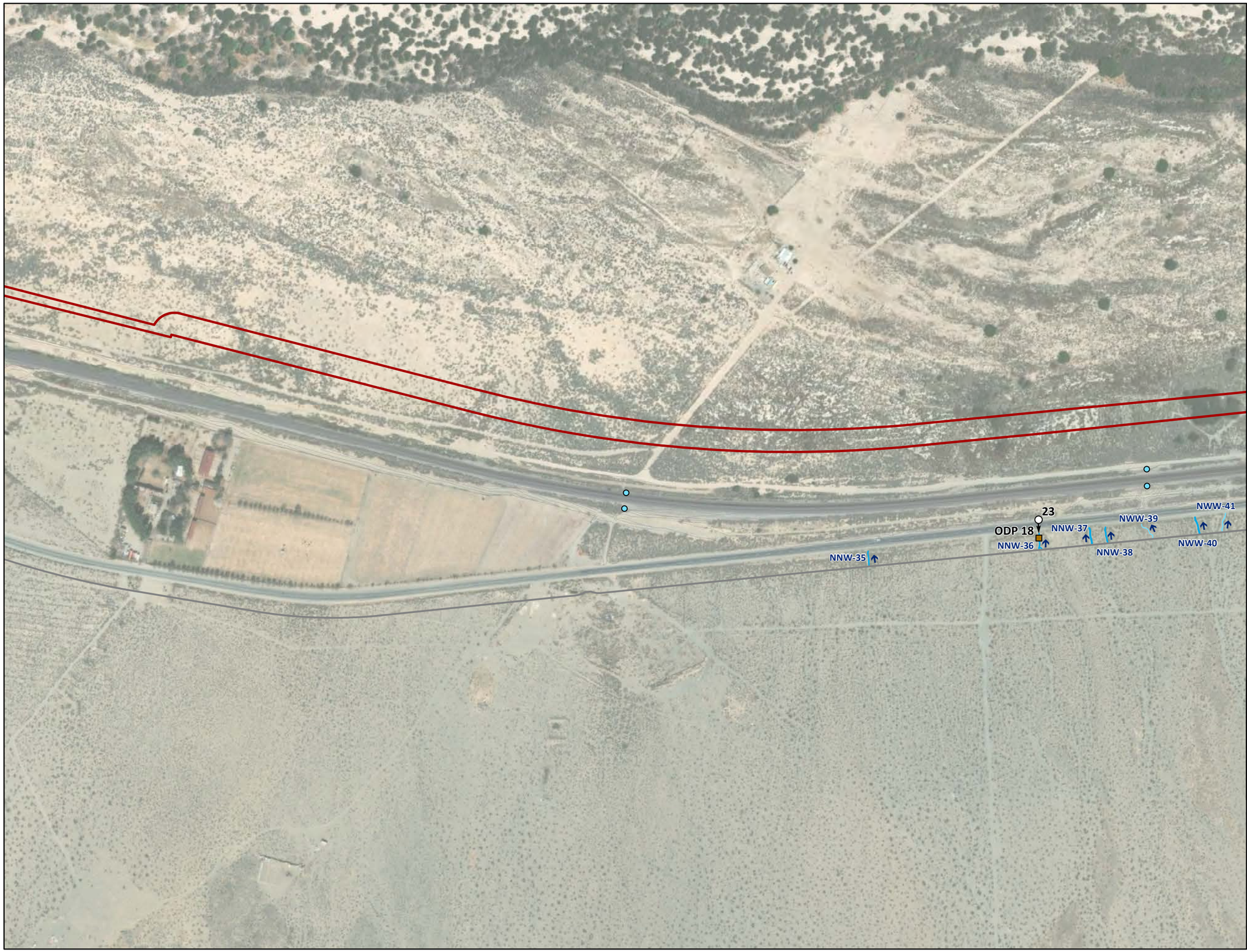
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Culvert
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5B

PAGE 4 OF 13

RWQCB Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

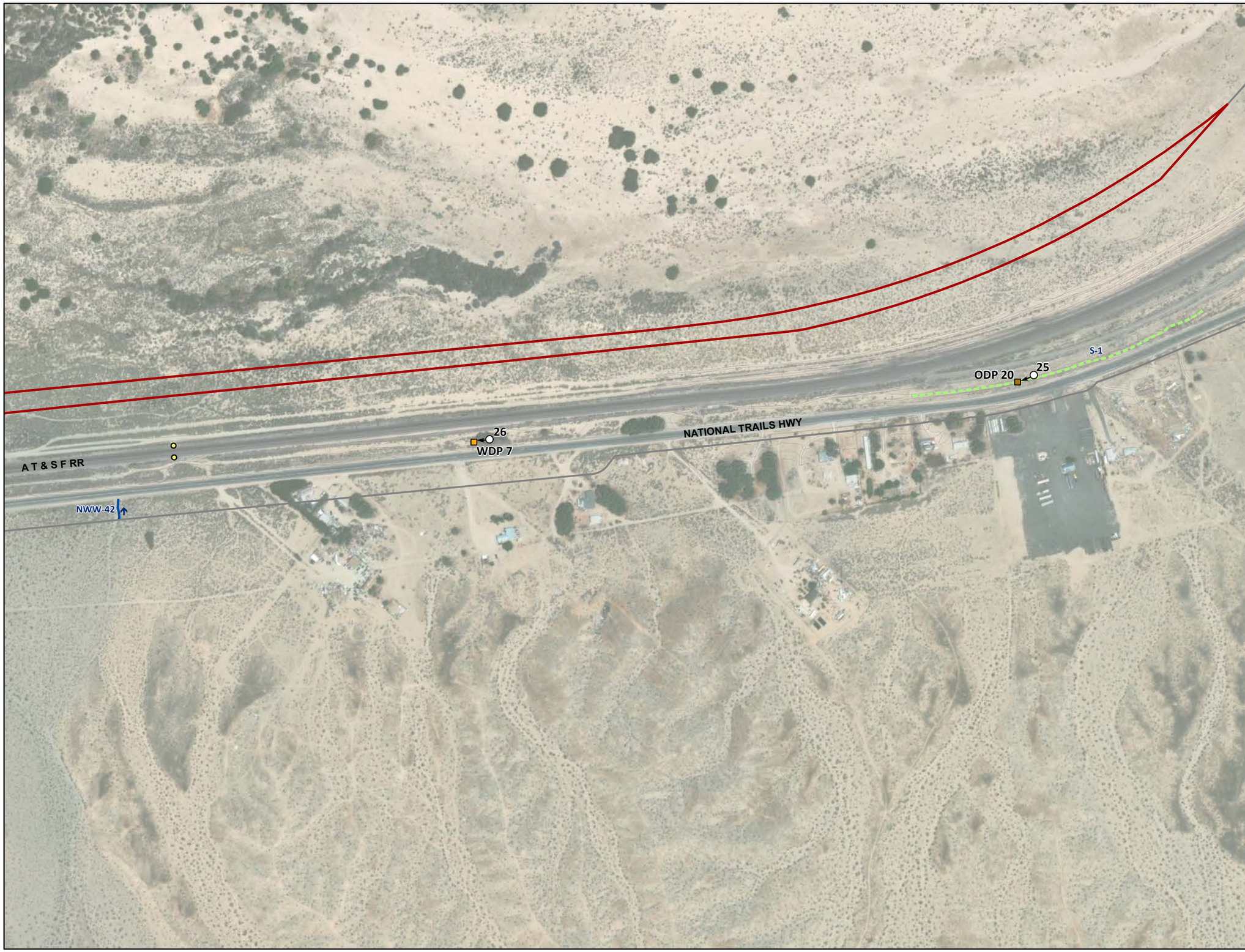
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Railroad Crossing
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

7'-10'

Other Features[3]

Swale

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking a defined OHWM, and thus anticipated to be non-jurisdictional.

Key Map

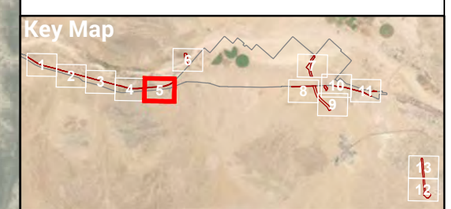


FIGURE 5B

PAGE 5 OF 13

RWQCB Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'
Mojave River Extent

Other Features[3]

Basin

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking a defined OHWM, and thus anticipated to be non-jurisdictional.

Key Map

FIGURE 5B

PAGE 6 OF 13

RWQCB Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Railroad Crossing
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
>30'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5B

PAGE 7 OF 13

RWQCB Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

N

Date: 8/3/2023
Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'
24'-30'
>30'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

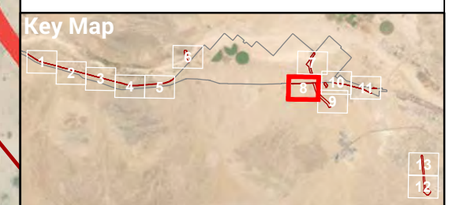


FIGURE 5B

PAGE 8 OF 13

RWQCB Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

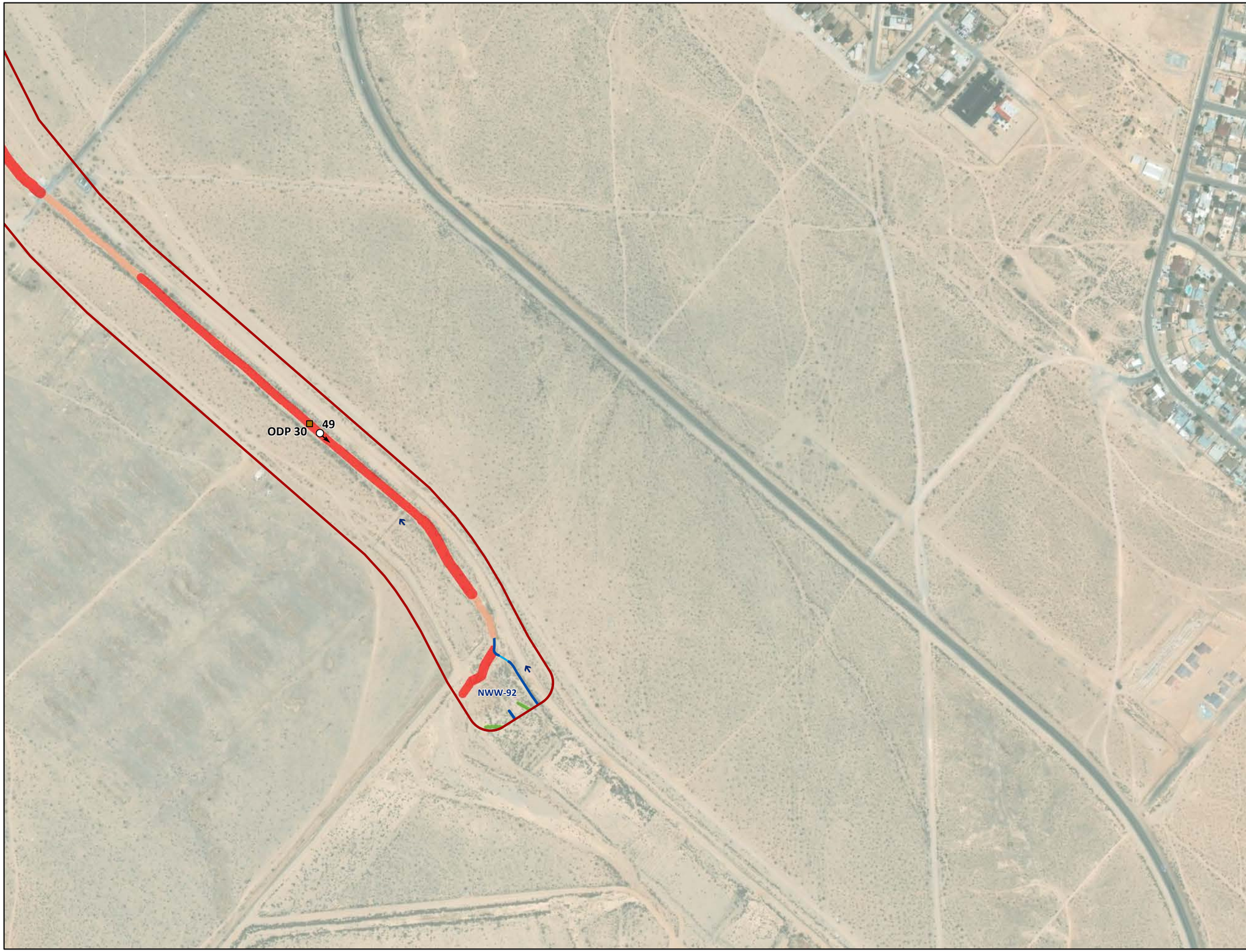
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

4'-6'
7'-10'
11'-15'
24'-30'
>30'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

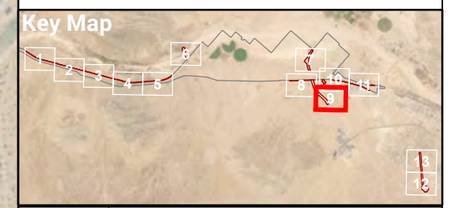


FIGURE 5B

PAGE 9 OF 13

RWQCB Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])
1'-3'
4'-6'

Non-Wetland Waters - Rip-rap (0.06 ac)[1] (widths[2])
3'
20'

Non-Wetland Waters - Concrete (0.12 ac)[1] (widths[2])
6'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5B

PAGE 10 OF 13

RWQCB Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/3/2023
Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'
24'-30'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

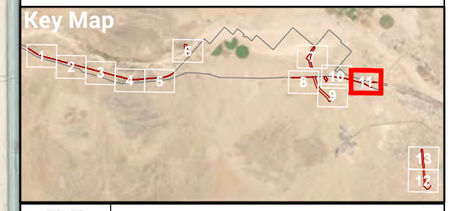


FIGURE 5B

PAGE 11 OF 13

RWQCB Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

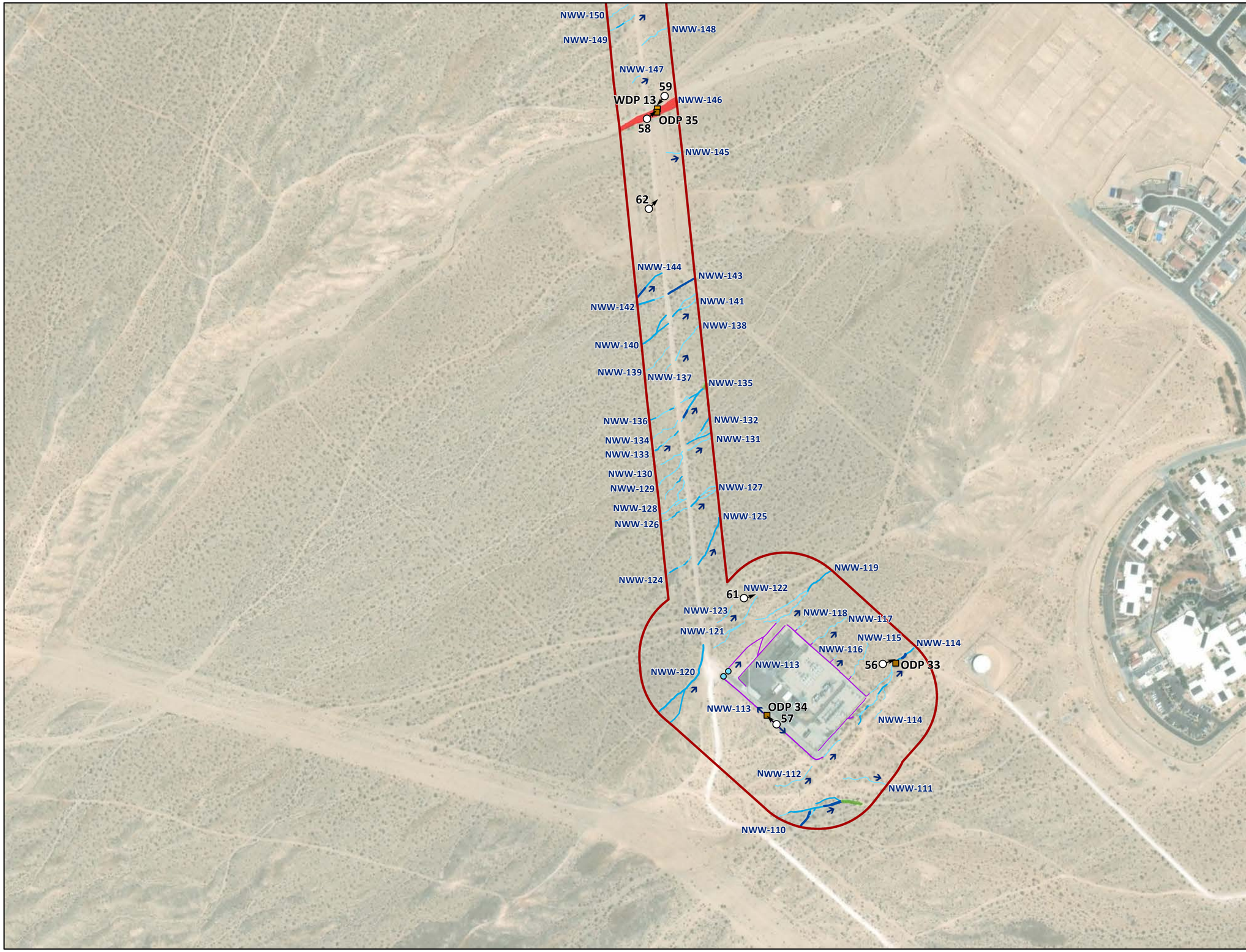
ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
>30'

Non-Wetland Waters - Concrete (0.12 ac)[1] (widths[2])

1'-3'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

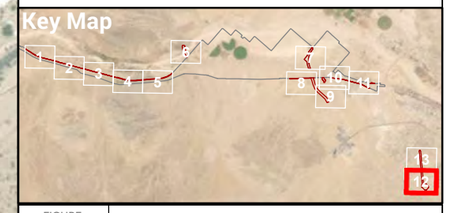


FIGURE 5B

PAGE 12 OF 13

RWQCB Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

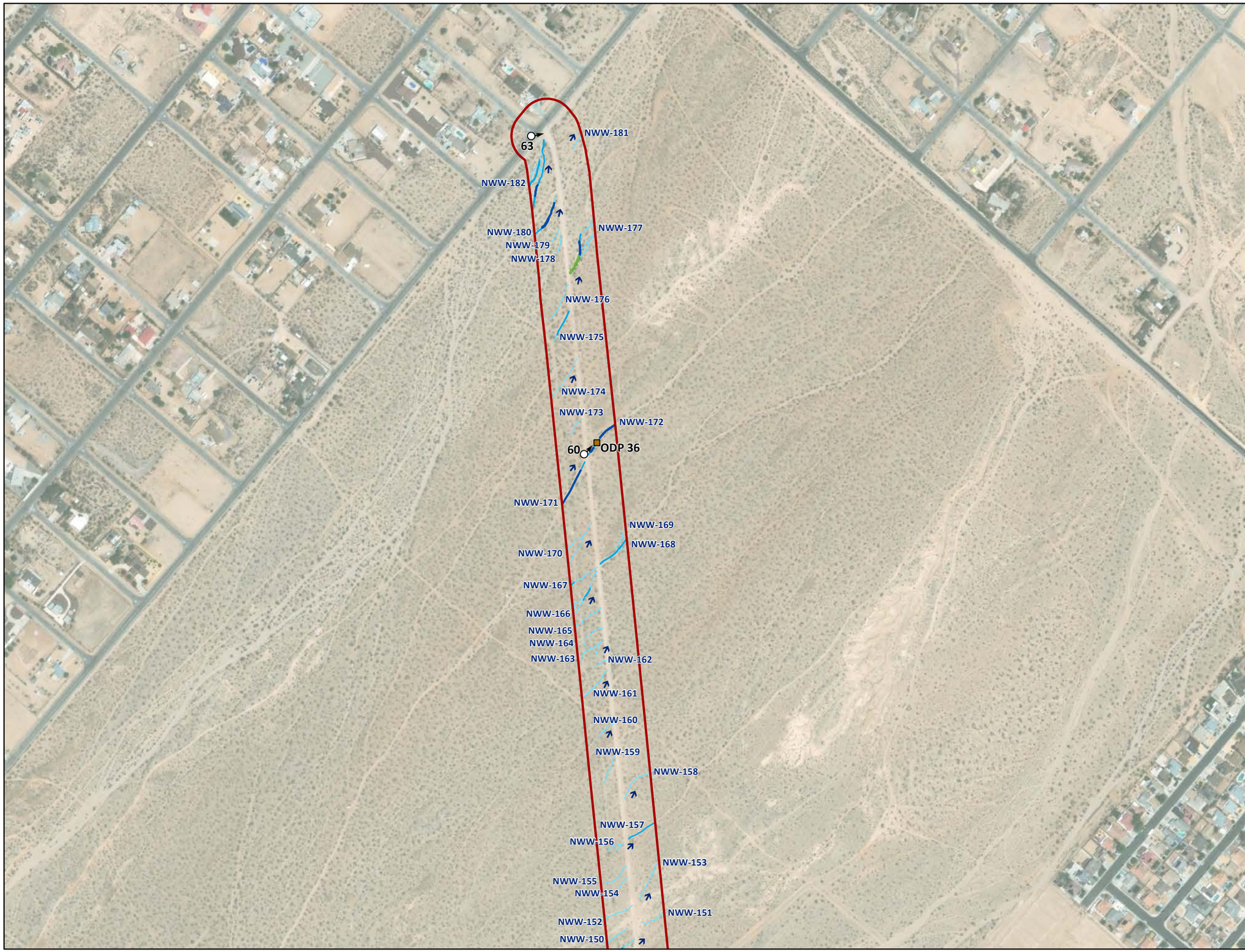
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (136.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

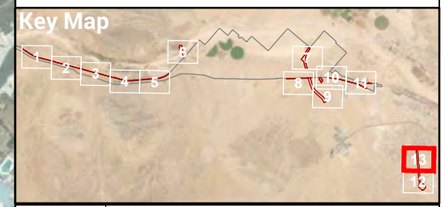


FIGURE 5B

PAGE 13 OF 13

RWQCB Aquatic Resources

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Culvert
Railroad Crossing
Flow Direction

CDFW Streambed and Watercourse

Unvegetated Streambed (35.91 ac)[1] (widths[2])

1'-3'
4'-6'
16'-21'
22'-30'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map



FIGURE 5C

PAGE 1 OF 13

CDFW Streambed and Watercourse

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

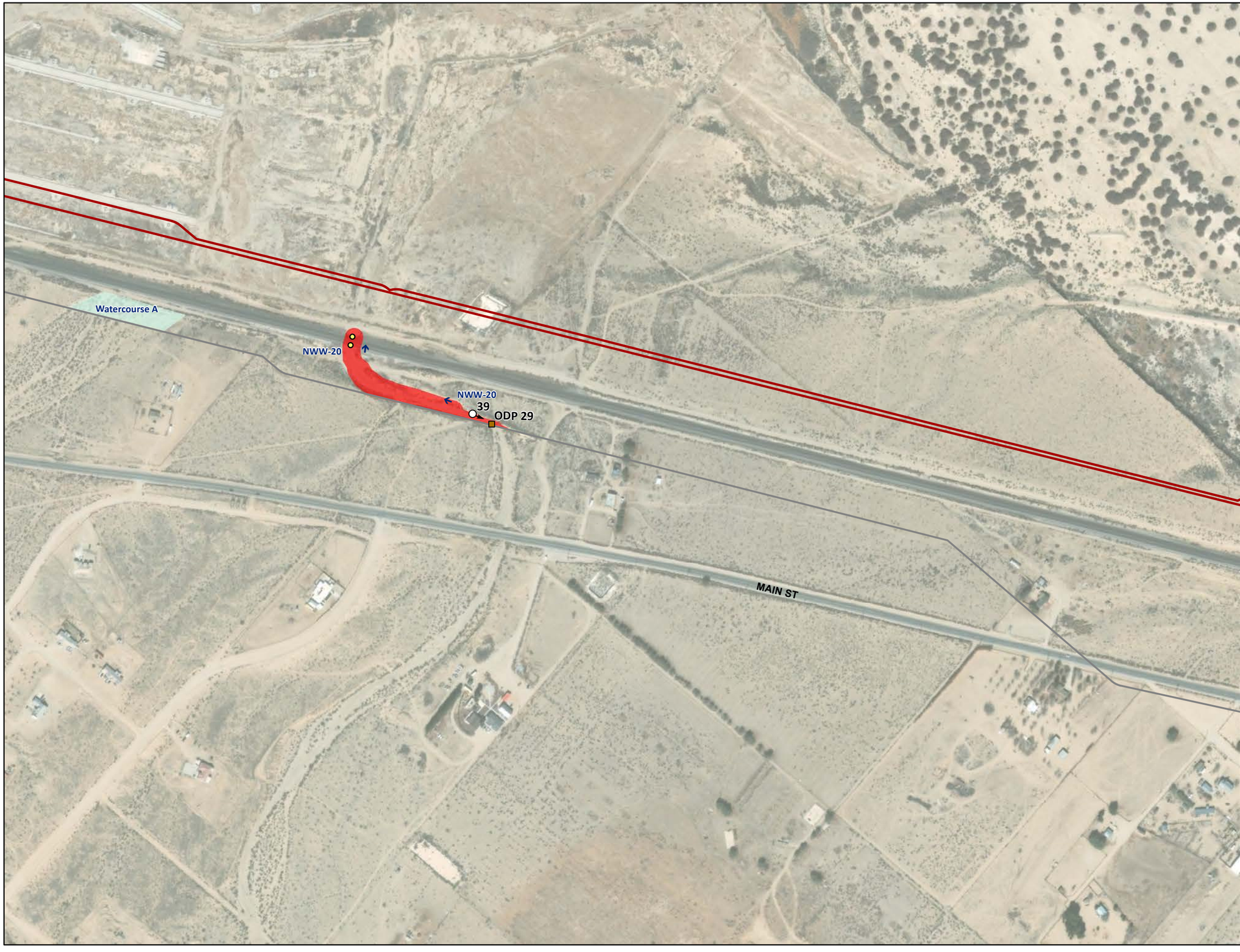
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Railroad Crossing
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (35.91 ac)[1] (widths[2])

>30'

Watercourse (55.18 ac)[1]

Watercourse

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map



FIGURE 5C

PAGE 2 OF 13

CDFW Streambed and Watercourse

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

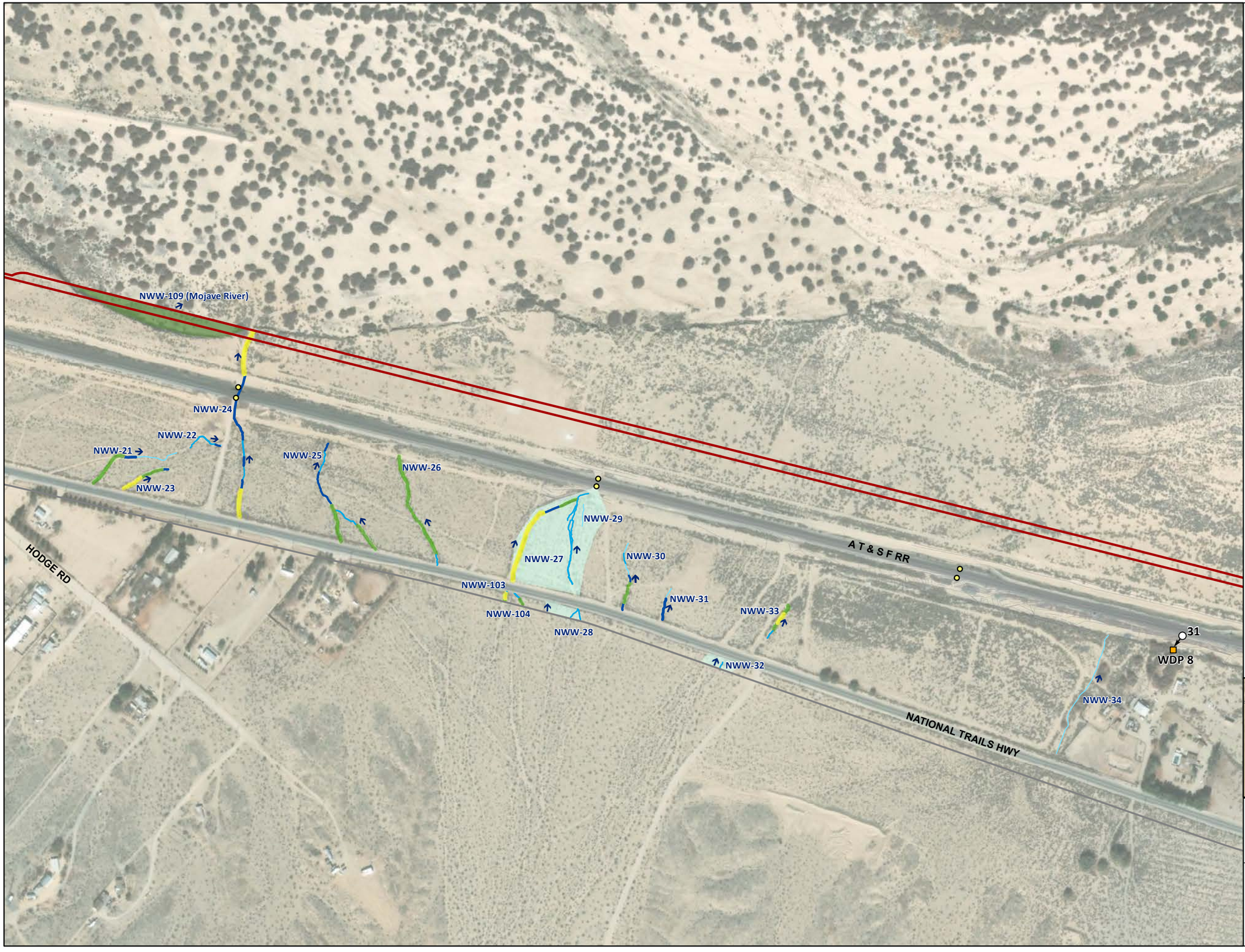
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Railroad Crossing
Wetland Data Form Point (WDP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (35.91 ac)[1] (widths[2])
1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

Mojave River Extent (607.04 ac)[1]
Vegetated Streambed

Watercourse (55.18 ac)[1]
Watercourse

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

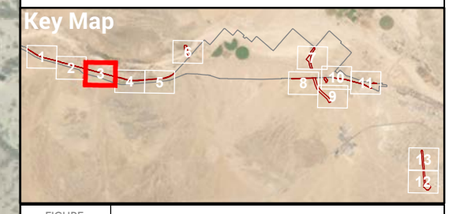


FIGURE 5C
PAGE 3 OF 13

CDFW Streambed and Watercourse

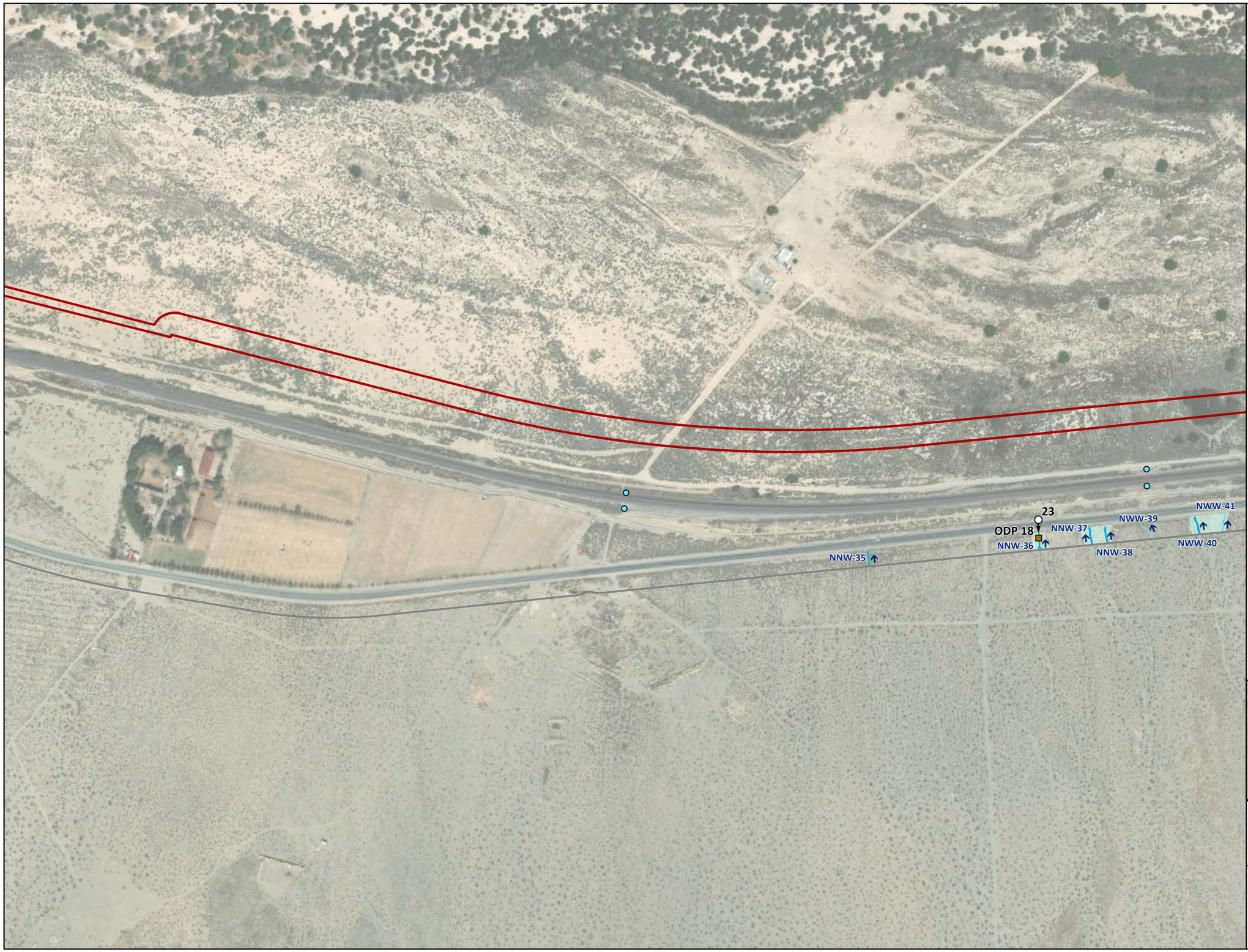
BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

N

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Culvert
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (35.91 ac)[1] (widths[2])

1'-3'
4'-6'

Watercourse (55.18 ac)[1]

Watercourse

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5C

PAGE 4 OF 13

CDFW Streambed and Watercourse

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

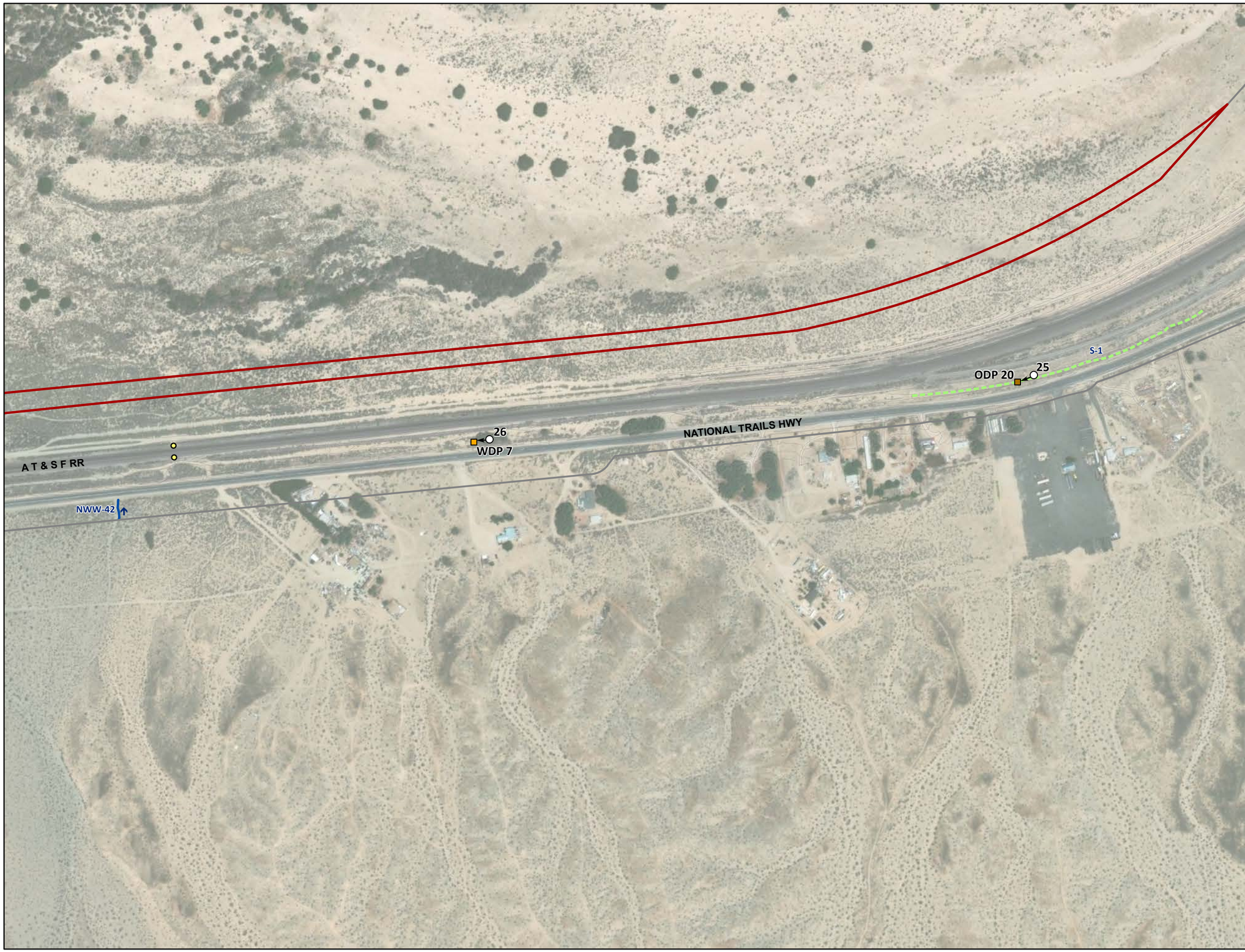
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Railroad Crossing
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (35.91 ac)[1] (widths[2])

7'-10'

Other Features[3]

Swale

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking a defined lake or streambed, and thus anticipated to be non-jurisdictional.

Key Map

FIGURE 5C

PAGE 5 OF 13

CDFW Streambed and Watercourse

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (35.91 ac)[1] (widths[2])
1'-3'
4'-6'

Mojave River Extent (607.04 ac)[1]
Vegetated Streambed
Unvegetated Streambed

Watercourse (55.18 ac)[1]
Watercourse

Other Features[3]

Basin

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking a defined lake or streambed, and thus anticipated to be non-jurisdictional.

Key Map

FIGURE 5C
PAGE 6 OF 13

CDFW Streambed and Watercourse

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Railroad Crossing
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (35.91 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
>30'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

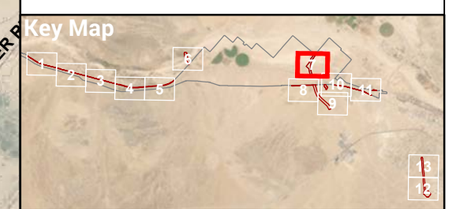


FIGURE 5C

PAGE 7 OF 13

CDFW Streambed and Watercourse

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

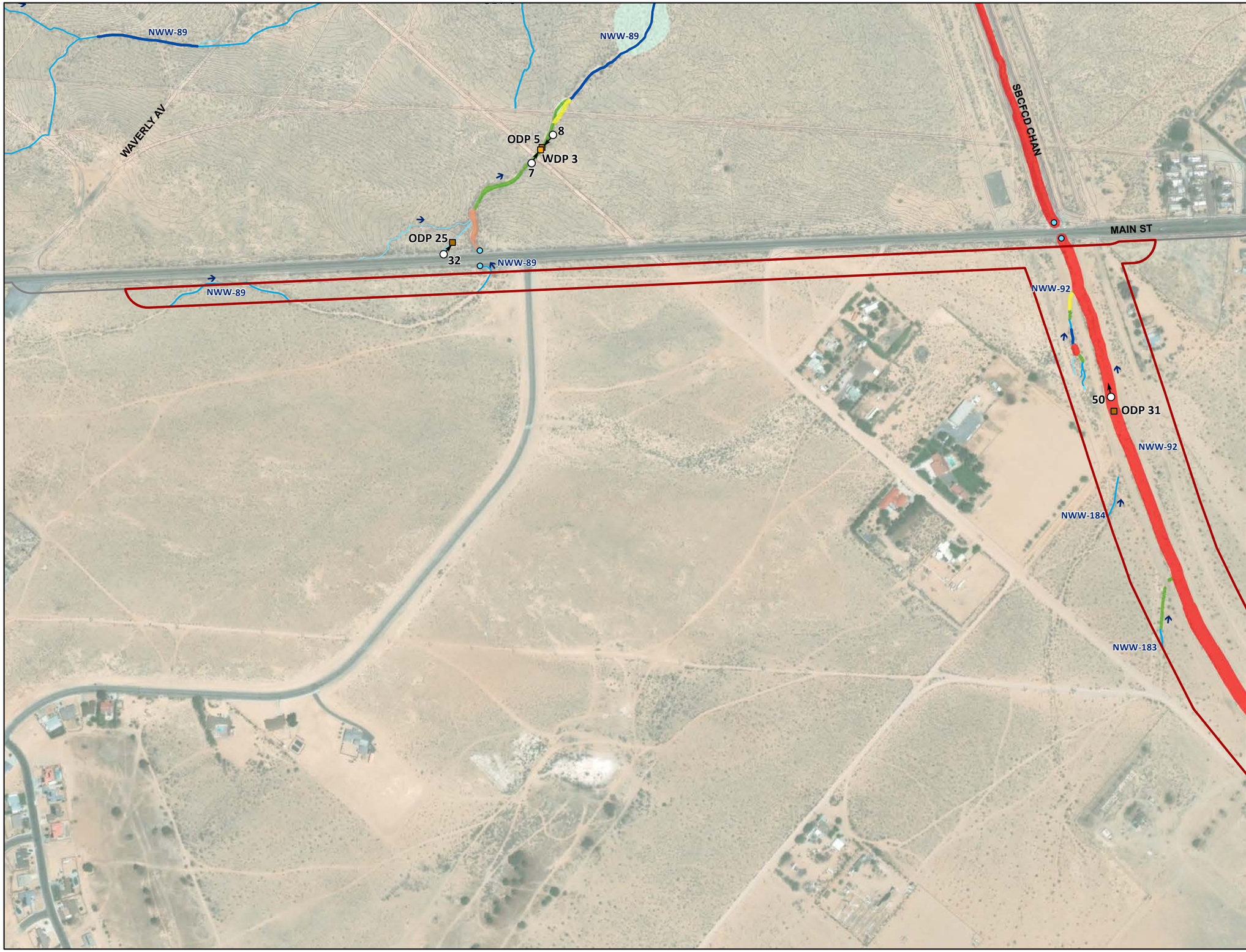
ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (35.91 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'
22'-30'
>30'

Watercourse (55.18 ac)[1]

Watercourse

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

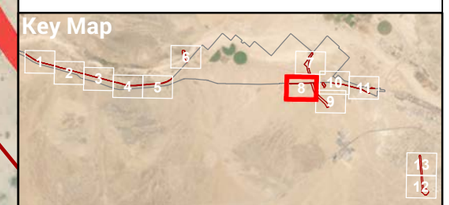


FIGURE 5C

PAGE 8 OF 13

CDFW Streambed and Watercourse

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

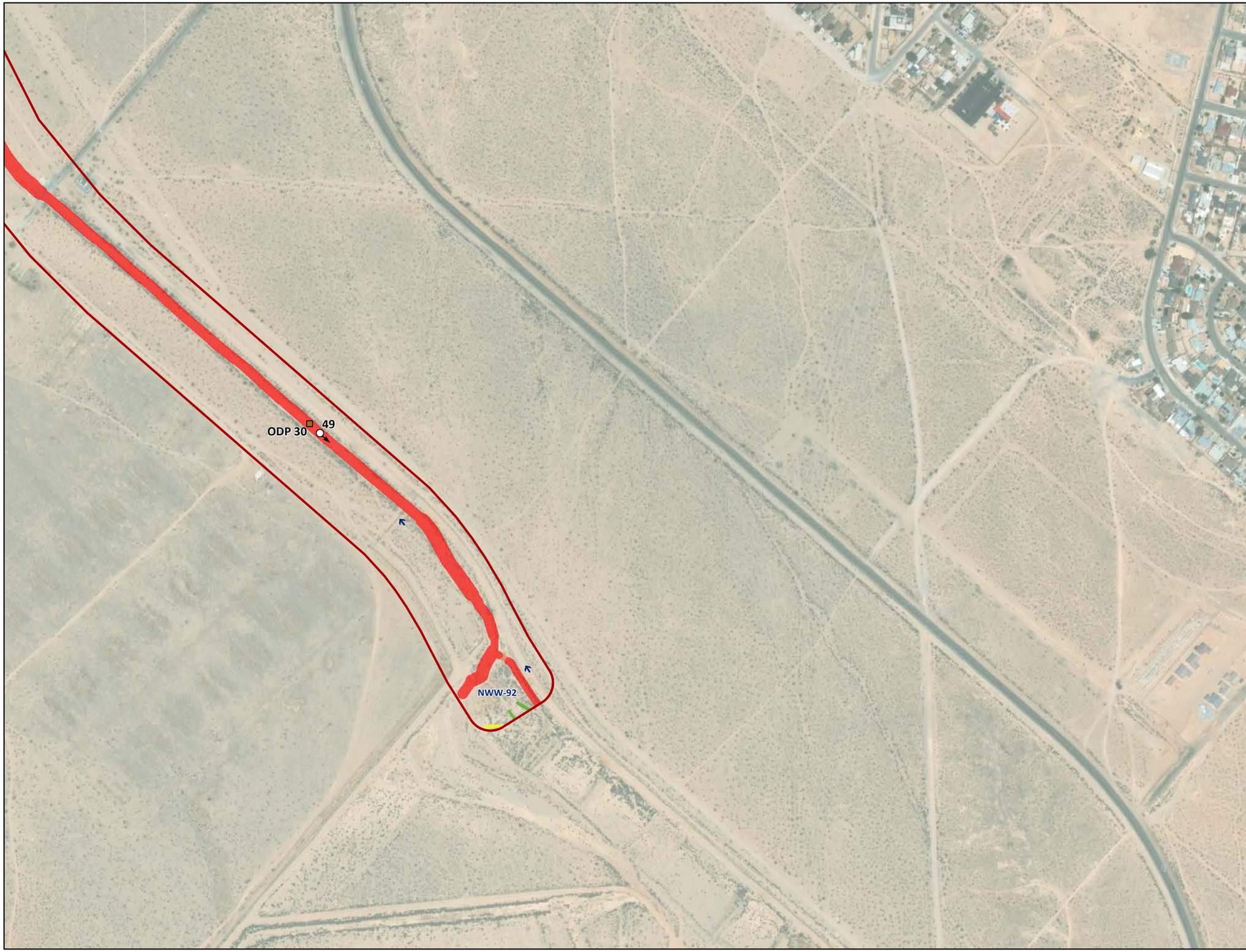
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (35.91 ac)[1] (widths[2])

11'-15'
16'-21'
22'-30'
>30'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

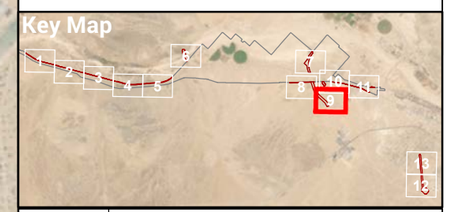


FIGURE 5C

PAGE 9 OF 13

CDFW Streambed and Watercourse

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Vegetated Streambed (0.28 ac)[1] (widths[2])
4'-6'

Unvegetated Streambed (35.91 ac)[1] (widths[2])
1'-3'
4'-6'
7'-10'

Unvegetated Streambed - Rip-Rap (0.06 ac)[1] (widths[2])
3'
20'

Unvegetated Streambed - Concrete (0.31 ac)[1] (widths[2])
10'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5C
PAGE 10 OF 13

CDFW Streambed and Watercourse

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri

BIRCH RD
JASPER RD
CEDAR RD
AT & SF RR
US 66 HWY
MAIN ST
PETTIT RD
NWW-98
NWW-97
ODP 1
1
NWW-99
NWW-100
NWW-100
NWW-101
NWW-101
NWW-102
WDP 11
40

2023 ARDR Addendum Review Area (223.7 ac)
2022 ARDR Review Area (5,104.5 ac)
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Vegetated Streambed (0.28 ac)[1] (widths[2])
- 4'-6'
- 7'-10'
- 11'-15'

Unvegetated Streambed (35.91 ac)[1] (widths[2])
- 1'-3'
- 4'-6'
- 7'-10'
- 11'-15'
- 16'-21'
- 22'-30'
- >30'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5C

PAGE 11 OF 13

CDFW Streambed and Watercourse

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

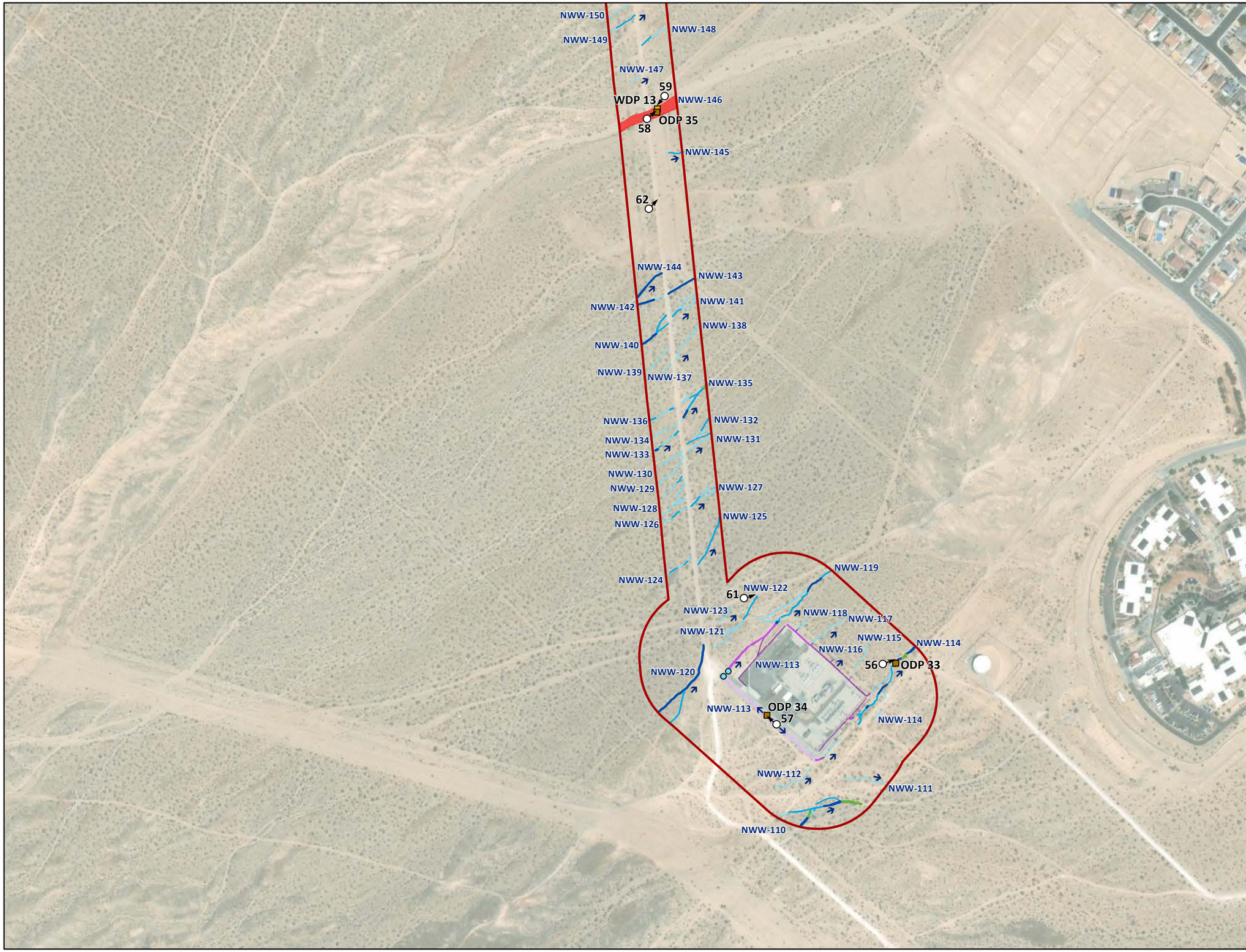
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (35.91 ac)[1] (widths[2])
1'-3'
4'-6'
7'-10'
11'-15'
>30'

Unvegetated Streambed - Concrete (0.31 ac)[1] (widths[2])
1'-3'
4'-6'
11'-15'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5C
PAGE 12 OF 13

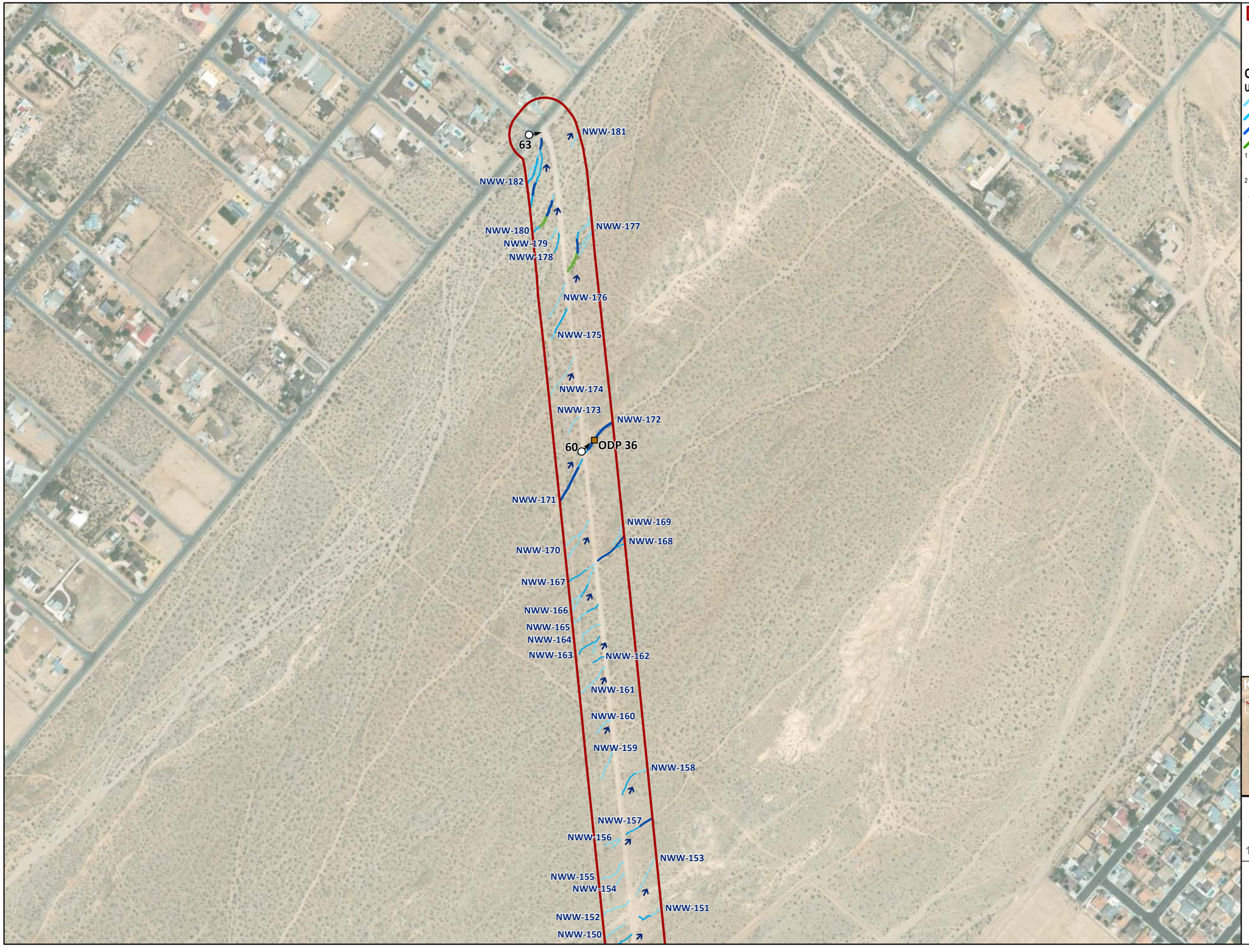
CDFW Streambed and Watercourse

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 ac)

OHWM Datasheet Point (ODP)

Flow Direction

Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (35.91 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

[1] Represents total acreage for 2022 ARDR Review Area and 2023 ARDR Addendum Review Area

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map



FIGURE 5C

PAGE 13 OF 13

CDFW Streambed and Watercourse

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

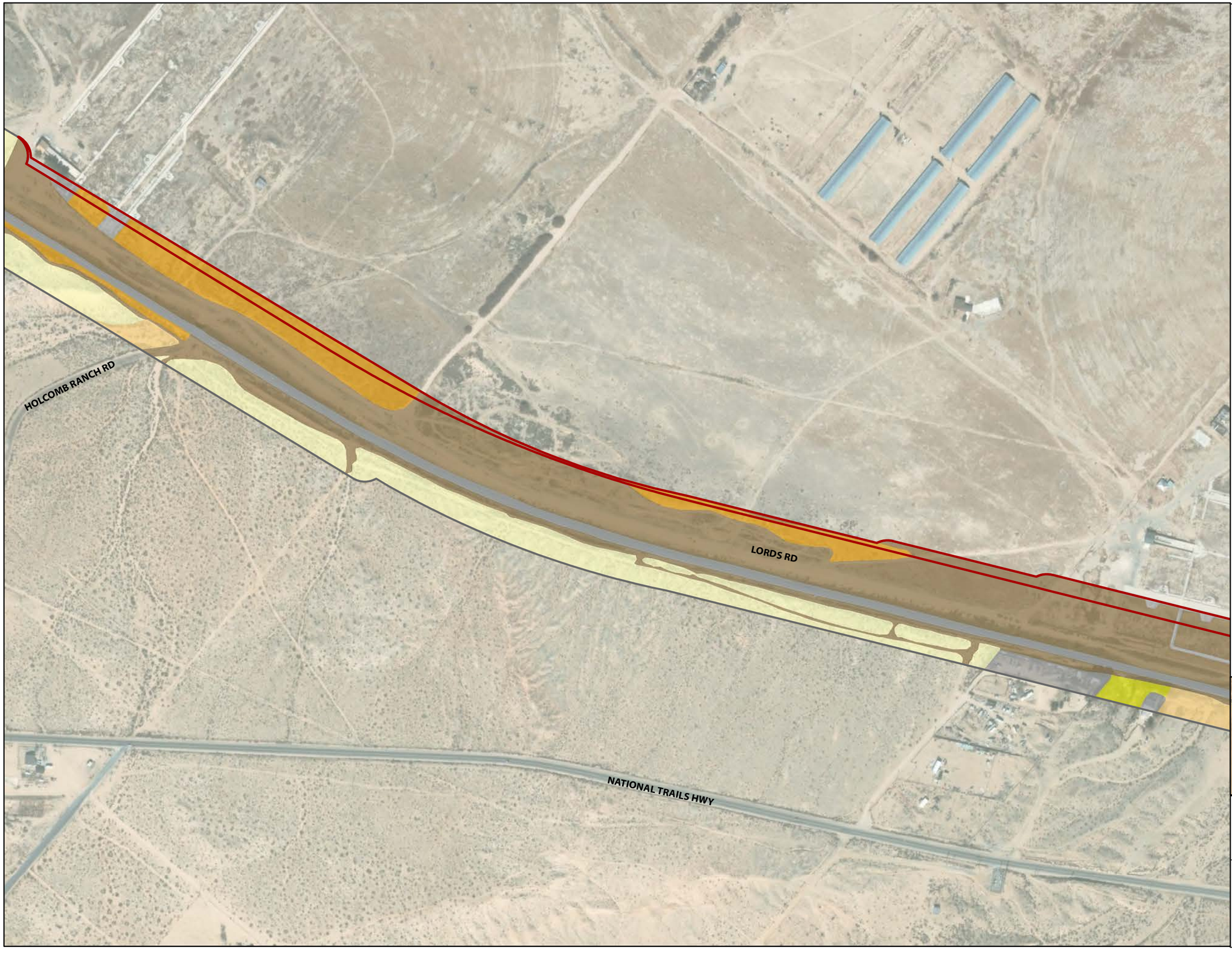
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 Ac)
2022 ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat

Key Map

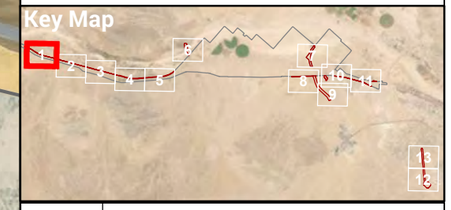


FIGURE 6

PAGE 1 OF 13

Vegetation

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

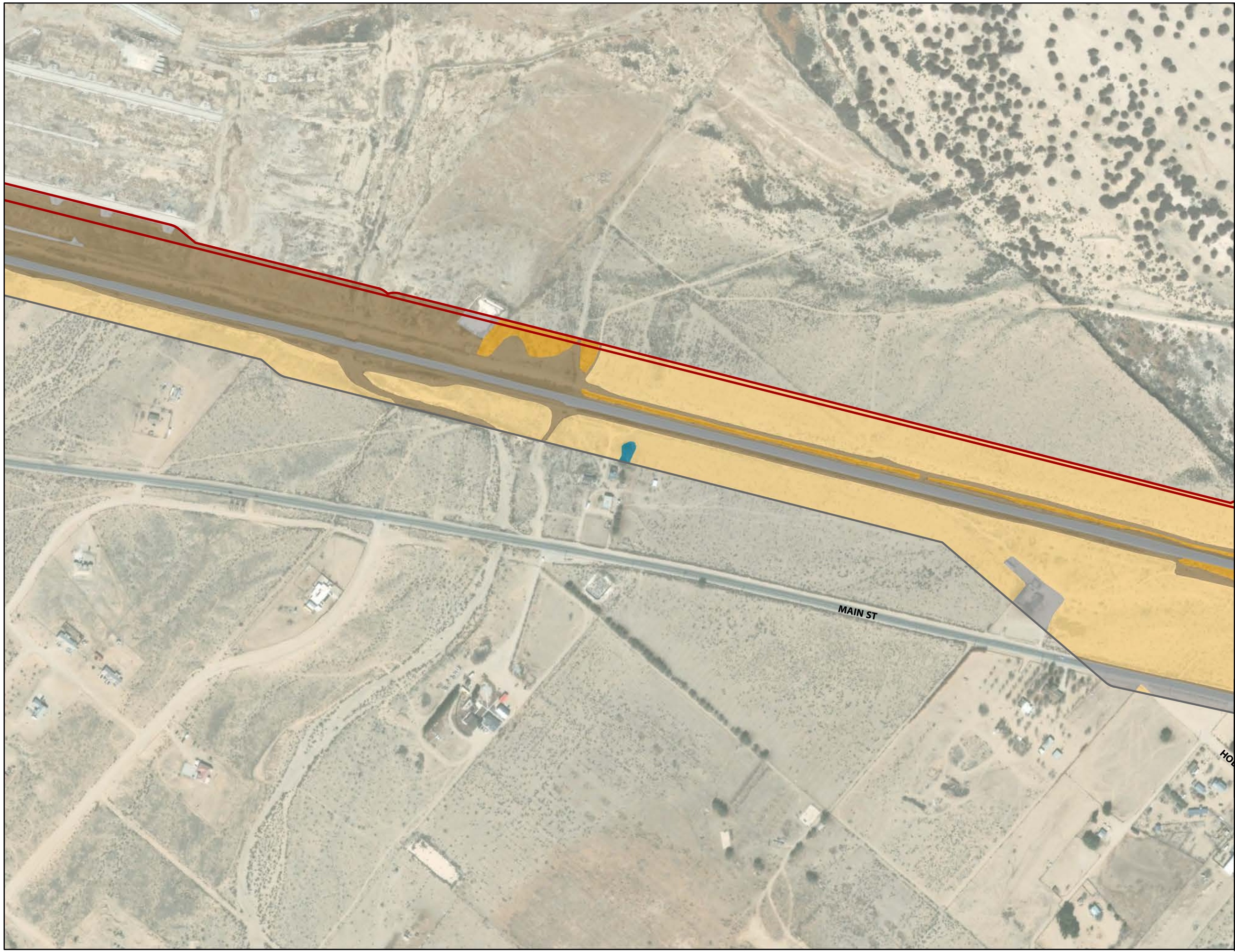
ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 Ac)
2022 ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Developed
- Disturbed Habitat
- Tamarisk Thickets

Key Map

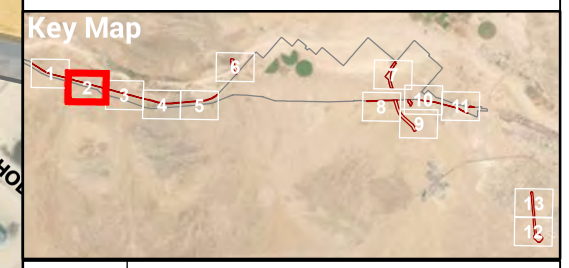


FIGURE 6

PAGE 2 OF 13

Vegetation

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

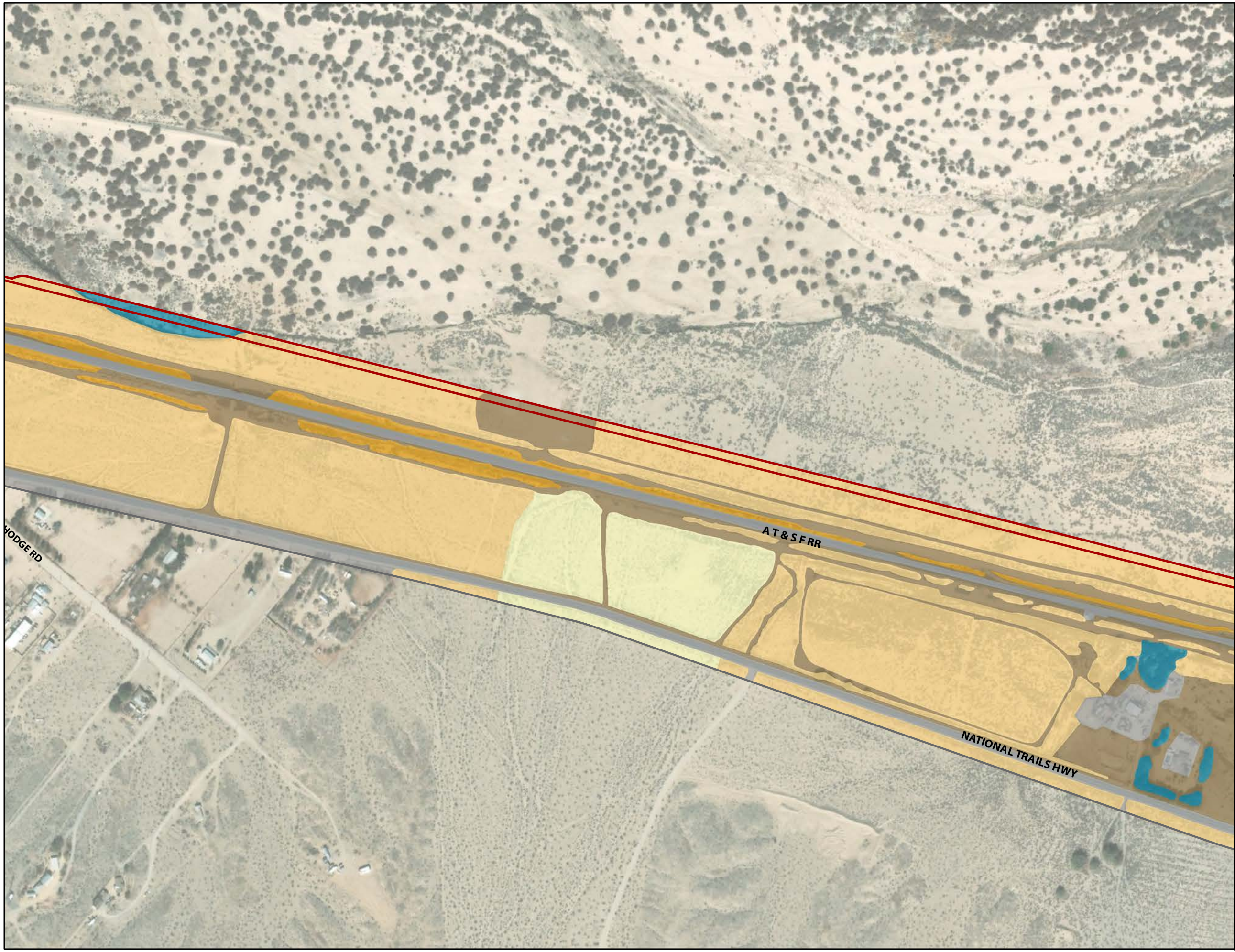
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 Ac)
2022 ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Developed
- Disturbed Habitat
- Tamarisk Thickets

Key Map

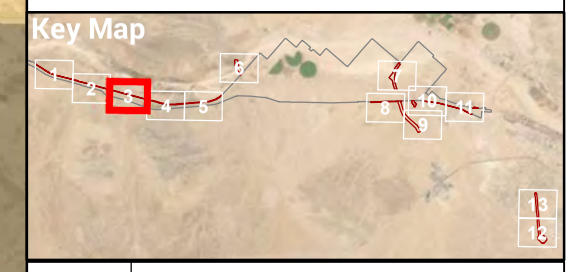


FIGURE 6

PAGE 3 OF 13

Vegetation

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

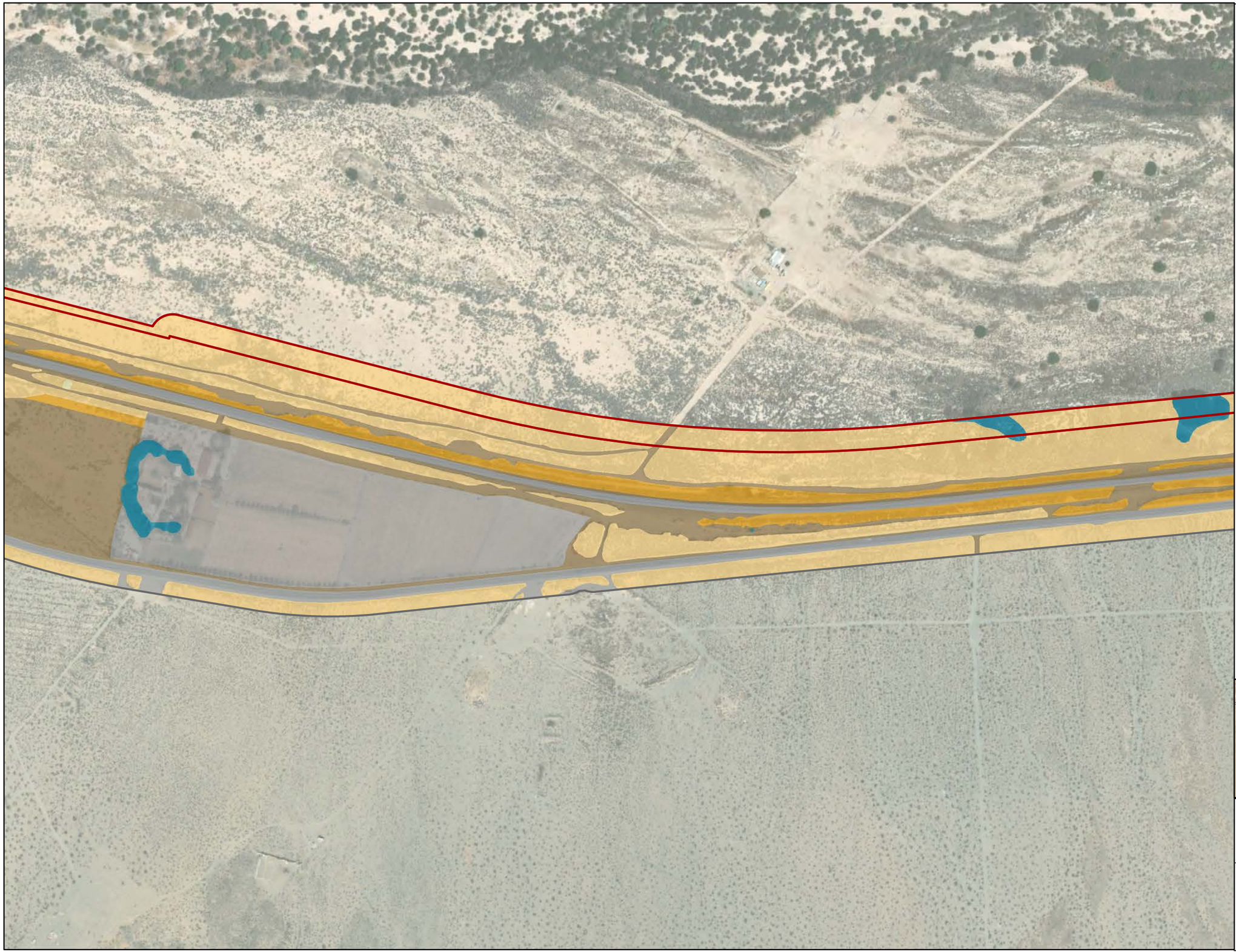
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 Ac)
2022 ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Developed
- Disturbed Habitat
- Tamarisk Thickets

Key Map

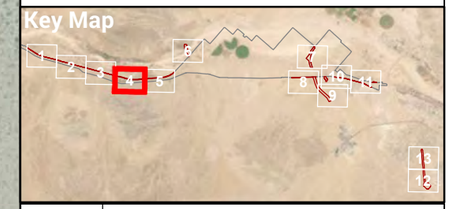


FIGURE 6

PAGE 4 OF 13

Vegetation

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023
Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 Ac)
2022 ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Developed
- Disturbed Habitat
- Tamarisk Thickets

Key Map

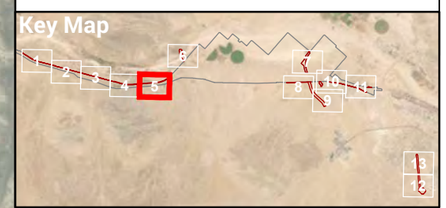


FIGURE 6

PAGE 5 OF 13

Vegetation

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

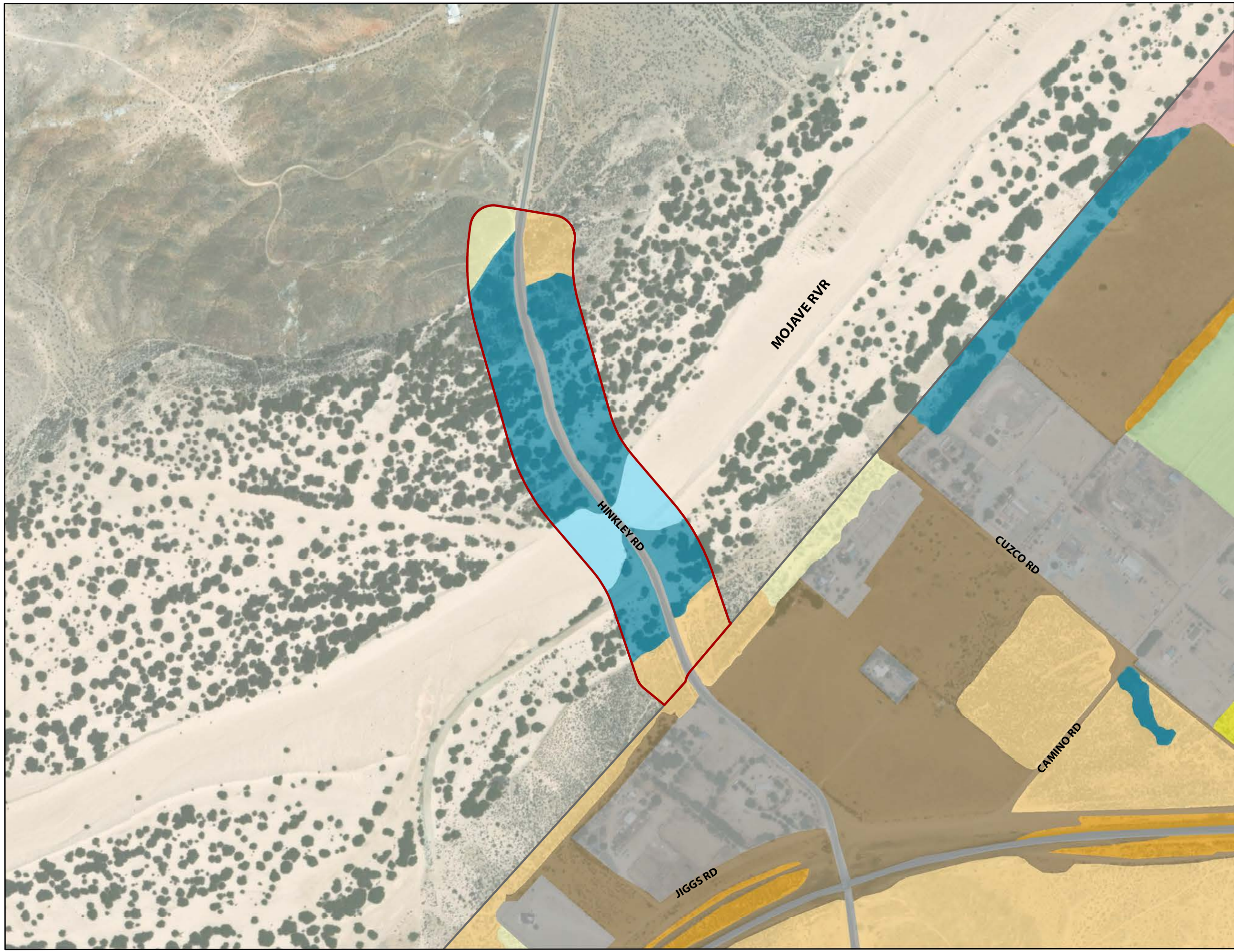
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 Ac)
2022 ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes
- Agriculture
- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Tamarisk Thickets
- Unvegetated Channel

Key Map

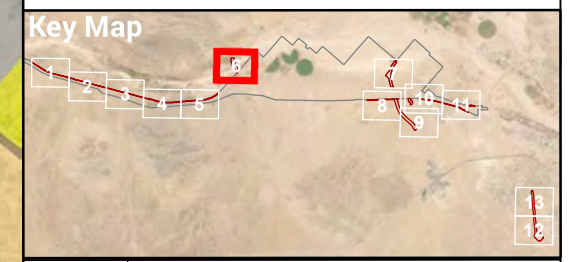


FIGURE 6

PAGE 6 OF 13

Vegetation

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

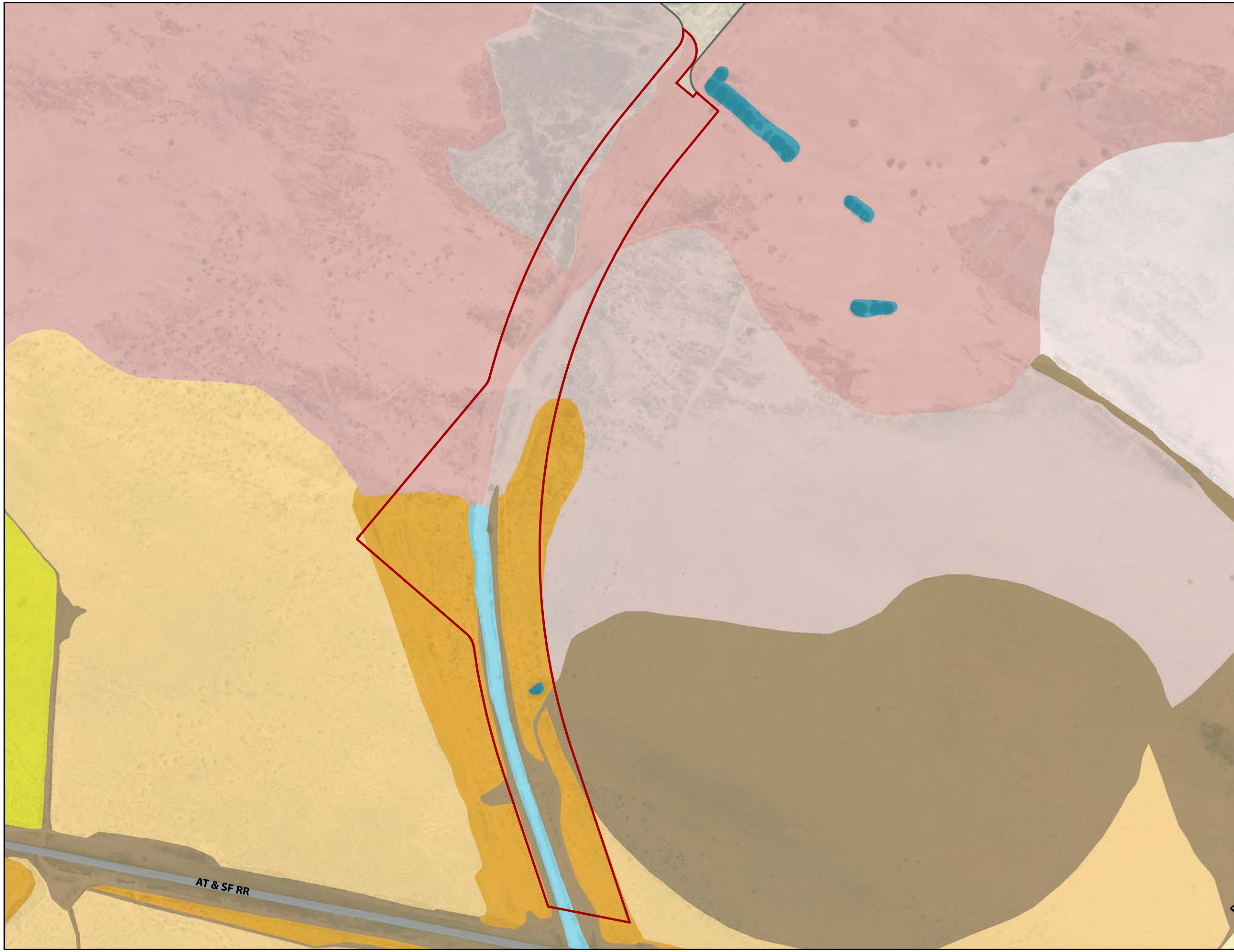
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 Ac)
2022 ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes
- Active Desert Dunes - Disturbed
- Stabilized/Partially Stabilized Desert Dunes
- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Tamarisk Thickets
- Unvegetated Channel

Key Map

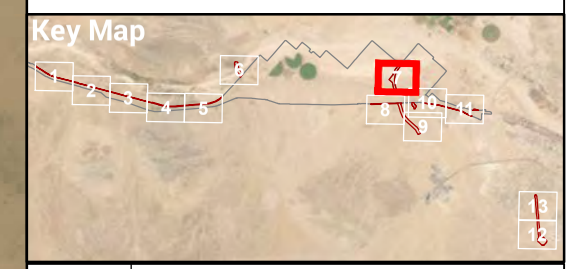


FIGURE 6

PAGE 7 OF 13

Vegetation

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 Ac)
2022 ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Unvegetated Channel

Key Map

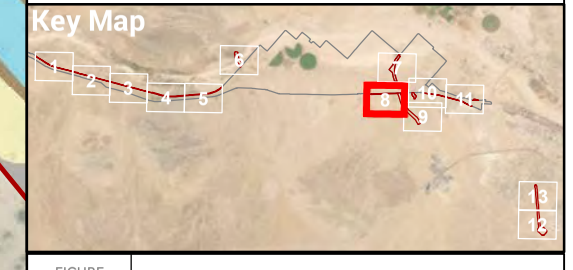


FIGURE 6

PAGE 8 OF 13

Vegetation

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

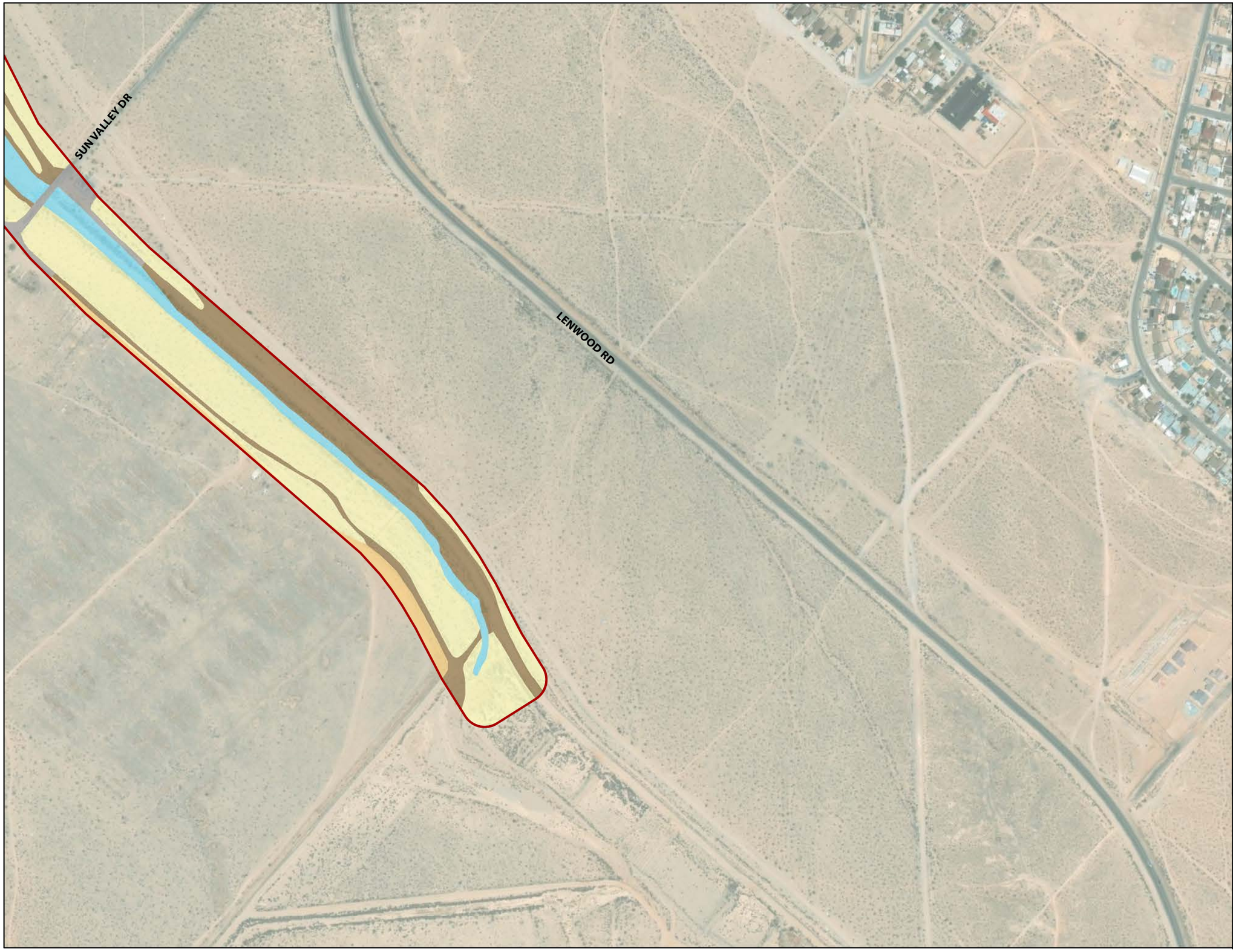
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 Ac)

Vegetation

- Allscale Scrub
- Creosote Bush Scrub
- Developed
- Disturbed Habitat
- Unvegetated Channel

Key Map

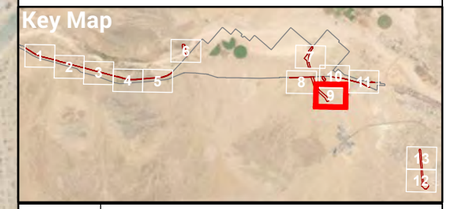


FIGURE 6

PAGE 9 OF 13

Vegetation

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri

2023 ARDR Addendum Review Area (223.7 Ac)
2022 ARDR Review Area (5104.5 Ac)

Vegetation

- Stabilized/Partially Stabilized Desert Dunes
- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Developed
- Disturbed Habitat
- Tamarisk Thickets

ROADRUNNER RD
HILLSIDE LN
LENWOOD RD
CAMINO DEL SOL
JASPER RD
LENWOOD AV
WOODS AV
LENWOOD RD
MAIN ST
ANDERSON AV
HANNAN ST
TOWNSEND ST
BLEITZ RD
JOHNSON ST
SECOND ST
ASH RD

Key Map

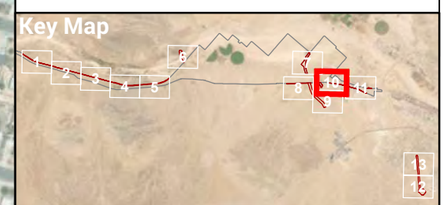


FIGURE 6

PAGE 10 OF 13

Vegetation

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 Ac)
2022 ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Developed
- Disturbed Habitat

Key Map

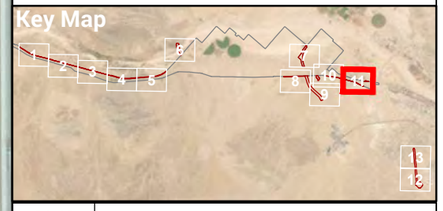


FIGURE 6

PAGE 11 OF 13

Vegetation

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

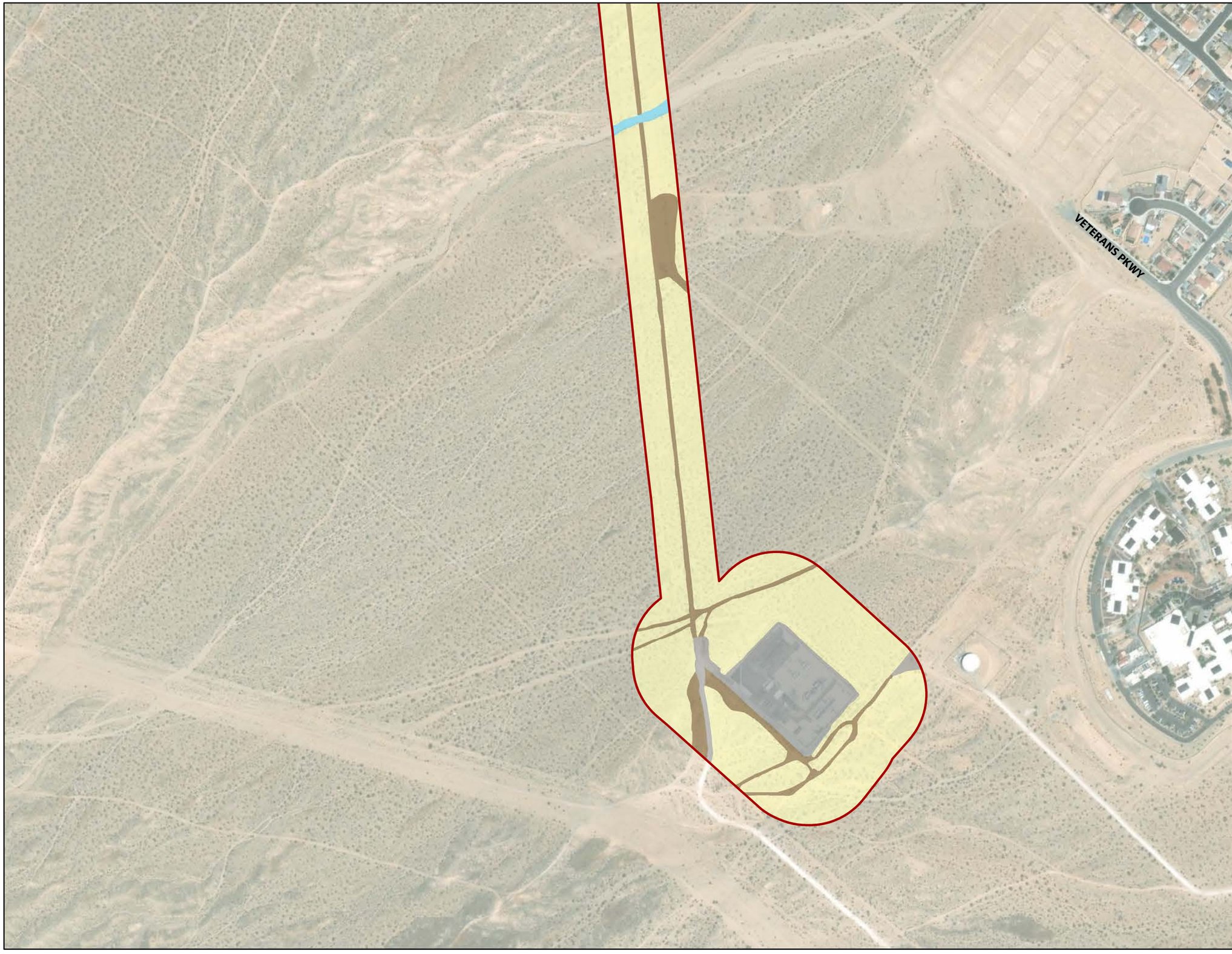
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 Ac)

Vegetation

- Creosote Bush Scrub
- Developed
- Disturbed Habitat
- Unvegetated Channel

Key Map

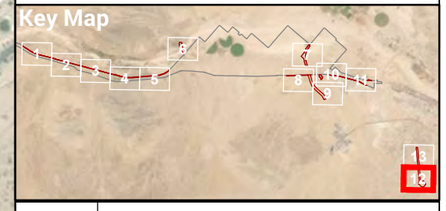


FIGURE 6

PAGE 12 OF 13

Vegetation

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri



2023 ARDR Addendum Review Area (223.7 Ac)

Vegetation

- Creosote Bush Scrub
- Developed
- Disturbed Habitat

Key Map

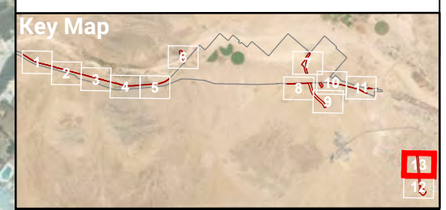


FIGURE 6

PAGE 13 OF 13

Vegetation

BARSTOW INTERNATIONAL GATEWAY PROJECT (FORMERLY BIG BARSTOW)

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/3/2023

Aerial Photo: San Bernardino County 2020, Esri

ATTACHMENT A

BIG BARSTOW AQUATIC RESOURCES DELINEATION REPORT, PREPARED BY RBC AND DATED SEPTEMBER 23, 2022

ROCKS
BIOLOGICAL CONSULTING





BIG BARSTOW
AQUATIC RESOURCES DELINEATION REPORT

San Bernardino County, California

September 23, 2022

Prepared for:
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2500 Lou Menk Drive, AOB-3
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APPENDICES

Appendix A. Checklist: Minimum Standards for Acceptance of Aquatic Resource Delineation Reports
Appendix B. Jurisdictional Determination Request Forms
Appendix C. Applicable Aquatic Resource Protection Regulations
Appendix D. Recent and Historic Aerials Analysis
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1 INTRODUCTION

On behalf of Burlington Northern Santa Fe (BNSF) Railway Company, Rocks Biological Consulting (RBC) conducted a formal aquatic resources delineation for the Big Barstow review area, composed of approximately 5,105 acres (Figure 1), to identify areas that may be considered jurisdictional under the U.S. Army Corps of Engineers (Corps) pursuant to Section 404 of the Clean Water Act; the Regional Water Quality Control Board (RWQCB) pursuant to Section 401 of the Clean Water Act and the Porter-Cologne Water Quality Control Act; and the California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code (CFGC). The information provided in this aquatic resources delineation report (ARDR) is necessary to define the presence or absence of aquatic resources within the review area. This ARDR can also be used by the agencies to inform the jurisidictional status of delineated aquatic resources and by the applicant and agencies to assess conformance with state and federal regulations and to estimate potential impacts and associated permitting requirements. Furthermore, the information contained in this report is in compliance with the Corps Los Angeles District's *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports* (Minimum Standards; Corps 2017). Appendix A provides a checklist to ensure compliance with the Minimum Standards.

This ARDR also serves as a request for the Corps to complete a Preliminary Jurisdictional Determination (PJD) based on the information provided in this report. Appendix B provides the requried forms associated with the PJD request.

2 SITE DESCRIPTION, LANDSCAPE SETTING

2.1 LOCATION

The review area is generally located south of and partially within the Mojave River, south and west of California State Route (CA)-58, northwest of National Trails Highway, and extends west-southwest from the City of Barstow for approximately 14.1 miles along the existing BNSF railroad tracks, within the City of Barstow and unincorporated San Bernardino County, California (Figure 1). The review area is generally bounded by the Mojave River to the north/northwest; National Trails Highway, undeveloped land, and/or low-density residential to the south/southeast; BNSF railroad tracks and undeveloped land to the west; and BNSF railroad tracks, undeveloped land, and/or low-density residential to the east. The latitude and longitude of the approximate center of the review area is 34.853903, -117.159799. The review area sits on Township 8 North, Range 4 West, including Sections 12 to 15 and 22; Township 8 North, Range 3 West, including Sections 3 to 5 and 7 to 9; Township 9 North, Range 3 West, including Sections 12 to 14, 22 to 28, and 33 to 35; and Township 9 North, Range 2 West, including Sections 7 to 9, and 17 to 19 within the Hodge, Barstow SE, Barstow, and Hinkley 7.5-minute quadrangles, as mapped by the U.S. Geological Survey (USGS; Figure 2).

2.2 TOPOGRAPHY

The review area consists of elevations ranging from approximately 2,189 to 2,413 feet above mean sea level (amsl; Figure 2). The review area is relatively flat except for the presence of dunes within portions of the review area north of the railroad tracks and several hillslopes within the central portion of the review area south of the railroad tracks. Overall, the review area gradually decreases

in elevation moving northwest towards the Mojave River. Drainage patterns within the Mojave River trend southwest to northeast. Drainage patterns within the remainder of the review area generally trend southeast to north/northwest towards the Mojave River.

2.3 WATERSHED

The review area is within the Mojave Hydrologic Unit Code (HUC) 8 (18090208), Daggett Wash-Mojave River HUC 10 (1809020811), Stoddard Valley HUC 10 (1809020810), Buckthorn Wash-Mojave River HUC 10 (1809020809), Town of Lenwood-Mojave River HUC 12 (180902081102), Town of Johnstons Corner HUC 12 (180902081101), North Lake-Mojave River HUC 12 (180902080905), and Stoddard Valley HUC 12 (180902081004) (Figure 3). The Mojave River headwaters in the San Bernadino Mountains, continues for approximately 120 miles via surface and subsurface flows through the Mojave Desert, then drains into Soda Dry Lake (Lahontan Regional Water Quality Control Board [LRWQCB] 2002). The Mojave River typically only conveys surface flows during large storm events or in areas where geologic structures force groundwater to the surface (LRWQCB 2002).

In addition to the watersheds defined by the USGS and commonly used by the Corps, the RWQCB also defines watershed boundaries by Hydrologic Units (HUs). The review area is within the South Lahontan Hydrologic Basin, the Mojave HU, and the Middle Mojave Hydrologic Area (LRWQCB 2021).

3 METHODS

3.1 PRE-FIELD REVIEW

Prior to the on-site delineations, field maps were created using a Geographic Information System (GIS) and a color aerial photograph at a 1:450 scale. RBC staff also reviewed USGS National Hydrography Dataset (NHD) and topography data (Figure 2), U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data (Figure 4), and Natural Resources Conservation Service (NRCS) soils data (Figure 4) to further determine the potential locations of aquatic resources within the review area. RBC also utilized Google Earth to assess current and historic presence or absence of flows and/or ponding in the review area (Google Earth Pro 2022).

3.2 ON-SITE DELINEATION AND MAPPING

RBC conducted a constraints-level wetland/non-wetland waters jurisdictional assessment for the review area on August 10, 2021. RBC conducted formal aquatic resources delineation field visits for the review area on October 20, 2021; December 1, 2021; March 16, 23, and 24, 2022; April 12, 13, and 15, 2022; May 17, 2022; and June 20, 2022. Field visits were conducted over portions of the review area based on when access was granted to each parcel/portion of the review area. Areas where access was prohibited were visually assessed with binoculars and/or the use of aerial imagery. Field conditions during these field visits are provided below in Table 1.

Table 1. Field Conditions

Date	Survey Time Start – End	Temperature (°F) Start – End	Wind Speed Range (miles per hour) Start – End	Cloud Cover (%) Start – End	Personnel[1]
8/10/2021	0800 – 1550	87 – 103	0 to 1 – 0 to 1	0 – 0 (hazy from fires)	SK, IH
10/20/2021	0930 – 1545	54 – 75	0 to 2 – 0 to 1	5 – 10	NF, SK, SS
12/01/2021	0940 – 1300	55 – 73	0 to 2 – 0 to 2	0 – 0	NF, SK
3/16/2022	0820 – 1450	56 – 77	8 to 10 – 7 to 12	0 – 5	AG, KW, RL, SK
3/23/2022	0815 – 1530	56 – 80	1 to 3 – 7 to 12	0 – 0	KW, RL
3/24/2022	0700 – 1315	52 – 82	4 to 8 – 4 to 6	0 – 1	KW, RL
4/12/2022	0730 – 1500	43 – 61	2 to 5 – 0 to 3	0 – 0	ET, KW, RL, SK
4/13/2022	0730 – 1430	43 – 64	0 to 1 – 0 to 1	0 – 0	ET, KW, RL
4/15/2022	1045 – 1200	66 – 70	5 to 8 – 2 to 5	2 – 2	ET
5/17/2022	0830 – 1130	72 – 81	12 to 14 – 12 to 14	0 – 0	KW, RL
6/20/2022	0715 – 1640	59 – 91	3 to 5 – 3 to 6	0 – 0	KW, RL

[1] AG = Alec Goodman, ET = Emily Trevino, IH = Ian Hirschler, KW = Kelsey Woldt, NF = Natasha Foti, RL = Ryan Layden, SK = Sarah Krejca, SS = Shanti Santulli

Figure 1 and Figures 5A – 5C depict the approximately 5,105-acre review area.

Areas with depressions, drainage patterns, and/or wetland vegetation within the review area were evaluated, with focus on the presence of defined channels and/or wetland vegetation, soils, and hydrology. While in the field, potential aquatic resources were recorded using a hand-held Global Positioning System (GPS) unit with a level of accuracy ranging from 4 to 30 feet. RBC staff refined the data using aerial photographs and topographic maps with one-foot contours to ensure accuracy.

All figures generated for this ARDR follow the Corps' Updated Map and Drawing Standards for the South Pacific Division Regulatory Program (Corps 2016).

The below subsections provide the aquatic resources delineation methods used per agency; Appendix C provides additional details regarding the agencies' applicable regulations and guidance associated with this ARDR.

3.2.1 CORPS

Ordinary High Water Mark Delineation

Aquatic resources with a defined ordinary high water mark (OHWM) would be considered potential non-wetland waters of the U.S. Corps regulations at 33 Code of Federal Regulations (CFR) 329.11 define an OHWM as "the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas" (51 Federal Register

[FR] 41251, November 13, 1986). RBC staff used guidance provided in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (OHWM Field Guide; Lichvar & McColley 2008) and Regulatory Guidance Letter (RGL) 05-05 to estimate the extent of an OHWM in the field. For each feature exhibiting the potential presence of an OHWM, RBC completed a 2010 Arid West Ephemeral and Intermittent Streams OHWM Datasheet following the guidance provided in the *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (OHWM Datasheet; Curtis & Lichvar 2010). Per the 2010 OHWM Datasheet, common indicators of an OHWM include a break in slope (i.e., abrupt cut in bank slope created by hydrogeomorphic processes across the landscape), changes in average sediment texture between floodplain units (i.e., low-flow, active floodplain, low terrace), and changes in vegetation species and/or cover between floodplain units.

Wetland Delineation

Field staff examined potential wetland waters of the U.S. using the routine determination methods set forth in Part IV, Section D, Subsection 2 of the Corps 1987 *Wetland Delineation Manual* (Wetland Manual; Environmental Laboratory 1987) and the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0* (Arid West Supplement; Corps 2008). Areas that met the three parameters per the Arid West Supplement (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology, following methods set forth in the Wetland Manual and Arid West Supplement) were considered wetland waters of the U.S. RBC staff based wetland plant indicator status (i.e., Obligate [OBL], occurs 99+% in wetlands; Facultative Wetland [FACW], occurs 67-99% in wetlands; Facultative [FAC], occurs 34-66% in wetlands; Facultative Upland [FACU], occurs 1-33% in wetlands; Upland [UPL], occurs 99+% in uplands; and Not Listed [NL], considered UPL for wetland delineation purposes) on the *National Wetland Plant List* (NWPL; Corps 2020a) and hydric soils indicators on *Field Indicators of Hydric Soils in the United States, Version 8.2* (NRCS 2018). Soil chromas were identified in the field according to *Munsell Soil-Color Charts with Genuine Munsell Color Chips* (Munsell Color 2015) and per the Wetland Manual and Arid West Supplement. Plants were identified according to *The Jepson Manual: Vascular Plants of California, 2nd edition* (Baldwin et al. 2012) and nomenclature follows Jepson eFlora (Jepson Flora Project 2022).

3.2.2 RWQCB

Ordinary High Water Mark Delineation

The State Water Resources Control Board (SWRCB) and RWQCBs do not have regulations or guidance on defining the extent of non-wetland waters of the State. As such, field staff identified the lateral limits of potential non-wetland waters of the State using the same methodology for determining an OHWM per the Corps as described in Section 3.2.1. as they have generally been considered coincident.

Wetland Delineation

The State Policy for Water Quality Control: State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (the Procedures; SWRCB 2021) defines wetland waters of the State. The Procedures were adopted on April 2, 2019, went into effect on May 28,

2020, and were revised on April 6, 2021. As detailed in the Procedures, the SWRCB and RWQCBs define a wetland as follows: “An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area’s vegetation is dominated by hydrophytes or the area lacks vegetation” (SWRCB 2021).

The Procedures provide that RWQCBs shall rely on a wetland delineation from a final ARDR verified by the Corps to determine the extent of wetland waters of the State. If any potential wetland areas have not been delineated in a final ARDR verified by the Corps, the limits of such potential wetland waters of the State shall be identified using the same wetland delineation methods per the Corps as described in Section 3.2.1, except that a lack of vegetation (i.e., less than 5 percent areal coverage of plants during the peak of the growing season) does not preclude an area from meeting the definition of a wetland waters of the State (SWRCB 2021).

3.2.3 CDFW

River, Lake, Stream, Watercourse, and Associated Riparian and Wetland Habitat Delineation

CDFW jurisdiction relies on the presence of a river, lake, and/or stream and associated riparian or wetland habitat (CFGC § 1600 et seq). Lakes include “natural lakes or man-made reservoirs” (14 California Code of Regulations [CCR] § 1.56). CDFW regulations define a stream as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports riparian vegetation" (14 CCR § 1.72). The 1987 *Rutherford v. State of California* (188 Cal. App. 3d 1268) decision further provided that a streambed is the “channel of a water course; the depression between the banks worn by the regular and usual flow of the water.” A streambed includes the “[a]rea extending between the opposing banks measured from the foot of the banks from the top of the water at its ordinary stage, including sand bars which may exist between the foot of said banks…” (188 Cal. App. 3d 1268). The bank is defined as “the slope or elevation of land that bounds the bed of the stream in a permanent or long-standing way, and that confines the stream water up to its highest level” (*The People v. Phillip Wright Osborn*, 116 Cal. App. 4th 764 (2004)).

RBC staff utilized a combination of field indicators (e.g., evidence of ponding such as moist and/or cracked soils and secondary channels), 50- and 100-year floodplain modeling, and local topography to delineate the extent of streambed associated with the Mojave River in areas where the active desert dunes continually erase signs of hydrology and bed and bank; RBC confirmed the use of this approach with Brandy Wood, CDFW Senior Environmental Scientist (Supervisor) with the Inland Deserts Region. Floodplain mapping throughout the extent of the Mojave River within the review area was not available through the Federal Emergency Management Agency’s (FEMA’s) National Flood Hazard Layer (NFHL) Viewer (FEMA n.d.) or the County of San Bernardino Department of Public Works’ ArcGIS web maps (County of San Bernardino Department of Public Works 2022). As such, the project engineer, TranSystems, performed hydraulic modeling of the Mojave River using Sedimentation and River Hydraulics – Two-Dimension (SRH-2D) software developed by the U.S. Bureau of Reclamation, in collaboration with the Federal Highway Administration in the U.S. and the Water Resources Agency in Taiwan (Bureau of Reclamation

2020). SRH-2D is hydraulic modeling software capable of analyzing 2-dimensional (2D) flow simulations for riverine systems. Further details regarding TranSystems' hydraulic modeling methods and results are available upon request.

Riparian habitat refers to vegetation and habitat associated with a stream. CDFW-jurisdictional habitat includes all riparian shrub or tree canopy that may extend beyond the banks of a stream. Isolated riparian habitat (i.e., where riparian vegetation does not appear associated with an ephemeral wash) is not considered CDFW-jurisdictional.

To assist in assessing CDFW-jurisdictional limits in desert areas, RBC staff utilized the methods outlined in the *MESA – Mapping Episodic Stream Activity Field Guide* (MESA Field Guide; Vyverberg & Brady 2013). The MESA Field Guide was developed to describe the methodology for delineating episodic streams and the active watercourse within the arid and semi-arid California desert regions. The MESA guidelines indicate the active watercourse extends beyond the streambed and can consist of associated features such as low-flow, active, and braided channels and banks associated with islands, and secondary channels within the bounds of a larger channel complex (Vyverberg & Brady 2013).

CDFW follows the USFWS wetland definition and classification system, which defines a wetland as transitional land between terrestrial and aquatic systems having one or more of the following attributes: "(1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year" (Cowardin et al. 1979). A wetland is presumed when all three attributes are present; if less than three attributes are present the presumption of a wetland must be supported by "the demonstrable use of wetland areas by wetland associated fish or wildlife resources, related biological activity, and wetland habitat values" (California Fish and Game Commission [CFGC] 1994).

Potential CDFW-jurisdictional wetland boundaries were determined based on the presence of wetland areas supported by a river, lake, or stream. Wetland delineation methods to determine the presence of one or more wetland attributes included the same methods per the Corps as described in Section 3.2.1.

Based on the above, potential CDFW-jurisdictional aquatic resources delineated included rivers, lakes, and/or streams and their associated riparian and wetland habitats, and active watercourse. Field staff delineated the lateral extent of potential CDFW jurisdiction to be "bank to bank" for a streambed or to the "dripline" of riparian habitat and/or wetland boundary, if present.

4 SITE ALTERATIONS, CURRENT AND PAST LAND USE

RBC staff reviewed Google Earth Pro (Google Earth Pro 2022), NetrOnline Historic Aerials (NetrOnline 2022), and the University of California – Santa Barbara (UCSB; UCSB n.d.) database to assess historic and ongoing land uses within the review area. The railroad tracks and National Trails Highway occurred within their current locations within the review area at least as far back as October 1929 (i.e., the earliest aerial image available; UCSB n.d.; Appendix D). Development of ranchland and/or residential uses increased somewhat between 1929 and 1952, with minor changes in development/land use continuing through at least 1984, particularly in the far northwestern portion of the review area (UCSB n.d.; NetrOnline 2022; Appendix D). Between July

1973 and December 1984, a large agricultural (row crop) operation was established within/around the northwestern portion of the review area (UCSB n.d; NetrOnline 2022; Appendix D). Additionally, portions of the Mojave River appear to have been bermed sometime between May 1952 and January 1953, redirecting and constricting the Mojave River's natural flow path (UCSB n.d.; Appendix D). Additional berming of the Mojave River appears to have occurred between January 1953 and June 1959, between June 1959 and November 1963, and again, between November 1963 and July 1973 (UCSB n.d.). The bermed areas appeared to remain relatively consistent from July 1973 through June 2022 (the last survey date) (UCSB n.d.; NetrOnline 2022; Google Earth Pro 2022; Appendix D). Basin (B-) 2 was constructed between July 1973 and December 1984 and is currently used for irrigation purposes (UCSB n.d.; NetrOnline 2022; Appendix D; C. Stevens, personal communication, May 26, 2022). Construction of B-1 began around May 2009 along with installation of the nearby basketball court, fishing docks, and playground; B-1 is currently used for recreational purposes (Google Earth Pro 2022; Appendix D; C. Stevens, personal communication, May 26, 2022). Since May 2009, minor changes in development and land use have occurred within the review area; much of the review area remains undeveloped to this day (Google Earth Pro 2022; Appendix D). Normal circumstances, as defined in the Corps 1987 Wetland Manual (Environmental Laboratory 1987), were assumed to be present within the review area; no evidence of recent natural events or human activities that would affect the results of the delineation were observed within the review area during the 2021 and 2022 field delineations.

The following sections provide additional details regarding site alterations and land use specific to on-site soils, hydrology, and vegetation based on available data and the site visit.

4.1 SOILS

Based on the NRCS soils data map (Figure 4), 20 soil map units, outlined below in Table 2, occur within the review area:

Table 2. Soils Mapped within Review Area

Soil Map Unit	Soil Series/Unit	Taxonomic Class	NRCS Hydric Status[1]
Bryman loamy fine sand, 2 to 5 percent slopes	Bryman	Fine-loamy, mixed, superactive, thermic Typic Haplargids	No
Cajon gravelly sand, 2 to 15 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	No
Cajon loamy sand, 5 to 9 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	No
Cajon sand, 0 to 2 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	Yes
Cajon sand, 2 to 9 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	No
Cajon-Arizo complex[1], 2 to 15 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	No
	Arizo	Sandy-skeletal, mixed, thermic Typic Torriorthents	

Soil Map Unit	Soil Series/Unit	Taxonomic Class	NRCS Hydric Status[1]
Cajon-Wasco, cool complex[1], 2 to 9 percent slopes	Cajon	Mixed, thermic Typic Torripsamments	Yes
	Wasco	Coarse-loamy, mixed, superactive, nonacid, thermic Typic Torriorthents	
Cave loam, dry, 0 to 2 percent slopes	Cave	Loamy, mixed, superactive, thermic, shallow Typic Petrocalcids	Yes
Dune land	Dune land	–	Yes
Helendale loamy sand, 0 to 2 percent slopes	Helendale	Coarse-loamy, mixed, superactive, thermic Typic Haplargids	No
Helendale loamy sand, 2 to 5 percent slopes	Helendale	Coarse-loamy, mixed, superactive, thermic Typic Haplargids	No
Joshua loam, 2 to 5 percent slopes	Joshua	Fine-loamy, mixed, superactive, thermic Argidic Argidurids	No
Nebona-Cuddeback complex[1], 2 to 9 percent slopes	Nebona	Loamy, mixed, superactive, thermic, shallow Typic Haplodurids	Yes
	Cuddeback	Fine-loamy, mixed, superactive, thermic Typic Argidurids	
Norob-Halloran complex[1], 0 to 5 percent slopes	Norob	Fine-loamy, mixed, superactive, thermic Typic Natrargids	Yes
	Halloran	Coarse-loamy, mixed, superactive, thermic Typic Natrargids	
Riverwash	Riverwash	–	Yes
Rock Outcrop-Lithic Torriorthents complex, 15 to 50 percent slopes	Rock Outcrop	–	No
	Torriorthents	Loamy-skeletal, mixed, superactive, calcareous, mesic Lithic Torriorthents	
Rosamond loam, saline-alkali	Rosamond	Fine-loamy, mixed, superactive, calcareous, thermic Typic Torrifluvents	Yes
Victorville sandy loam	Victorville	Coarse-loamy, mixed, superactive, calcareous, thermic Typic Torrifluvents	Yes
Villa loamy sand	Villa	Sandy, mixed, thermic Typic Torrifluvents	Yes
Villa loamy sand, hummocky	Villa	Sandy, mixed, thermic Typic Torrifluvents	Yes

Source: NRCS Official Soil Series Description and Series Classification database (NRCS n.d.b); *Soil Survey of San Bernardino County California, Mojave River Area* (USDA 1986); NRCS Soil Data Access (SDA) Hydric Soils List (NRCS n.d.).a).

[1] Based on the NRCS Soil Data Access (SDA) Hydric Soils List (NRCS n.d.)..a). As stated in the Arid West Supplement (Corps 2008), RBC used the hydric soils list as a tool and made final hydric soils determinations based on field-collected data at representative wetland delineation sample points deemed appropriate on site as recorded on the attached Arid West Wetland Determination Data Forms (Appendix E) discussed further in Section 6.1.

[2] A complex consists of two or more soils or miscellaneous areas that either contain such small areas or are so complexly mapped that they are unable to be displayed separately (Ditzler 2015).

The National Technical Committee for Hydric Soils defines hydric soils; *Changes in Hydric Soils Database Selection Criteria* (77 FR 12234) outlines the current four hydric soil criteria. The NRCS Soil Data Access (SDA) Hydric Soils List specifies 11 soil map units within the review area as hydric per Critiera 2, 3, and/or 4 (NRCS n.d.a). The soil series/units outlined above in Table 2 are further described below per the USDA's NRCS Official Soil Series Description and Series Classification database (NRCS n.d.b) and the USDA's *Soil Survey of San Bernardino County California, Mojave River Area* (USDA 1986).

Arizo – The Arizo series consists of very deep, excessively drained soils that have negligible to medium runoff. These soils formed in mixed alluvium on recent alluvial fans, inset fans, fan apron, fan skirts, stream terraces, and floodplains of intermittent streams and channels with slopes ranging from 0 to 15 percent at elevations of 750 to 4,600 feet amsl. Arizo soil is used primarily for rangeland and wildlife habitat. Native vegetation consists primarily of creosote bush (*Larrea tridentata*) and burrobush (*Hymenoclea* sp.).

Bryman – The Bryman series consists of deep, well-drained soils that have slow runoff and moderately slow permeability. These soils formed in mixed alluvium derived primarily from granitic rock and occur on terraces and older alluvial fans with slopes ranging from 0 to 15 percent at elevations of 2,800 to 3,800 feet amsl. Bryman soil is used primarily for irrigated crops, homesites, and recreation. Native vegetation consists of creosote bush, bursage (*Ambrosia* sp.), green ephedra (*Ephedra viridis*), Joshua tree (*Yucca brevifolia*), and annual forbs and grasses.

Cajon – The Cajon series consists of very deep, somewhat excessively drained soils that have slight to low runoff and rapid permeability. These soils formed in sandy alluvium and occur on alluvial fans, fan aprons, fan skirts, inset fans, and river terraces with slopes ranging from 0 to 15 percent at elevations of 200 to 4,300 feet amsl. Cajon soil is used primarily for range, watershed, and recreation, and irrigated areas are used for growing alfalfa and other crops. Uncultivated areas consist of desert shrubs.

Cave – The Cave series consists of very shallow, well-drained soils that have medium to very high runoff and moderate or moderately rapid permeability. These soils formed in mixed alluvium and occur on fan remnants, fan piedmonts, and stream terraces with slopes ranging from 0 to 35 percent at elevations of 1,500 to 5,060 feet amsl. Cave soil is used primarily for livestock grazing, wildlife habitat, and urban development. Native vegetation consists of creosote bush, blackbrush (*Coleogyne ramosissima)*, bursage, Joshua tree, mesquite (*Prosopis* sp.), cactus, and annual grasses and weeds.

Cuddeback – The Cuddeback series consists of moderately deep, well-drained soils that have medium to rapid runoff and moderately slow permeability above the duripan but very slow in the duripan. These soils formed in mixed alluvium on terraces and alluvial fans with slopes ranging from 2 to 9 percent at elevations of 2,200 to 3,000 feet amsl. Cuddeback soil is used mainly for wildlife habitat and recreation. Native vegetation consists of very sparse stands of creosote bush yucca species, and annual grasses and forbs.

Dune Land – The Dune Land miscellaneous areas consists of excessively drained soils with slow runoff and very rapid permeability. These soils formed from wind-deposited sand and occur on unstable hills and ridges of loose, wind-deposited sand with slopes ranging from 5 to 15 percent. Dunes are generally less than 15 feet high but can sometimes reach 25 feet high. Dune Land soil is

used primarily for wildlife habitat and recreation and is essentially barren of vegetation.

Halloran – The Halloran series consists of deep, moderately well-drained soils that have slow runoff and moderately slow permeability. These soils formed in mixed alluvium dominantly from granitic sources and occur on old alluvial derraces and depressional areas with slopes ranging from 0 to 2 percent at elevations of 1,800 to 1,850 feet amsl. Halloran soil is used primarily for wildlife habitat and recreation. Native vegetation consists of creosote bush, saltbush (*Atriplex* sp.), and alkali-tolerant vegetation.

Helendale – The Helendale series consists of very deep, well-drained soils that have negligible to low runoff and moderately high to high saturated hydraulic conductivity. These soils formed in alluvium from granitic sources and occur on fan piedmonts, fan remnants, alluvial fans, and terraces with slopes ranging from 0 to 15 percent at elevations of 2,500 to 3,800 feet amsl. Helendale soil is used primarily for irrigated agriculture and pasture, residential development, military operations, recreation, and wildlife habitat. Native vegetation consists of creosote bush, cheesebush (*Ambrosia salsola*), Nevada jointfir (*Ephedra nevadensis*), Joshua tree (*Yucca brevifolia*), and annural forbs and grasses.

Joshua – The Joshua series consists of moderately deep, well-drained soils that have medium to rapid runoff and moderately slow to slow permeability. These soils formed in material derived from mixed sources and occur on old terraces with a well-developed erosion pavement with slopes ranging from 2 to 15 percent at elevations of 2,600 to 3,000 feet amsl. Joshua soil is used primarily for wildlife habitat and recreation. Native vegetation consists of very sparse strands of creosote bush, white bursage (*Ambrosia dumosa*), yucca species, saltbush, and annual grasses and forbs.

Lithic Torriorthents – Lithic Torriorthents consists of very shallow and shallow, well-drained soils that have medium to rapid runoff and rapid to very rapid permeability. These soils formed from weathering of granitic rock and occur between areas of Rock outcrop (i.e., exposed granitic rock), in small depressional areas, and on relatively stable hillslopes ranging from 15 to 50 percent at elevations of 3,000 to 4,950 feet amsl. Lithic Torriorthents soil is used primarily for wildlife habitat.

Nebona – The Nebona series consists of shallow, well-drained soils that have medium to rapid runoff and moderately rapid permeability in the upper part but very slow in the duripan. These soils formed in mixed alluviam and occur on terraces with slopes ranging from 2 to 9 percent at elevations of 2,200 to 3,000 feet amsl. Nebona soil is used mainly for wildlife habitat and recreation. Native vegetation consists of very sparse stands of creosote bush, white bursage, yucca species, some saltbush, and annual grasses and forbs.

Norob – The Norob series consists of very deep, moderately well-drained soils that have negligible to medium runoff with slow permeability. These soils formed in mixed alluvium and occur on alluvial plains and alluvial flats in the Mojave Desert with slopes ranging from 0 to 5 percent at elevations of 2,300 to 3,200 feet amsl. Norob soil is used primarily for livestock grazing, military operations, and recreation. Native vegetation consists of saltbush, creosote bush, and scattered annual grasses and forbs.

Riverwash – The Riverwash miscellaneous areas consists of excessively drained soils in the Mojave River riverbed and in beds of intermittent streams subject to flooding during prolonged storms of high intensity. These soils formed in areas of alluvium derived primarily from granitic rocks and occur on unstable sandy and gravelly alluvium that is frequently removed, resorted, and

redeposited with slopes ranging from 0 to 2 percent at elevations of 1,700 to 3,100 feet amsl. Riverwash soil is used mainly for wildlife habitat and areas of Riverwash are essentially barren of vegetation. Small areas of Villa loamy sand and Victorville sandy loam soils are also included in this unit on low stream terraces along the Mojave River.

Rock Outcrop – The Rock Outcrop miscellaneous areas consists of exposed granitic bedrock on mountainsides, ridges, and rugged hills at elevations of 3,000 to 4,950 feet amsl. Rock outcrop is used primarily for wildlife habitat.

Rosamond – The Rosamond series consists of deep, well-drained soils that have medium runoff and moderate to moderately slow permeability. These soils formed in alluvium derived primarily from granitic rock and occur on slopes ranging from 0 to 2 percent at elevations from 2,200 to 2,900 feet amsl. Rosamond series is used primarily for desert range in larger areas, and irrigated areas are used for growing alfalfa and row crops. Native vegetation consists primarily of rabbitbrush, big sagebrush (*Artemisia tridentata*), saltbush, and annual and perennial grass and weeds.

Victorville – The Victorville series consists of deep, moderately well-drained soils that have medium runoff and moderately rapid permeability. These soils formed in mixed alluvium, dominantly from granitic sources and occur on low river terraces and flood plains with slopes ranging from 0 to 2 percent at elevations of 2,200 to 2,800 amsl. Victorville soil is used mainly for irrigated crops such as alfalfa, pasture, and small grains. Native vegetation consists of rabbitbrush , salt grass (*Distichlis spicata*), annual weeds and grasses, and some cottonwood (*Populus* sp.) trees.

Villa – The Villa series consists of deep, moderately well-drained soils that have slow runoff and moderately rapid permeability. These soils formed in alluvium derived primarily from granitic rock and occur on river flood plains with slopes of 0 to 2 percent at elevations of 2,100 to 2,800 feet amsl. Villa soil is used mainly for irrigated crops such as alfalfa. Native vegetation consists of saltbush, mesquite, creosote bush, and annual grasses and forbs.

Wasco – The Wasco series consists of very deep, well-drained soils that have negligible or very low runoff and moderately rapid permeability. These soils formed in mixed alluvium derived mainly from igneous and/or sedimentary rock sources with slopes ranging from 0 to 5 percent at elevations of 225 to 1,000 feet amsl in the southern San Joaquin Valley and as high as 3,700 feet amsl in the Mojave Desert. Wasco soil is used primarily for growing field, forage, and row crops, and some areas are used for livestock grazing, wildlife habitat, recreation, and homesites. Native vegetation consists of *Atriplex* species and annual grasses and forbs.

As stated in the Arid West Supplement, RBC used the hydric soils list as a tool and made final hydric soils determinations based on field-collected data at representative wetland delineation sample points deemed appropriate on site as recorded on the attached Arid West Wetland Determination Data Forms (Appendix E) discussed further in Section 6.1.

4.2 HYDROLOGY

Per the review of on-line data sources, USGS NHD maps “Stream/River” (ephemeral), “Stream/River” (intermittent) (for the extent of the Mojave River), “Lake/Pond”, “Reservoir,” and “Wash” features in the review area as shown in Figure 2 (USGS 2021). USFWS NWI maps features with a designation of “Riverine,” “Freshwater Emergent Wetland,” “Freshwater Pond,” and

"Freshwater Forested/Shrub Wetland" in the review area as shown in Figure 4 (USFWS 2021).

Known hydrologic sources for the observed on-site drainages, discussed further below, are direct precipitation, upstream Mojave River flows, and runoff from surrounding roads and development. Based on field observations, features within the review area south of the railroad tracks generally drain southeast to northwest, following a slight change in topography towards the railroad tracks. The USGS NHD web map indicates flows from the Mojave River continue northeast and ultimately drain into Soda Dry Lake (USGS 2021).

4.3 VEGETATION

Table 3 provides vegetation community acreages within the review area based on vegetation mapping conducted by RBC biologists for the BNSF Lenwood Staging Track Component (BNSF Lenwood Component) during December 2018, August 2019, and June 2020 field visits, as well as constraints-level vegetation mapping conducted by RBC biologists on August 10, 2021 for portions of the review area that were not mapped as part of the BNSF Lenwood Component. Vegetation communities within the review area are shown on Figure 6. The review area primarily consists of active desert dunes and allscale scrub habitat. The vegetation community classifications generally follow *A Manual of California Vegetation* (Sawyer et al. 2009) and *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986).

Table 3. Vegetation Communities within Review Area

Vegetation Community/Land Cover Type	Acre(s)[1]
Active Desert Dunes	1,172.91
Active Desert Dunes – Disturbed	333.79
Agriculture	319.85
Allscale Scrub	1,065.88
Allscale Scrub – Disturbed	218.23
Creosote Bush Scrub	550.97
Creosote Bush Scrub – Disturbed	420.91
Developed	379.50
Disturbed Habitat	582.68
Ornamental	1.86
Pasture	16.07
Tamarisk Thickets	16.47
Unvegetated Channel	25.38
Total	5,104.49

[1] Acreages summed using raw numbers provided during GIS analysis (available upon request) and thus the sum of the total rounded numbers may not directly add up in this table.

Active Desert Dunes – Active desert dunes within the review area consist of generally barren expanses of actively moving sand with sparse to intermittent cover of seasonal annuals and scattered perennials, such as desert panicgrass (*Panicum urvilleanum*).

Active Desert Dunes – Disturbed – Active desert dunes – disturbed within the review area is similar to active desert dunes, though it has been substantially altered by human disturbance.

Agriculture – Agriculture within the review area supports large areas of monotypic crop plantings or disturbed, bare soils.

Allscale Scrub – Allscale scrub within the review area supports widely spaced stands of allscale (*Atriplex polycarpa*) with bare ground or weedy, non-native species including Bermuda grass (*Cynodon dactylon*) and tumbleweed (*Salsola australis*).

Allscale Scrub – Disturbed – Allscale scrub – disturbed within the review area is similar to allscale scrub, though it has been substantially altered by human disturbance.

Creosote Bush Scrub – Creosote bush scrub occurs on alluvial fans, bajadas, and upland slopes, and is dominated by widely spaced stands of creosote bush containing patches of open soil in between shrubs. Annual plant species and other various shrub species such as white bursage are also present.

Creosote Bush Scrub – Disturbed – Creosote bush scrub – disturbed within the review area is similar to creosote bush scrub, though it has been substantially altered by human disturbance.

Developed – Developed areas within the review area include the railroad tracks, roads, commercial buildings, residences, and storage yards. The high level of soil disturbance in these areas precludes native vegetation resulting in barren areas or sparse weedy vegetation.

Disturbed Habitat – Disturbed habitat within the review area has been graded, cleared, or used to the point where the land cannot support native vegetation. These areas consist of bare soils and non-native species.

Ornamental – Ornamental areas within the review area consist of non-native tree and grass species including Siberian elm (*Ulmus pumila*) and Bermuda grass.

Pasture – Pasture within the review area consists of a dense cover of grass species or row crops.

Tamarisk Thickets – Tamarisk thickets within the review area primarily consist of salt cedar (*Tamarix ramosissima*) with a few weedy species. Tamarisk thickets typically occur on sandy or gravelly soils within, or in close proximity to washes or streams and often become established in these areas following major disturbance. Tamarisk thickets observed within the review area appeared associated with road runoff rather than potentially jurisdictional aquatic resource areas/watercourses.

Unvegetated Channel – Unvegetated channel within the review area includes relatively large, well-defined waterways (including portions of the Mojave River) that are sandy, gravelly, and largely unvegetated. Vegetation within unvegetated channels is typically non-permanent and accounts for less than 10 percent total cover.

5 PRECIPITATION DATA AND ANALYSIS

RBC utilized the NRCS Agricultural Applied Climate Information System (AgACIS) database for the Barstow station (approximately 5 miles northeast from the review area's northeastern-most reach) to access pre-site visit precipitation data (NRCS 2022), as shown in Tables 4 and 5.

RBC also utilized the Corps' Antecedent Precipitation Tool (APT) to assess whether or not the delineation date occurred in a drier, average, or wetter than normal period for the review area (Corps 2020b). The Corps created the APT to assist with determining the normal periodic range of precipitation and other climate variables for the waterbody or waterbodies within a review area. Additionally, the APT can generally inform the regulatory agencies whether or not normal hydrologic/climatic conditions were on site at the time of the site visit and assist with completion of the Wetland Determination Data Forms (Appendix E).

5.1 PRECIPITATION SUMMARY

Tables 4 and 5 describe the estimated monthly total precipitation for the review area from October 2020 to July 2021 and August 2021 to May 2022 to provide the pertinent pre-site visit precipitation data from the NRCS database for the Barstow station (NRCS 2022).

Table 4. Precipitation Data for October 2020 – July 2021

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Monthly Total Precipitation (inch[es])	0.00	T[1]	0.17	0.39	0.01	M[1]	0.00	0.00	0.02	0.38

[1] Per AgACIS database: "Values of 'M' indicate missing data and 'T' indicates a trace."

Table 5. Precipitation Data for August 2021 – May 2022

	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Monthly Total Precipitation (inch[es])	0.00	0.00	0.55	0.00	0.67	0.08	T[1]	T[1]	0.01	0.00

[1] Per AgACIS database: "Values of 'T' indicates a trace."

5.2 ANTECEDENT PRECIPITATION TOOL DATA

The APT provides three climatological parameters: Palmer Drought Severity Index (PDSI), season, and antecedent precipitation condition. The PDSI is a standardized index calculated on a monthly basis with PDSI value outputs ranging from -10 (extremely dry) to +10 (extremely wet) (National Oceanic and Atmospheric Administration [NOAA] 2020) to assess drought conditions (i.e., PDSI Class). The APT determines wet versus dry season based on related procedures provided in the applicable regional supplement for the review area (i.e., Arid West Supplement). The antecedent precipitation condition is classified as drier than normal with an antecedent runoff condition (ARC) score less than 10; normal with an ARC score between 10 to 14; or wetter than normal with an ARC score greater than 14 (Sprecher & Warne 2000).

Table 6 summarizes the key data extrapolated from the APT output to compare the current year 30-day rolling total to the averaged 30-year normal for the weather stations with comprehensive historical data within 30 miles of the review area: estimated drought conditions, wet or dry season determination, ARC score, and antecedent precipitation condition. The APT output provided in Appendix F and summarized in Table 6 noted a PDSI class of "severe drought" during the October 2021 and December 2021 field surveys and a PDI class of "extreme drought" during the August 2021, March 2022, April 2022, May 2022, and June 2022 field surveys. The precipitation and climatic conditions were classified as "normal conditions" for the review area during the October 2021, December 2021, April 12 and 13, 2022, May 2022, and June 2022 field surveys; "wetter than normal" for the review area during the August 2021 field survey; and "drier than normal" for the review area during the March 2022 and April 15, 2022 field surveys based on the 30-day rolling totals for the three months preceding the field survey dates. Field staff considered the "severe drought" and "extreme drought" conditions during the field delineation; evaluated how the drought conditions could affect the data collected on the Arid West Wetland Determination Data Forms and Ephemeral and Intermittent Streams OHWM Datasheets (Appendix E); and used recent and historic aerials to ensure appropriate representation of the extent of the on-site aquatic features for this ARDR considering the 2021 and 2022 drought conditions.

Table 6. Antecedent Precipitation Tool Data for Review Area

Field Survey Date	PDSI Value	PDSI Class	Season	ARC Score	Antecedent Precipitation Condition
8/10/2021	-4.11	Extreme drought	Dry season	17	Wetter than normal
10/20/2021	-3.54	Severe drought	Dry season	12	Normal conditions
12/01/2021	-3.95	Severe drought	Wet season	14	Normal conditions
3/16/2022	-4.45	Extreme drought	Dry season	7	Drier than normal
3/23/2022	-4.45	Extreme drought	Dry season	9	Drier than normal
3/24/2022	-4.45	Extreme drought	Dry season	8	Drier than normal
4/12/2022	-4.45	Extreme drought	Dry season	11	Normal conditions
4/13/2022	-4.45	Extreme drought	Dry season	11	Normal conditions
4/15/2022	-4.85	Extreme drought	Dry season	6	Drier than normal
5/17/2022	-4.85	Extreme drought	Dry season	11	Normal conditions
6/20/2022	-5.17	Extreme drought	Dry season	12	Normal conditions

6 DESCRIPTION OF OBSERVED POTENTIAL AQUATIC RESOURCES

The following descriptions of observed potential aquatic resources within the review area document the presence or absence of aquatic resource indicators per the methods discussed in Section 3. The subsections below are intended to be reviewed independently under each agency's purview unless otherwise directed in the text (i.e., the aquatic resource description is the same between two or more agencies) given the various regulatory definitions and standards per each

agency. Areas that were investigated but determined to not qualify as a potential aquatic resource are discussed briefly in Section 6.4.

Appendix G provides site photographs of the features within the review area; all figures in the Figure 5 series display representative photo points.

6.1 CORPS/RWQCB WETLAND WATERS OF THE U.S./STATE

RBC collected data at 11 representative Wetland Data Form Points (WDP) within the review area to determine the presence or absence of jurisdictional wetland waters of the U.S./State (WDP 1 through 11; Figures 5A and 5B; Appendix E). Note that data at WDP 1 through WDP 8 was originally collected by RBC regulatory specialists for the BNSF Lenwood Component during December 2018 and August 2019 field visits. RBC regulatory specialists verified the conditions at WDP 1 through WDP 8 and updated the associated datasheets accordingly during the April 2022 field visits. Overall, conditions at WDP 1 through WDP 8 remained consistent from 2018/2019 to 2022. The delineated aquatic features on site did not meet the appropriate wetland parameters to qualify as wetland waters of the U.S./State based on the data collected during the field delineation, as discussed further in Section 6.2.

6.2 CORPS/RWQCB NON-WETLAND WATERS OF THE U.S./STATE

RBC collected data at 29 representative OHWM Datasheet Points (ODPs) within the review area to determine the presence of potential waters of the U.S. (ODP 1 through 29; Figures 5A and 5B; Appendix E). RBC selected representative ODP locations as there were multiple dry washes (i.e., features) with similar hydrology or OHWM characteristics (Appendix E). Note that data at ODP 1 through ODP 22 was originally collected by RBC regulatory specialists for the BNSF Lenwood Component during December 2018 and August 2019 field visits. RBC regulatory specialists reverified the conditions at ODP 1 through ODP 22 and updated the associated datasheets accordingly during the April 2022 field visits. Overall, conditions at ODP 1 through ODP 22 remained consistent from 2018/2019 and 2022. Overall, the review area supports 109 features (Non-Wetland Water [NWW-] 1 through NWW-109 [Mojave River]) which vary from single-thread, small, unvegetated dry washes to large, braided, unvegetated dry wash systems to the larger Mojave River. The OHWMs for NWW-1 through NWW-108 varied in width from an average minimum of 4 feet and an average maximum of 9 feet; these features were primarily unvegetated and surrounded by allscale (FACU), four-wing saltbush/shadscale (*Atriplex canescens*; NL/UPL), creosote bush (NL/UPL), and white bursage (NL/UPL). The OHWM for the portions of the NWW-109 (Mojave River) within the review area ranged from approximately 500 feet to 1,400 feet; this feature was sparsely vegetated and generally composed of active desert dune habitat. See Appendix H, Table H-1 for the estimated OHWM and representative OHWM and wetland data for NWW-1 through NWW-109 (Mojave River).

All of the delineated features, except NWW-9, NWW-43, NWW-60, NWW-98, and NWW-109 (Mojave River), generally drain southeast to northwest (Figures 5A and 5B). Figures 5A and 5B display the limits of where OHWM indicators were observed within the review area. There are 19 sets of culvert/railroad crossings located along the railroad tracks within the review, which could allow for flows to continue north. NWW-9, NWW-43, and NWW-98 commence at the dirt road north of the railroad tracks before continuing northwest and off site. NWW-60 is a small, localized

feature north of the railroad tracks that receives flows off the dirt road north of the railroad tracks. NWW-109 (Mojave River) is a sparsely vegetated, dry, sandy wash that generally flows southwest to northeast before continuing off site.

Staff concluded based on field observations that NWW-1 through NWW-108 were ephemeral features that only receive flows from runoff in direct response to precipitation; NWW-109 (Mojave River) is an intermittent feature based on field observations and the USGS NHD database (USGS 2021). The general characteristics of each of the observed features within the review area are provided in Appendix H, Table H-1. Staff did not observe standing water at any of the features during the 2021 and 2022 field surveys.

Staff determined the presence of an OHWM at one location within each of the following features: NWW-20, NWW-36, NWW-44, NWW-45, NWW-60, NWW-68, NWW-69, NWW-70, NWW-73, NWW-76, NWW-82, NWW-85, NWW-87, NWW-90, NWW-91, NWW-92, NWW-94, NWW-95, and NWW-97 (Appendix E, ODP 1 – 4, 8 – 12, 14 – 19, 21, 24, 27, and 29). Staff determined the presence of an OHWM at two locations within NWW-80 (Appendix E, ODP 13 and 22) and five locations within NWW-89 (Appendix E, ODP 5 – 7, 23, and 25). Indicators of an OHWM for NWW-1 through NWW-108 generally included a change in average sediment texture and vegetation cover between the active floodplain and upland areas as well as a typically small break in slope along the active channel (Appendix E). The OHWMs present at these locations were representative of the OHWM within NWW-1 through NWW-19, NWW-21 through NWW-35, NWW-37 through NWW-43, NWW-46 through NWW-59, NWW-61 through NWW-67, NWW-71 through NWW-72, NWW-74, NWW-75, NWW-77 through NWW-79, NWW-81, NWW-83, NWW-84, NWW-86, NWW-88, NWW-93, NWW-93, and NWW-98 through NWW-108. Staff also determined the presence of an OHWM at two locations within NWW-109 (Mojave River) (Appendix E, ODP 26 and 28). Indicators of an OHWM for NWW-109 (Mojave River) included a break in bank slope, change in vegetation cover and species, and a change in average sediment texture between the active floodplain and upland/low terrace areas (Appendix E, ODP 26 and 28).

6.3 CDFW STREAMBED AND WATERCOURSE

Figure 5C displays the estimated extent of streambed and associated watercourse within the review area. The extent of streambed was delineated based on the top of the channel banks and the extent of the associated watercourse was delineated beyond the streambed, consisting of associated features such as low-flow, active, and braided channels and banks associated with islands, and secondary channels within the bounds of the larger channel complex (Vyverberg & Brady 2013).

Overall, the features observed within the review area (NWW-1 through NWW-109 [Mojave River]) vary from single-thread, small, unvegetated dry streambeds with a well-defined bed and bank to large watercourses with multiple tributaries and vegetated islands to the larger Mojave River. No associated riparian or wetland habitat occurs within the review area. NWW-1 through NWW-108 vary in width from an average minimum of 4 feet and an average maximum of 12 feet and were primarily unvegetated and surrounded by allscale (FACU), four-wing saltbush/shadscale (*Atriplex canescens*; NL/UPL), creosote bush (NL/UPL), and white bursage (NL/UPL). Portions of NWW-109 (Mojave River) within the review area varied in width from approximately 50 feet to 3,100 feet; this feature was sparsely vegetated and generally composed of active desert dune habitat. See

Appendix H, Table H-2 for the estimated extent of CDFW jurisdiction for NWW-1 through NWW-109 (Mojave River).

All of the delineated features, except NWW-9, NWW-43, NWW-60, NWW-98, and NWW-109 (Mojave River), generally drain southeast to northwest (Figure 5C). Figure 5C displays the limits of where streambed indicators were observed within the review area. There are 19 sets of culvert/railroad crossings located along the railroad tracks within the review area, which could allow for flows to continue north. NWW-9, NWW-43, and NWW-98 commence at the dirt road north of the railroad tracks before continuing northwest and off site. NWW-60 is a small, localized feature north of the railroad tracks that receives flows off the dirt road north of the railroad tracks.

The Mojave River (NWW-109) is a sparsely vegetated, dry, sandy wash that extends into active desert dune habitat and generally flows southwest to northeast before continuing off site. Overall, the mapped watercourses within the review area are associated with the following delineated streambed: NWW-27, NWW-28, NWW-32, NWW-36, NWW-37, NWW-40, NWW-45, NWW-49, NWW-59, NWW-68 – NWW-70, NWW-76, NWW-80, NWW-89, and NWW-106. Watercourse A was associated with a streambed that occurs off site and upstream, and as such, is labeled separately. The streambed bed and bank associated with Watercourse A was difficult to distinguish within the review area (i.e, no OHWM or well-defined bed and bank) and thus no streambed (NWW) was mapped within this on-site watercourse area; as such, this on-site watercourse area is labeled separately as Watercourse A. As further detailed in Section 3.2.3, the extent of the Mojave River was delineated based on the presence of field indicators, including evidence of ponding (e.g., mud cracks and moist soils) and secondary channels (Appendix G, Photo 43 and 44), as well as topography and 50- and 100-year floodplain modeling for the Mojave River; no field indicators of flows were observed within the agricultural fields just south of the Mojave River.

The general characteristics of each of the observed features within the review area are provided in Appendix H, Table H-2.

6.4 OTHER FEATURES

Field staff further investigated several areas with potential aquatic resource indicators, including a swale and two basins, as described below. Additionally, WDP 6 was taken adjacent to a dirt road and old concrete berm structure in a concave area mapped as containing hydric soils per the NRCS (Figures 5A – 5C; Figure 4; Appendix E, WDP 6; Appendix G, Photo 22); WDP 5, WDP 7, WDP 8, and WDP 9 were taken in areas dominated by salt cedar (FAC) (Figures 5A – 5C; Appendix E, WDP 5, 7, 8, and 9; Appendix G, Photos 15, 26, 31, and 34); and WDP 11 was taken in a concave area exhibiting surface soil cracks and some ponding on aerial imagery (Figures 5A – 5C; Appendix E, WDP 11; Appendix G, Photo 40). These areas did not meet all three federal wetland parameters, did not display an OHWM or exhibit bed and bank indicators, and did not appear to convey surface flows.

Furthermore, the features discussed in this section are not discussed further in this ARDR as they did not have aquatic resource field indicators and are not anticipated to be jurisdictional under Corps, RWQCB, or CDFW regulations, policy, and/or guidance based on the information provided in this section.

Swale 1

One roadside swale (S-1; Figures 5A – 5C) was observed during the field delineation. S-1 is a slightly concave drainage area adjacent to National Trails Highway within the southwest portion of the review area that did not display an observable OHWM or bed and bank and instead appeared to convey surface flows as runoff from National Trails Highway. ODP 20, taken in an area of disturbed habitat, contained a slight change in vegetation cover between the swale and the adjacent upland area; however, ODP 20 did not show evidence of a break in slope or a defined bed and bank between the swale and adjacent uplands. Additionally, ODP 20 did not contain a change in average sediment texture, change in upland vegetation species, or any additional OHWM indicators between the swale and the adjacent upland area (Figures 5A – 5C; Attachment E, ODP 20; Appendix G, Photo 25). Thus, this swale was determined to not have an OHWM or defined bed and bank and did not appear to convey flows to downstream aquatic resources via observed flow patterns, culverts, or other flow paths and thus does not provide/has no impact on downstream beneficial uses and/or aquatic resource functions.

Basin 1 and 2

Two basins (B-1 and B-2; Figures 5A – 5C) that occur within the northwestern portion of the review area displayed some concavity within the otherwise flat landscape. Note that RBC was not allowed to access B-1 or B-2; as such, these areas were assessed based on a review of current and historic aerial imagery (Appendix D). B-1 consisted of an unvegetated, artificially excavated basin used for recreational purposes (Figures 5A – 5C; Google Earth Pro 2022; C. Stevens, personal communication, May 26, 2022). As discussed previously in Section 4, construction of B-1 began around May 2009 along with installation of the nearby basketball court, fishing docks, and playground (Google Earth Pro 2022; Appendix D; C. Stevens, personal communication, May 26, 2022). Based upon the absence of vegetation within B-1 in aerial imagery from 2009 through 2020 and the similar conditions observed at WDP 11 (concavity and ponding visible on aerial imagery), B-1 did not meet all three wetland parameters.

B-2 consisted of a sparsely vegetated, artifically excavated basin used for irrigation purposes (UCSB n.d.; NetrOnline 2022; Appendix D; C. Stevens, personal communication, May 26, 2022). As discussed previously in Section 4, B-2 was constructed between July 1973 and December 1984 (UCSB n.d.; NetrOnline 2022; Appendix D; C. Stevens, personal communication, May 26, 2022). The conditions observed at WDP 7 (slight concavity and area dominated by salt cedar) and WDP 11 (concavity and ponding visible on aerial imagery) were representative of the conditions within B-2; as such, B-2 did not meet all three wetland parameters.

Both basins do not convey flows to downstream aquatic resources via observed flow patterns, culverts, or other flow paths. As such, B-1 and B-2 would not qualify as aquatic resources jurisdictional per the Corps or RWQCB, as they are maintained artificial structures with no downstream connectivity and which do not provide/have no impact on downstream beneficial uses and/or aquatic resource functions. B-1 and B-2 would also not qualify as streambed jurisdictional per the CDFW, as B-1 and B-2 lacked association with a natural feature/streambed and did not support wildlife habitat.

Field staff did not observe additional areas with potential aquatic resource indicators, including other areas showing evidence of drainage, ponding, or flow patterns. Data collected for the

features discussed in Sections 6.1, 6.2, and 6.3 defined the extent of aquatic resource and upland areas within the review area.

7 DEVIATION FROM NWI AND NHD

The delineated extent of several of the non-wetland water/dry wash features generally occur within the features mapped by the USFWS NWI as "Riverine" (Figure 4) and by the USGS as "Stream/River" (Figure 2). The delineated extent of B-1 generally occurs within the feature mapped by the USFWS NWI as "Freshwater Pond" (Figure 4) and by the USGS NHD as "Reservoir" (Figure 2). The delineated extent of B-2 generally occurs within the feature mapped by the USGS NHD as "Lake/Pond" (Figure 2). The delineated extent of the Mojave River (NWW-109) generally occurs within the feature mapped by the USFWS NWI as "Riverine" (Figure 4) and by the USGS NHD as "Wash" and "Riverine" (Figure 2).

8 RESULTS AND CONCLUSIONS

The results provided in this section include the extent of delineated aquatic resources within the review area based on observed field indicators of potential waters of the U.S., waters of the State, and CDFW streambed and associated wetland and/or riparian habitat per the methodologies discussed in Section 3. Table 7 provides a summary of the aquatic resources delineated within the review area per agency. Further details for each aquatic resource (NWW-1 through NWW-109, as well as Watercourse A for CDFW) are provided in Appendix H.

This section, however, does not analyze the Corps' jurisdictional status of the delineated features per the current regulations, guidance, and standard operating procedures. A request for the Corps to complete a PJD based on the information provided in this report is included as Appendix B.

Table 7. Total Acreages of Delineated Aquatic Resources within Review Area

Agency	Aquatic Resource Type	Acres	Linear Feet
Corps	Non-Wetland Waters of the U.S.	125.58	177,864
	Total Corps Aquatic Resources	***125.58***	***177,864***
RWQCB	Non-Wetland Waters of the State	125.58	177,864
	Total RWQCB Aquatic Resources	***125.58***	***177,864***
CDFW	Unvegetated Streambed	34.49	195,124
	Vegetated Streambed	580.30	
	Watercourse	55.18	N/A[1]
	Total CDFW Aquatic Resources[2]	***669.96***	***195,124***

[1] Linear feet not calculated for watercourse to avoid redundant linear foot calculation where such areas overlap with streambed.
[2] Acreages and linear feet totals were summed using raw numbers provided during GIS analysis (available upon request) and thus, the sum of the total rounded numbers may not directly add up in this table.

8.1 CORPS

NWW-1 through NWW-109 (Mojave River) displayed clear indicators of an OHWM, such as a break in bank slope, change in average sediment texture, and change in vegetation cover between the drainage and adjacent uplands (Appendix E); however, these features did not meet the three wetland parameters.

As such, NWW-1 through NWW-109 (Mojave River) may be considered non-wetland waters of the U.S. Approximately 125.58 acres (177,864 linear feet) of potential non-wetland waters of the U.S. associated with NWW-1 through NWW-109 (Mojave River) occur within the review area as further detailed in Appendix H, Table H-1 and as shown on Figure 5A. The ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet is included as Appendix I.

8.2 RWQCB

NWW-1 through NWW-109 (Mojave River) displayed clear indicators of an OHWM, such as a break in bank slope, change in average sediment texture, and change in vegetation cover between the drainage and adjacent uplands (Appendix E); however, these features did not meet the three wetland parameters.

As such, NWW-1 through NWW-109 (Mojave River) may be considered non-wetland waters of the State. Approximately 125.58 acres (177,864 linear feet) of potential non-wetland waters of the U.S. associated with NWW-1 through NWW-109 (Mojave River) occur within the review area, as further detailed in Appendix H, Table H-1 and as shown on Figure 5B.

8.3 CDFW

NWW-1 through NWW-108 and the Mojave River (NWW-109) qualify as CDFW streambed; NWW-27, NWW-28, NWW-32, NWW-36, NWW-37, NWW-40, NWW-45, NWW-49, NWW-59, NWW-68 – NWW-70, NWW-76, NWW-80, NWW-89, NWW-106, and Watercourse A include associated CDFW watercourse (Figure 5C).

Approximately 580.29 acres (17,982 linear feet) of vegetated streambed, 34.49 acres (177,143 linear feet) of unvegetated streambed, and 55.18 acres of associated watercourse occur within the review area, as further detailed in Appendix H, Table H-2 and as shown on Figure 5C.

8.4 DISCLAIMER STATEMENT

The aquatic resources acreages and linear feet estimated in this section represent the existing conditions during the time of the field surveys. Please note that the applicable agencies will make final jurisdictional determinations. RBC recommends early coordination with the resource agencies to determine the final jurisdictional boundaries, applicable permitting processes, compensatory mitigation requirements, and other potential permitting issues specific to the proposed work within the review area. Agency representatives may request to access the site to field-verify the results of this ARDR with the applicant, or a designated representative.

The information provided in this report should remain valid for up to five years from the date of the field effort for the jurisdictional delineation unless site conditions change substantially, or a regulatory agency requires an updated report.

9 CONTACT INFORMATION

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817-352-2383

Agent:

Sarah Krejca

Rocks Biological Consulting

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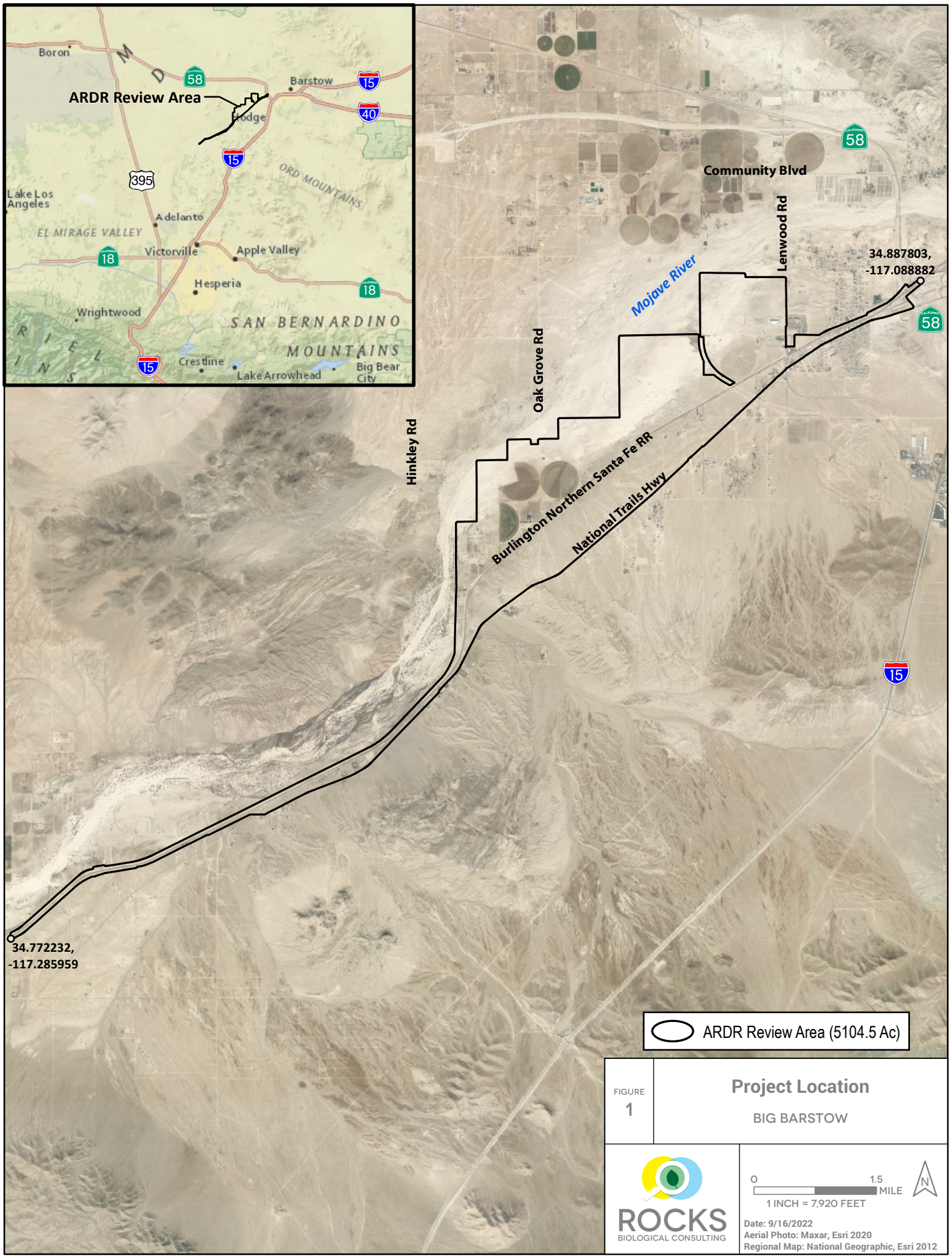
San Diego, CA 92107

sarah@rocksbio.com

619-813-8790

Agency access to the review area can be coordinated with the applicant and/or agent upon request.


ARDR Review Area
Boron
Barstow
Lodge
Lake Los Angeles
Adelanto
EL MIRAGE VALLEY
Victorville
Apple Valley
Hesperia
Wrightwood
SAN BERNARDINO MOUNTAINS
Crestline
Lake Arrowhead
Big Bear City
ORD MOUNTAINS
Community Blvd
Lenwood Rd
Mojave River
34.887803,
-117.088882
Oak Grove Rd
Hinkley Rd
Burlington Northern Santa Fe RR
National Trails Hwy
34.772232,
-117.285959
ARDR Review Area (5104.5 Ac)
FIGURE
1
Project Location
BIG BARSTOW
ROCKS
BIOLOGICAL CONSULTING
0
1.5
MILE
1 INCH = 7,920 FEET
N
Date: 9/16/2022
Aerial Photo: Maxar, Esri 2020
Regional Map: National Geographic, Esri 2012

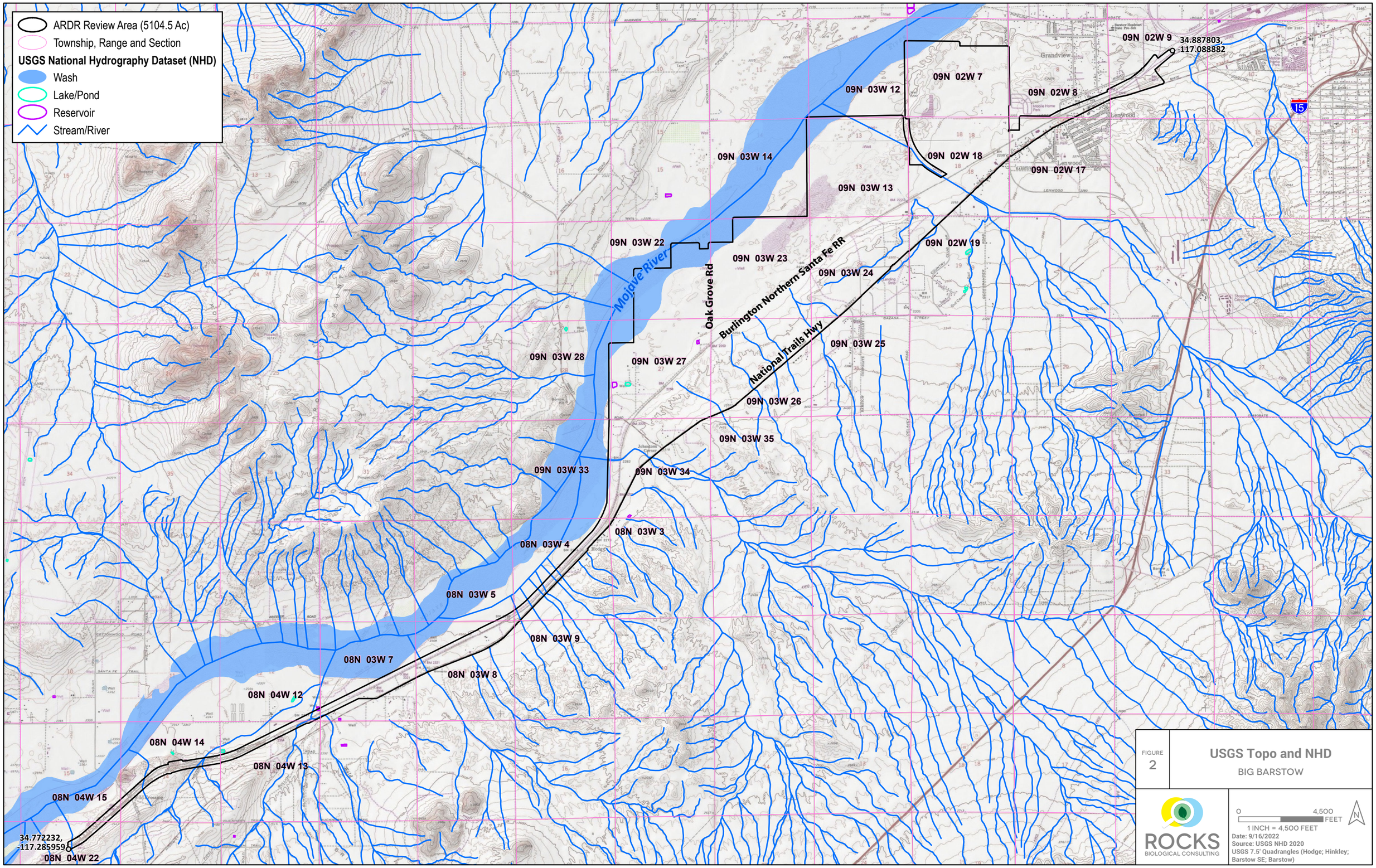


FIGURE 2

USGS Topo and NHD

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

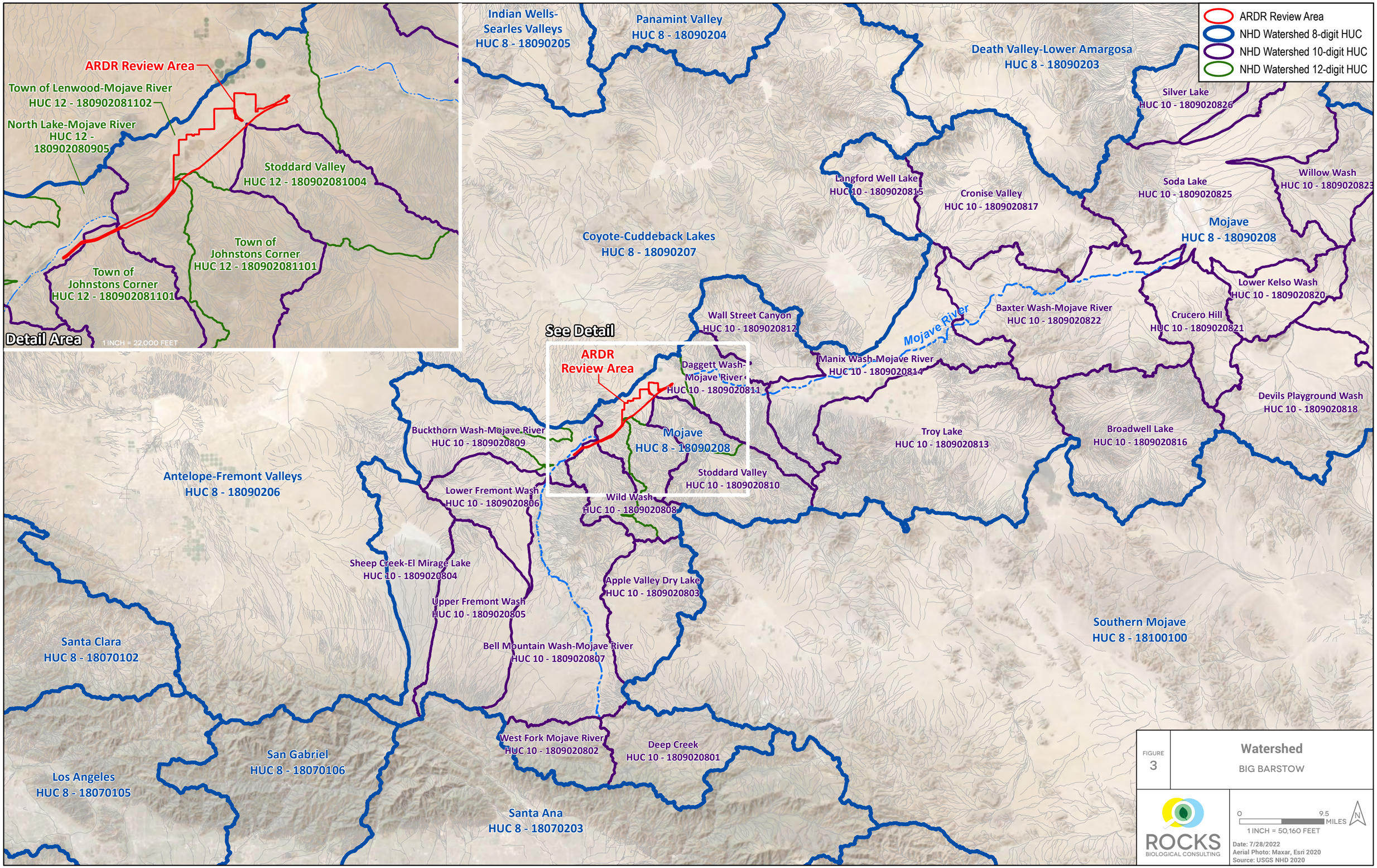
0 4,500 FEET

1 INCH = 4,500 FEET

Date: 9/16/2022

Source: USGS NHD 2020

USGS 7.5' Quadrangles (Hodge; Hinkley; Barstow SE; Barstow)


ARDR Review Area
NHD Watershed 8-digit HUC
NHD Watershed 10-digit HUC
NHD Watershed 12-digit HUC
Indian Wells-Searles Valleys HUC 8 - 18090205
Panamint Valley HUC 8 - 18090204
Death Valley-Lower Amargosa HUC 8 - 18090203
Silver Lake HUC 10 - 1809020826
Willow Wash HUC 10 - 1809020823
Soda Lake HUC 10 - 1809020825
Langford Well Lake HUC 10 - 1809020815
Cronise Valley HUC 10 - 1809020817
Mojave HUC 8 - 18090208
Coyote-Cuddeback Lakes HUC 8 - 18090207
Lower Kelso Wash HUC 10 - 1809020820
Baxter Wash-Mojave River HUC 10 - 1809020822
Crucero Hill HUC 10 - 1809020821
Mojave River
Wall Street Canyon HUC 10 - 1809020812
Manix Wash-Mojave River HUC 10 - 1809020814
Devils Playground Wash HUC 10 - 1809020818
Broadwell Lake HUC 10 - 1809020816
Troy Lake HUC 10 - 1809020813
Buckthorn Wash-Mojave River HUC 10 - 1809020809
Antelope-Fremont Valleys HUC 8 - 18090206
Lower Fremont Wash HUC 10 - 1809020806
Wild Wash HUC 10 - 1809020808
Stoddard Valley HUC 10 - 1809020810
Sheep Creek-El Mirage Lake HUC 10 - 1809020804
Upper Fremont Wash HUC 10 - 1809020805
Apple Valley Dry Lake HUC 10 - 1809020803
Bell Mountain Wash-Mojave River HUC 10 - 1809020807
Southern Mojave HUC 8 - 18100100
Santa Clara HUC 8 - 18070102
West Fork Mojave River HUC 10 - 1809020802
Deep Creek HUC 10 - 1809020801
San Gabriel HUC 8 - 18070106
Los Angeles HUC 8 - 18070105
Santa Ana HUC 8 - 18070203
See Detail
ARDR Review Area
Daggett Wash-Mojave River HUC 10 - 1809020811
Mojave HUC 8 - 18090208
Stoddard Valley HUC 10 - 1809020810
Wild Wash HUC 10 - 1809020808
Detail Area
1 INCH = 22,000 FEET
ARDR Review Area
Town of Lenwood-Mojave River HUC 12 - 180902081102
North Lake-Mojave River HUC 12 - 180902080905
Stoddard Valley HUC 12 - 180902081004
Town of Johnstons Corner HUC 12 - 180902081101
Town of Johnstons Corner HUC 12 - 180902081101
FIGURE 3
Watershed
BIG BARSTOW
ROCKS BIOLOGICAL CONSULTING
0 9.5 MILES
1 INCH = 50,160 FEET
N
Date: 7/28/2022
Aerial Photo: Maxar, Esri 2020
Source: USGS NHD 2020

ARDR Review Area (5104.5 ac)

Wetland Data Form Point (WDP)

National Wetlands Inventory (NWI)

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Riverine
- Freshwater Pond

NRCS Soils

- Bryman Loamy Fine Sand, 2 to 5 Percent Slopes
- Cajon Gravelly Sand, 2 to 15 Percent Slopes
- Cajon Loamy Sand, 5 to 9 Percent Slopes
- Cajon Sand, 0 to 2 Percent Slopes*
- Cajon Sand, 2 to 9 Percent Slopes
- Cajon-Arizo Complex, 2 to 15 Percent Slopes
- Cajon-Wasco, Cool Complex, 2 to 9 Percent Slopes*
- Cave Loam, Dry, 0 to 2 Percent Slopes*
- Dune Land*
- Helendale Loamy Sand, 0 to 2 Percent Slopes
- Helendale Loamy Sand, 2 to 5 Percent Slopes
- Joshua Loam, 2 to 5 Percent Slopes
- Nebona-Cuddeback Complex, 2 to 9 Percent Slopes*
- Norob-Halloran Complex, 0 to 5 Percent Slopes*
- Riverwash*
- Rock Outcrop-Lithic Torriorthents Complex, 15 to 50 Percent Slopes
- Rosamond Loam, Saline-Alkali*
- Victorville Sandy Loam*
- Villa Loamy Sand*
- Villa Loamy Sand, Hummocky*

*Soils rated as hydric per the NRCS.

34.887803, -117.088882

34.772232, -117.285959

WDP 1
WDP 2
WDP 3
WDP 4
WDP 5
WDP 6
WDP 7
WDP 8
WDP 9
WDP 10
WDP 11

Mojave River

Oak Grove Rd

Burlington Northern Santa Fe RR

National Trails Hwy

Lenwood Rd

58

15

FIGURE 4

NRCS Soils Survey Data and NWI

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 4,500 FEET

1 INCH = 4,500 FEET

N

Date: 9/16/2022

Aerial Photo: San Bernardino County 2020, Esri

Source: USFWS NWI 2019; USDA NRCS 2018



ARDR Review Area (5104.5 ac)[1]

Culvert

Flow Direction

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

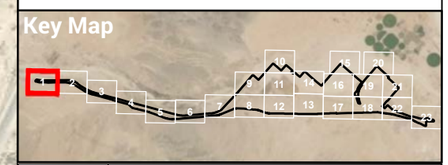


FIGURE 5A

PAGE 1 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Railroad Crossing

Flow Direction

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

11'-15'

24'-30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

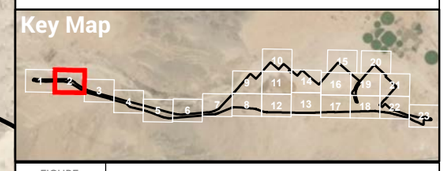


FIGURE 5A

PAGE 2 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Flow Direction

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'
4'-6'
24'-30'
>30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

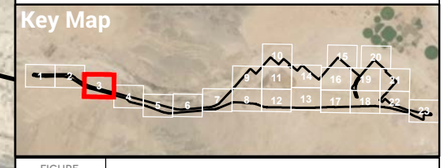


FIGURE 5A

PAGE 3 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

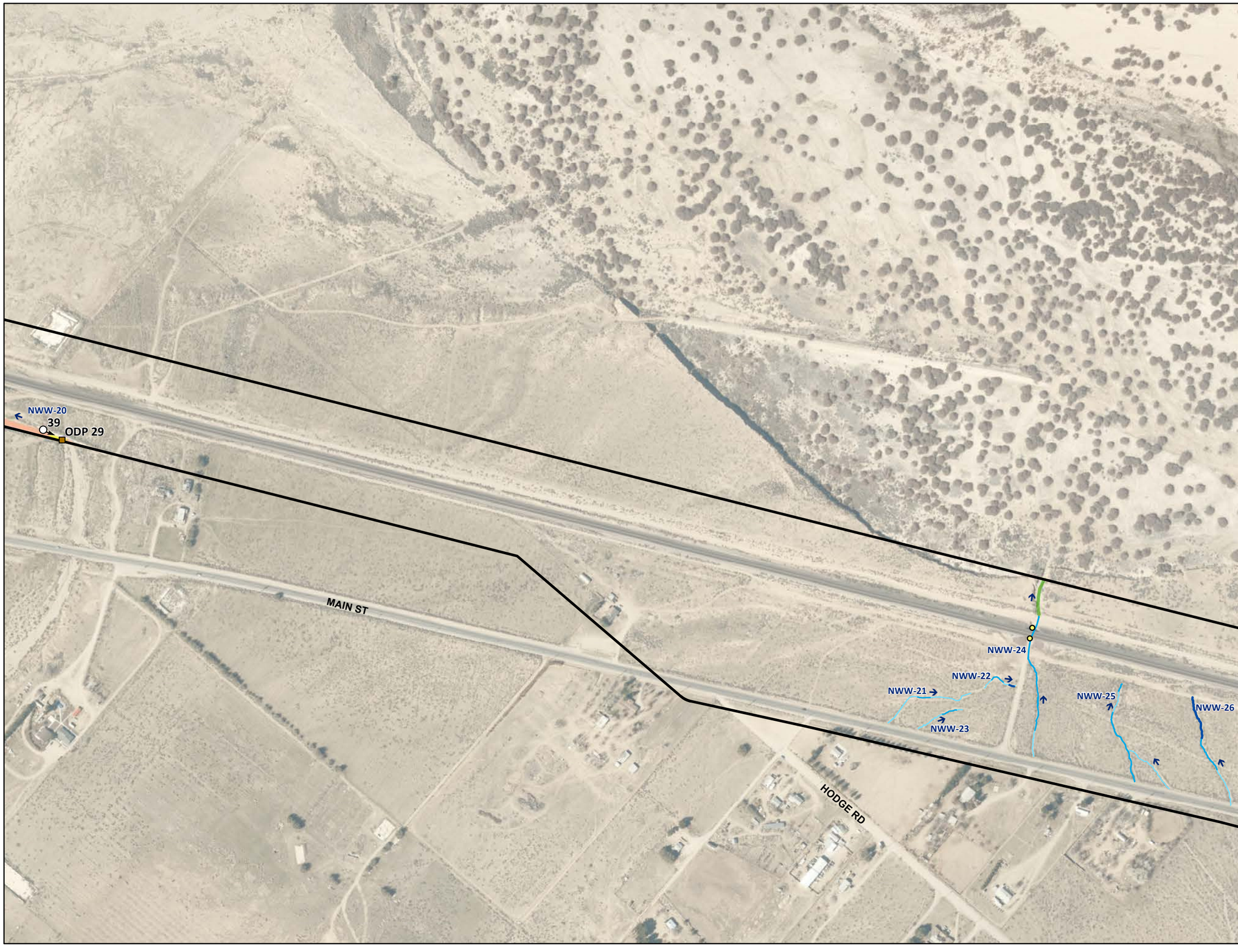
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Railroad Crossing

OHWM Datasheet Point (ODP)

Flow Direction

Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

16'-21'

24'-30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5A

PAGE 4 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Railroad Crossing

Wetland Data Form Point (WDP)

Flow Direction

Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

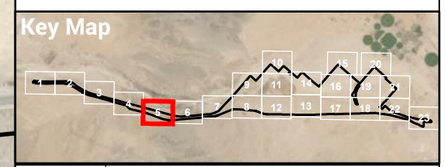


FIGURE 5A

PAGE 5 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

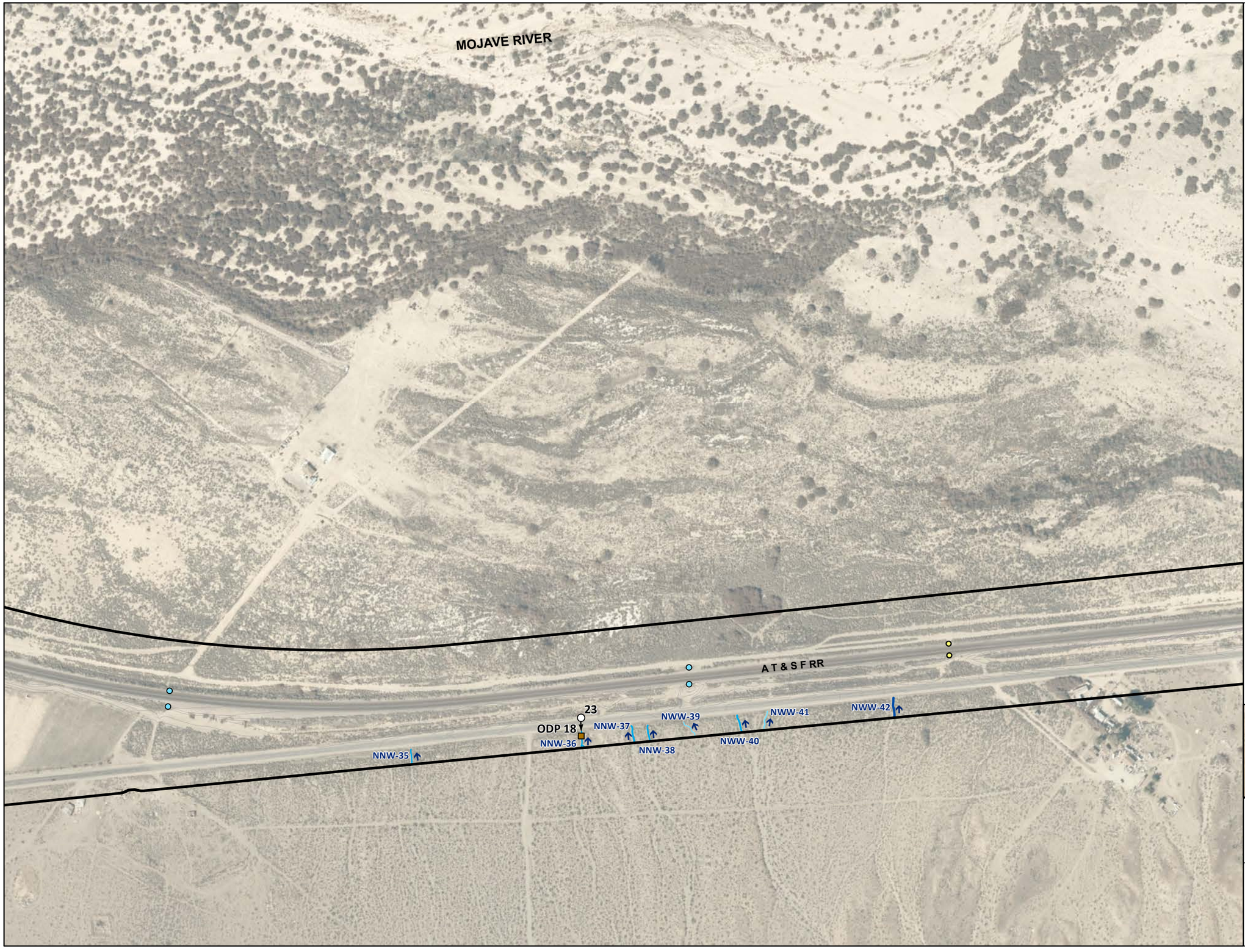
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Culvert

Railroad Crossing

OHWM Datasheet Point (ODP)

Flow Direction

Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

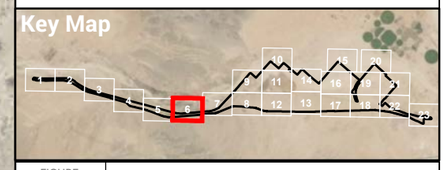


FIGURE 5A

PAGE 6 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

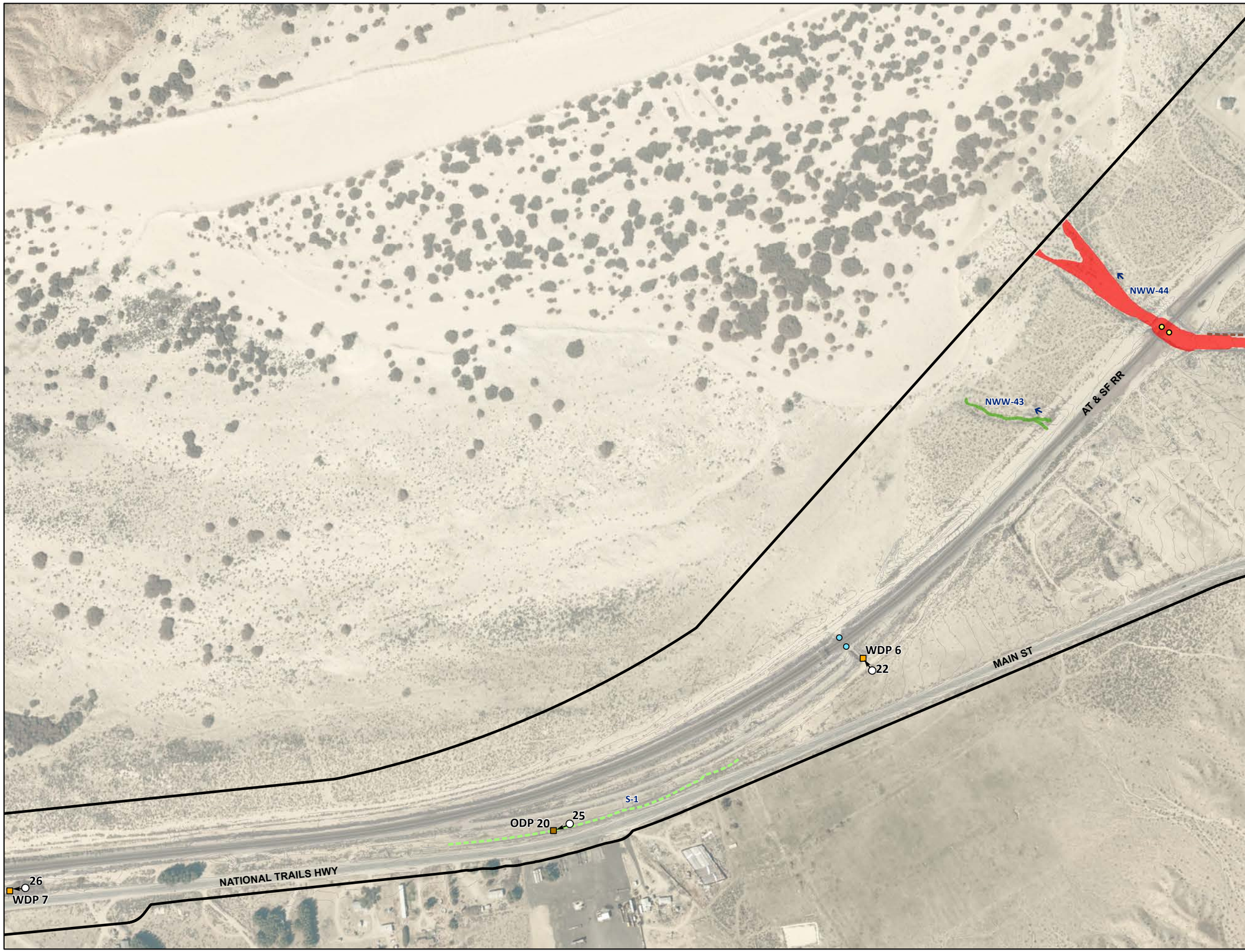
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Berm - Earthen Lined
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

11'-15'
>30'

Other Features[3]

Swale

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking OHWM or three-parameter wetland, and thus anticipated to be non-jurisdictional.

Key Map

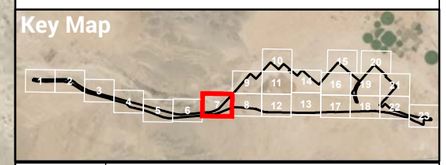


FIGURE 5A

PAGE 7 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

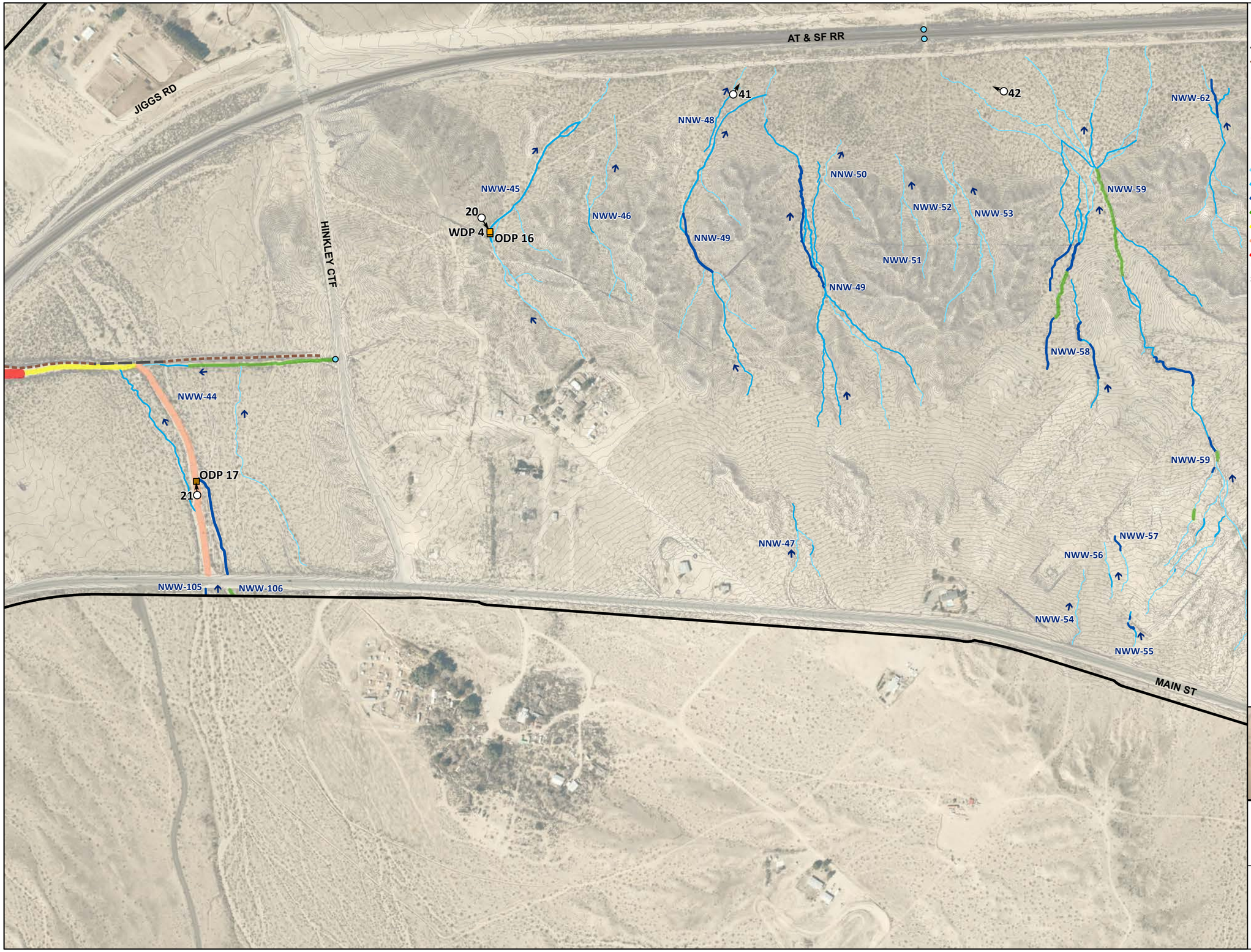
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Berm - Concrete Slab
Berm - Earthen Lined
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

- 1'-3'
- 4'-6'
- 7'-10'
- 11'-15'
- 16'-21'
- 24'-30'
- >30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

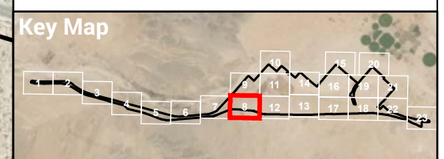


FIGURE 5A

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Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

4'-6'
11'-15'
>30'

Other Features[3]

Basin

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking OHWM or three-parameter wetland, and thus anticipated to be non-jurisdictional.

Key Map

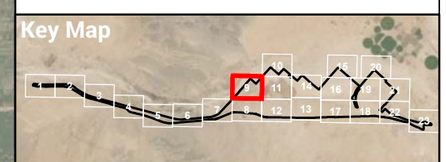

FIGURE 5A

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Corps Aquatic Resources

BIG BARSTOW

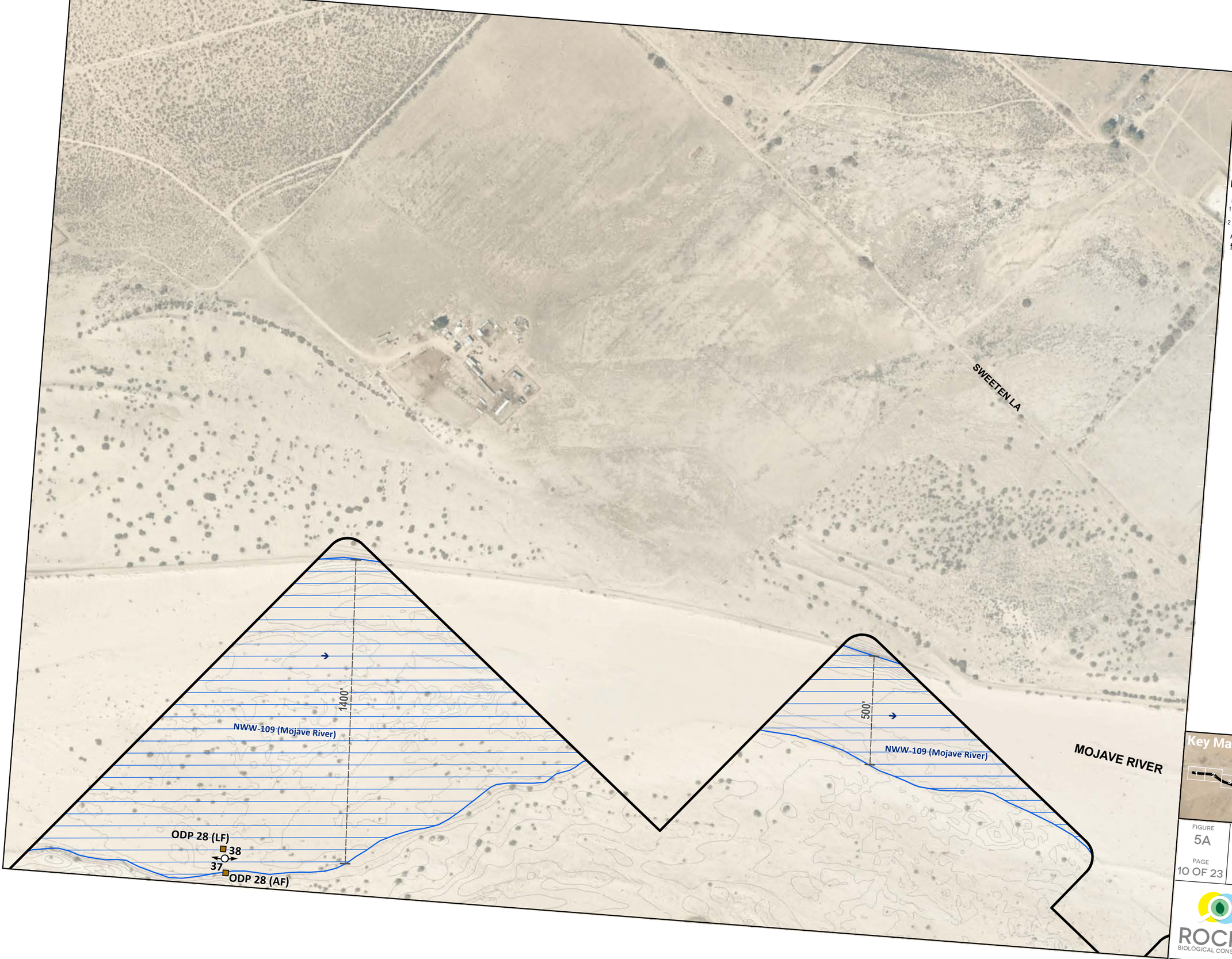
ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

OHWM Datasheet Point (ODP)

AF = Active Floodplain

LF = Low-Flow Channel

Flow Direction

Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1]

Mojave River Extent

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.



FIGURE 5A

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Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022



ARDR Review Area (5104.5 ac)[1]

Photo Location

[1] Represents total acreage for ARDR review area.

Key Map

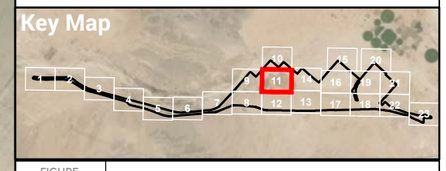


FIGURE 5A

PAGE 11 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

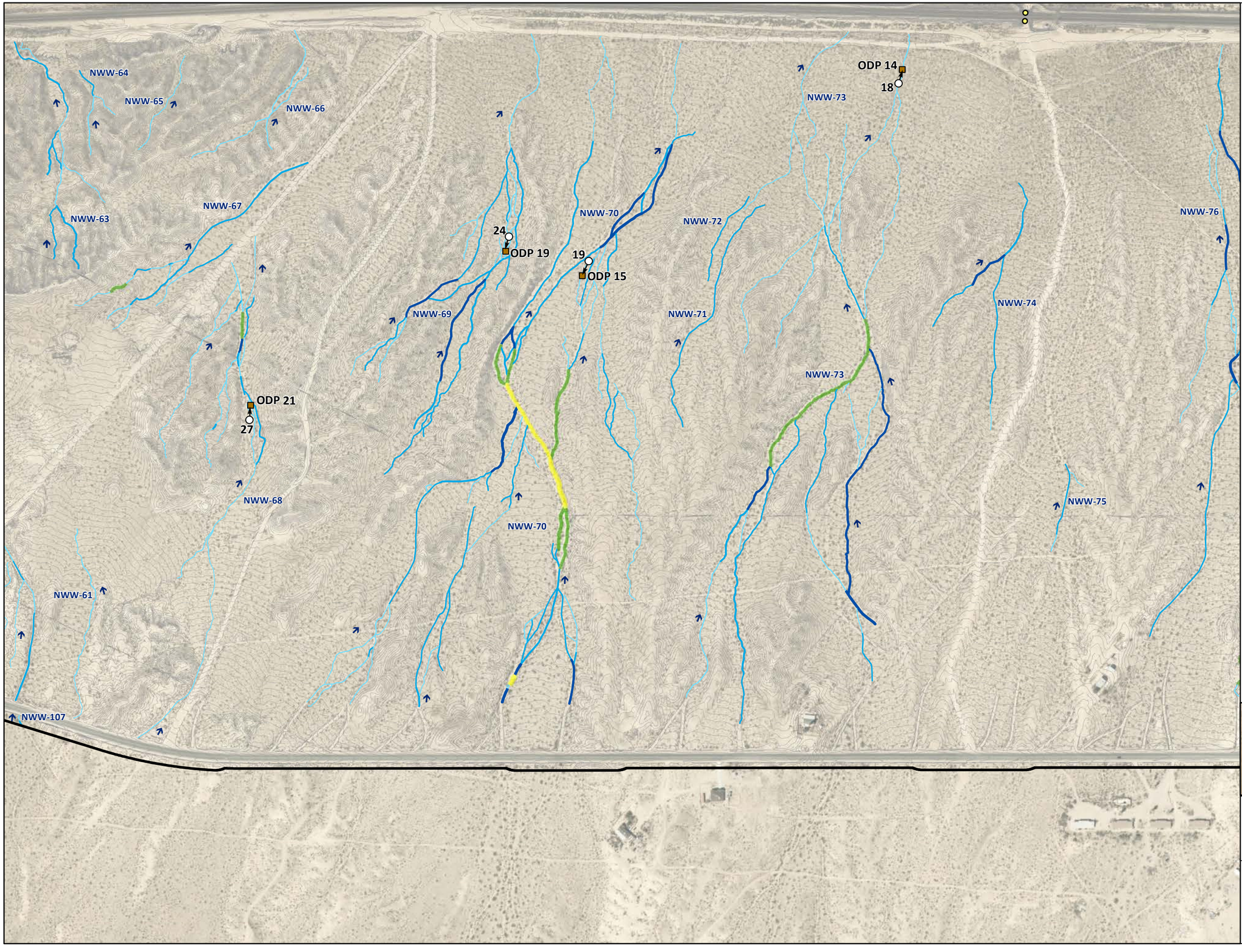
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Railroad Crossing
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

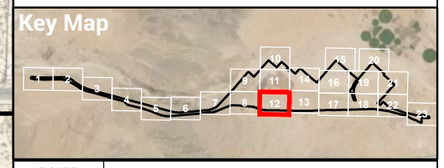


FIGURE 5A

PAGE 12 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

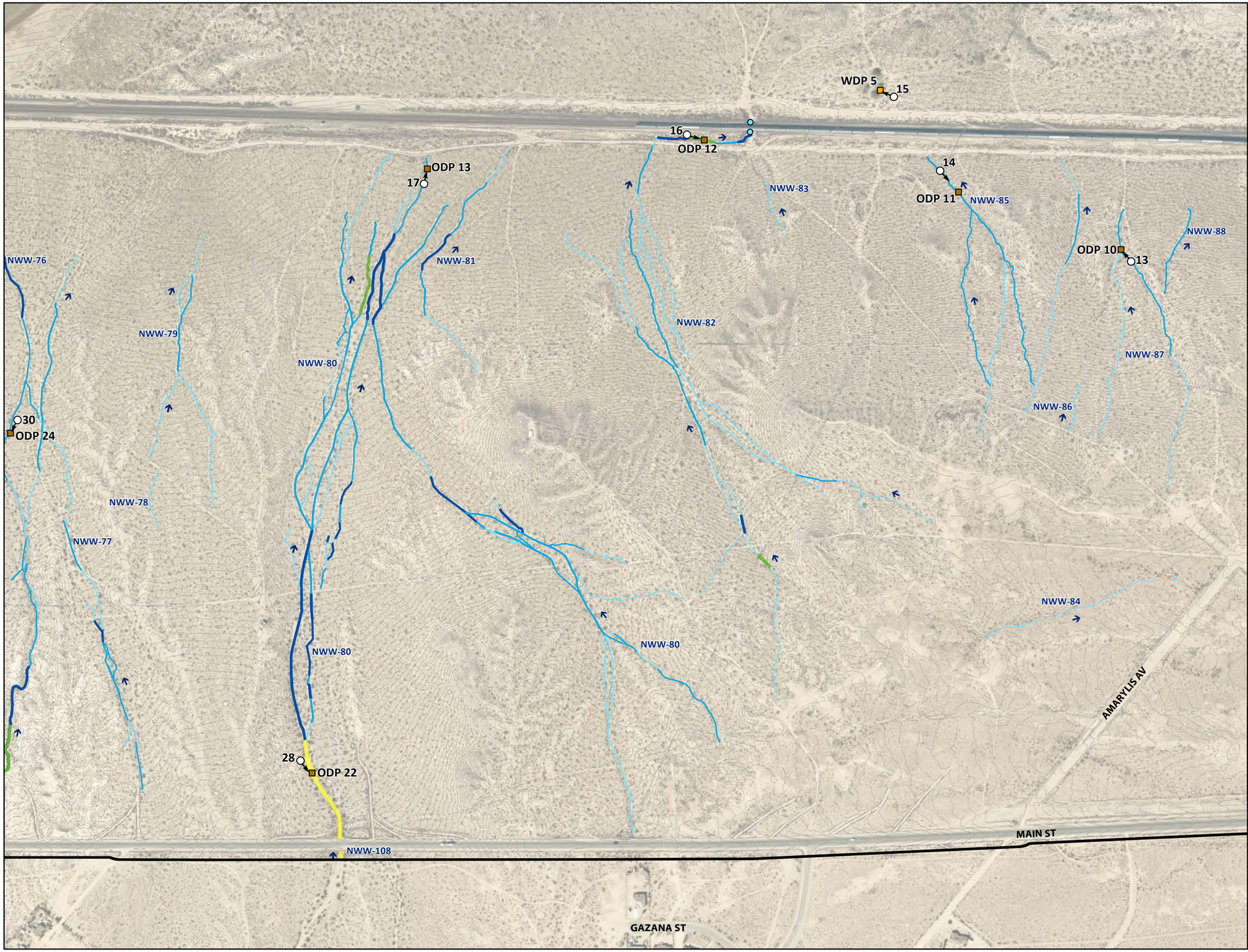
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

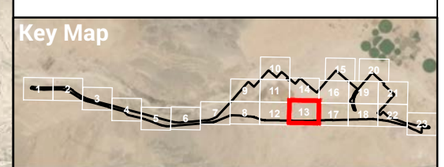


FIGURE 5A

PAGE 13 OF 23

Corps Aquatic Resources

BIG BARSTOW

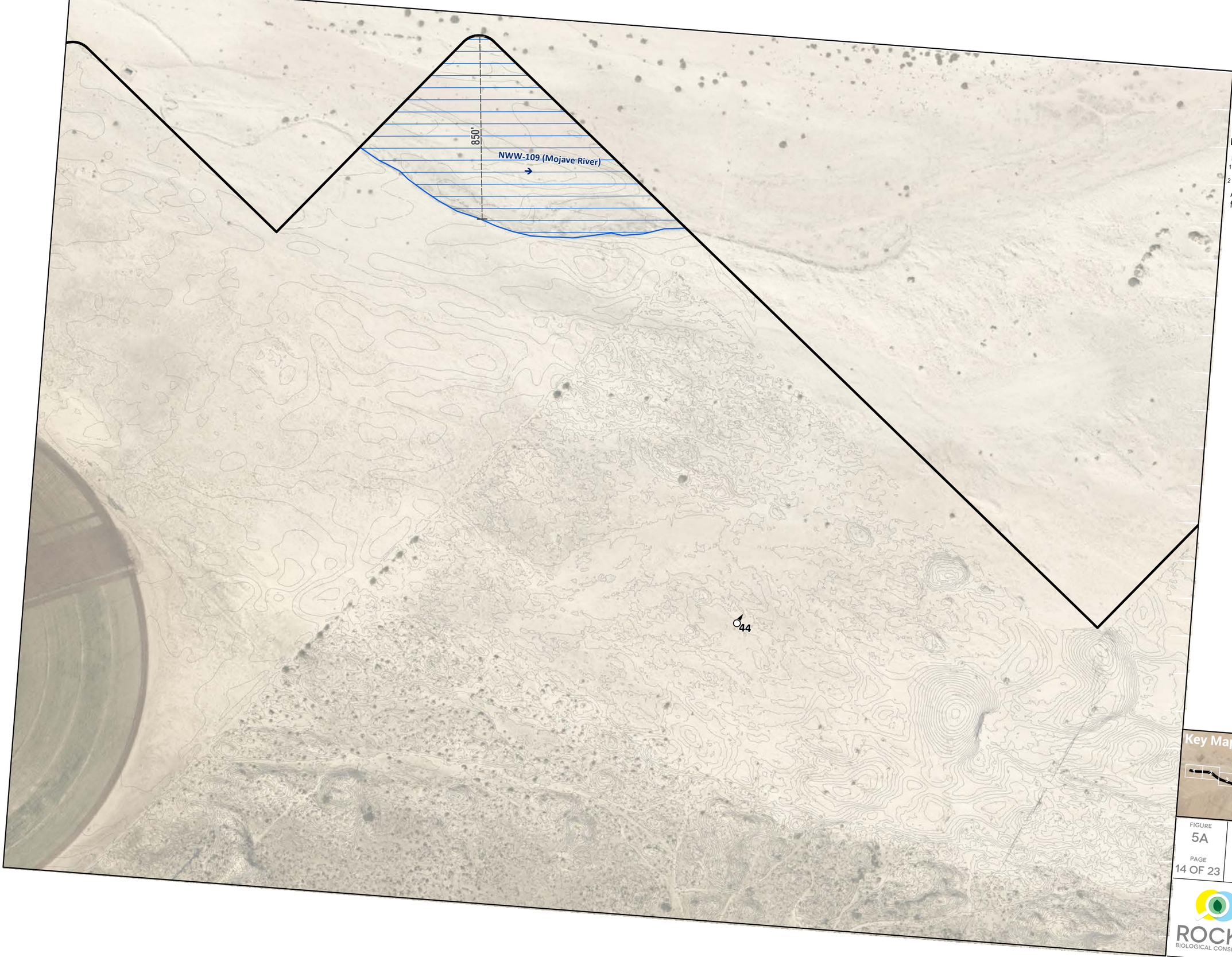
ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1]

Mojave River Extent

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map



FIGURE 5A

PAGE 14 OF 23

Corps Aquatic Resources

BIG BARSTOW

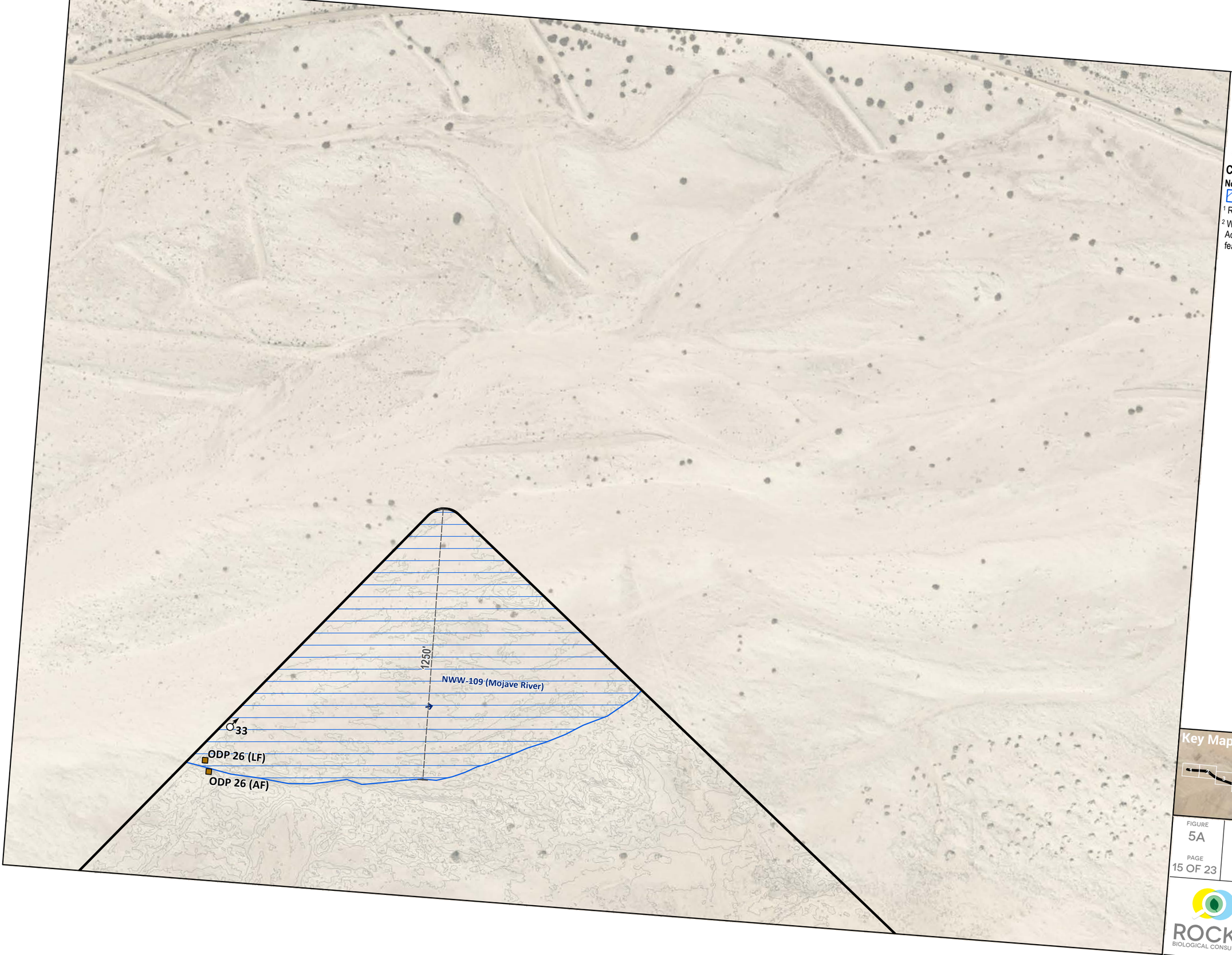
ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022



ARDR Review Area (5104.5 ac)[1]
OHWM Datasheet Point (ODP)
AF = Active Floodplain
LF = Low-Flow Channel
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1]
Mojave River Extent

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

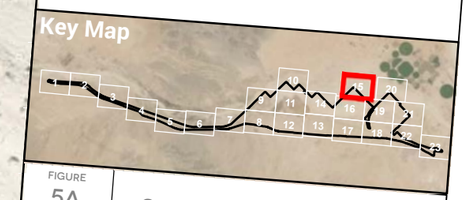


FIGURE 5A
PAGE 15 OF 23

Corps Aquatic Resources
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 9/22/2022



ARDR Review Area (5104.5 ac)[1]

Photo Location

[1] Represents total acreage for ARDR review area.

Key Map

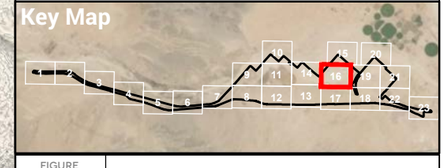


FIGURE
5A

PAGE
16 OF 23

Corps Aquatic Resources

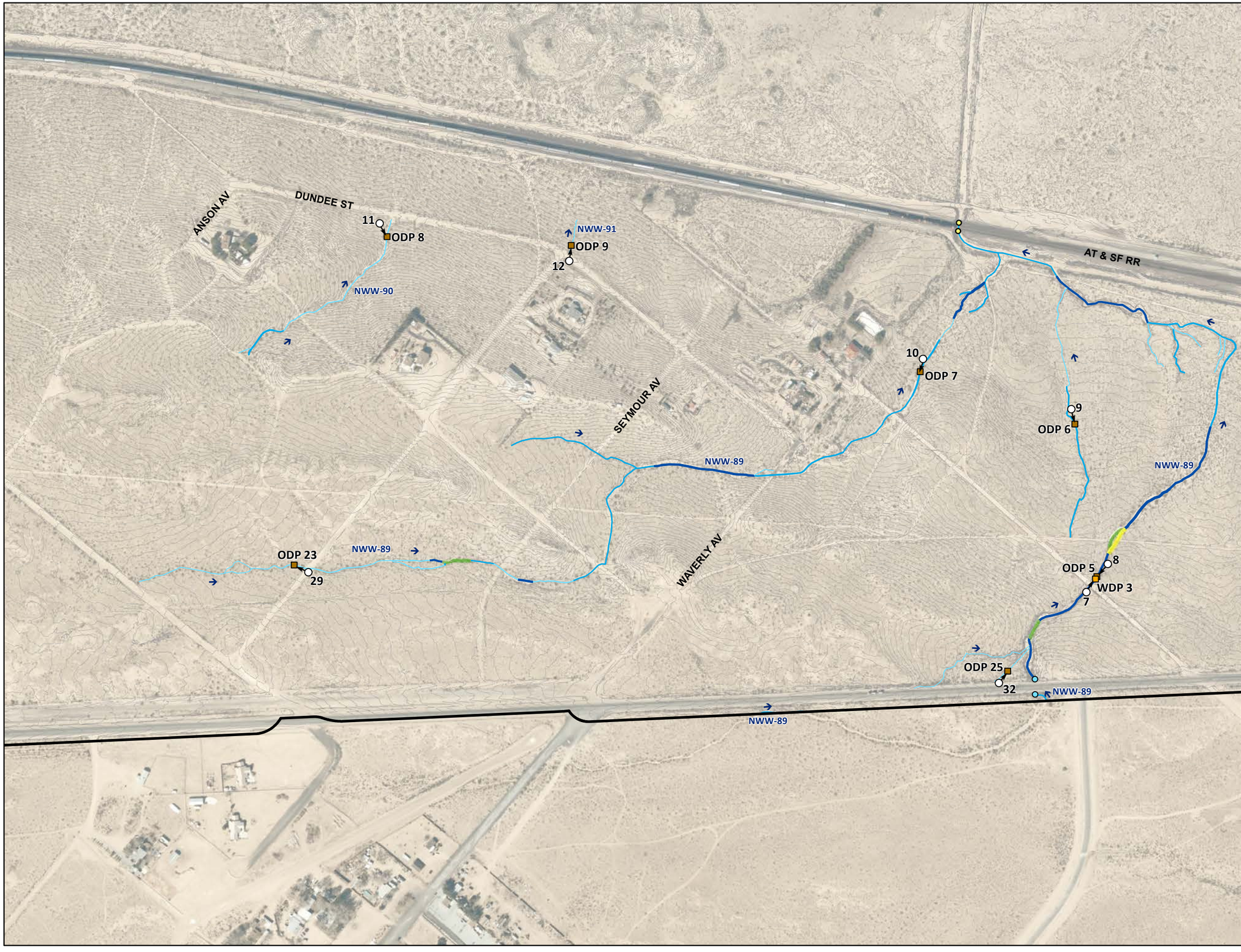
BIG BARSTOW

ROCKS
BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

N

Date: 9/22/2022
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

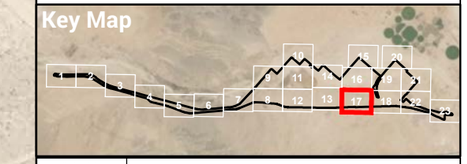


FIGURE 5A

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Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location
Off-site Flow Path

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])
4'-6'
11'-15'
16'-21'
>30'

Non-Wetland Waters - Rip-rap (0.06 ac)[1] (widths[2])
3'
20'

Non-Wetland Waters - Concrete (0.02 ac)[1] (widths[2])
6'

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5A
PAGE 18 OF 23

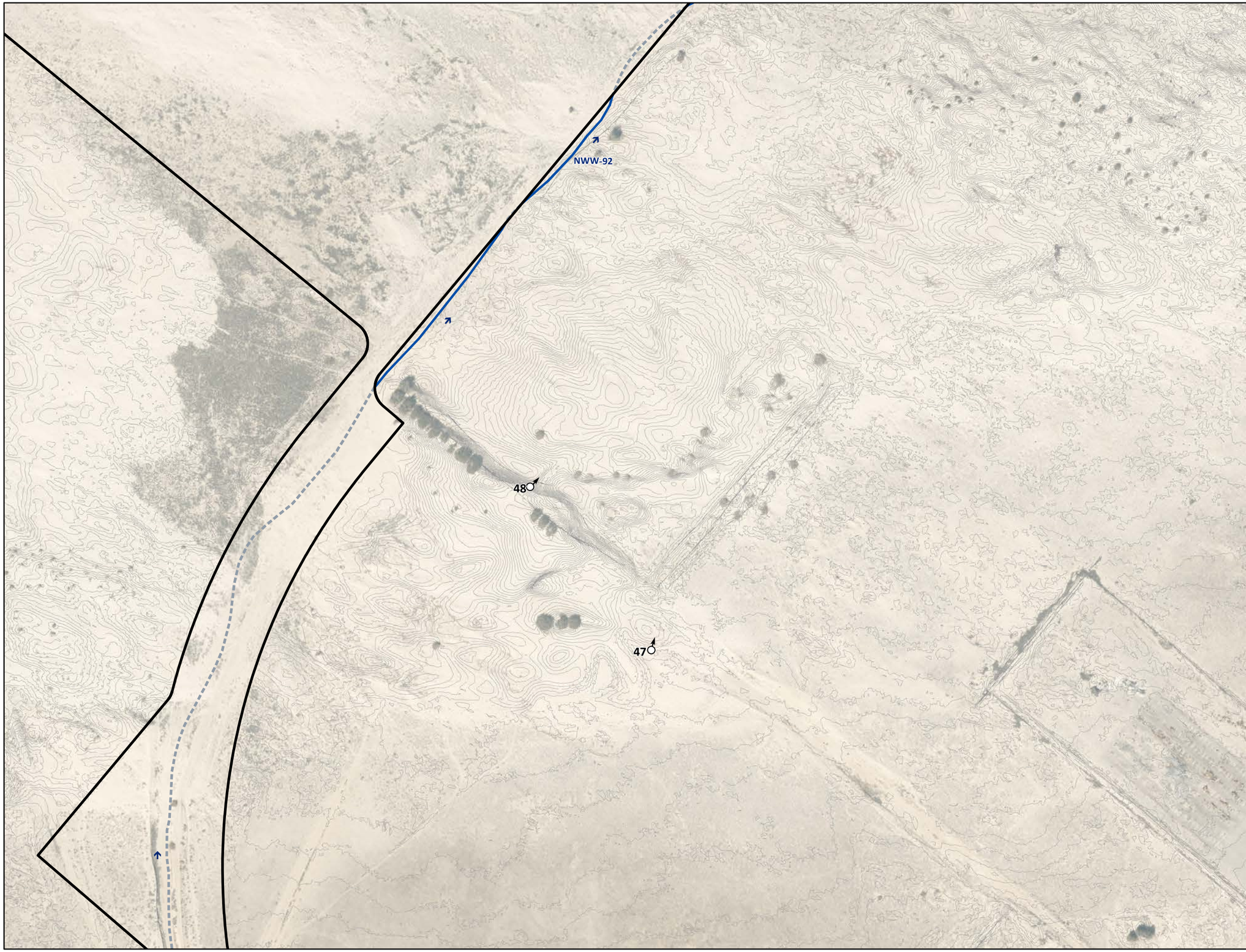
Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 9/22/2022
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

Photo Location

Off-site Flow Path

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

7'-10'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

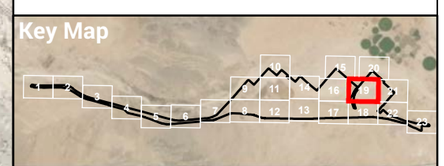


FIGURE 5A

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Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

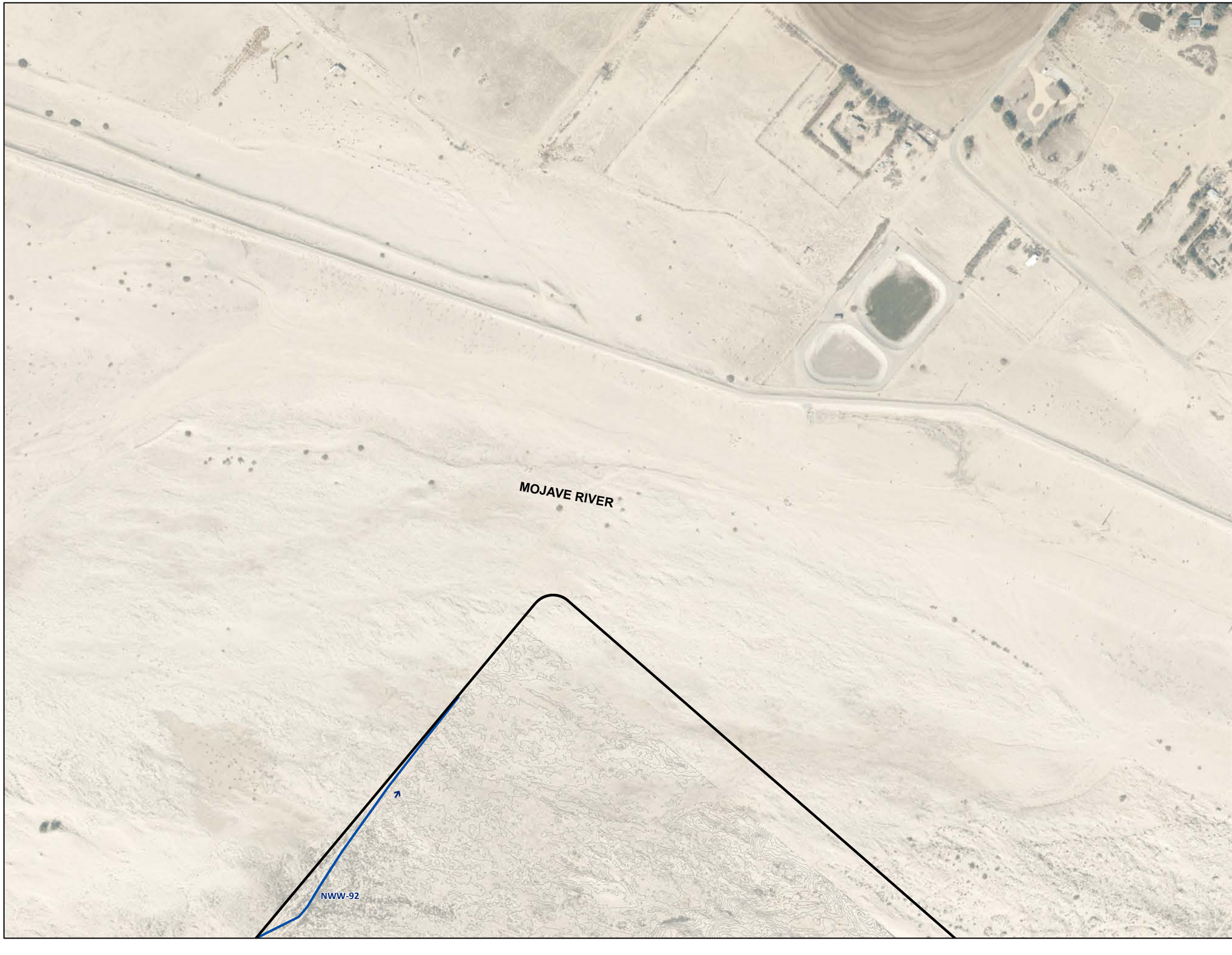
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

7'-10'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

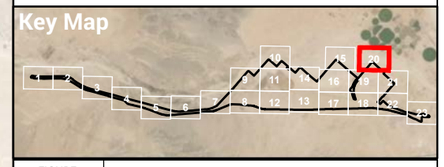


FIGURE 5A

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Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

[1] Represents total acreage for ARDR review area.

Key Map

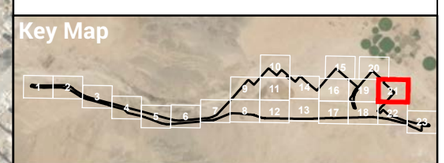

FIGURE
5A

PAGE
21 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS
BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

N

Date: 9/22/2022
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Culvert

Wetland Data Form Point (WDP)

OHWM Datasheet Point (ODP)

Flow Direction

Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

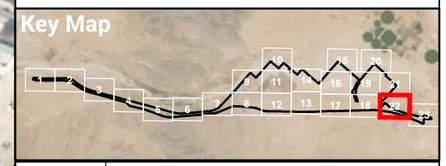

FIGURE 5A

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Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

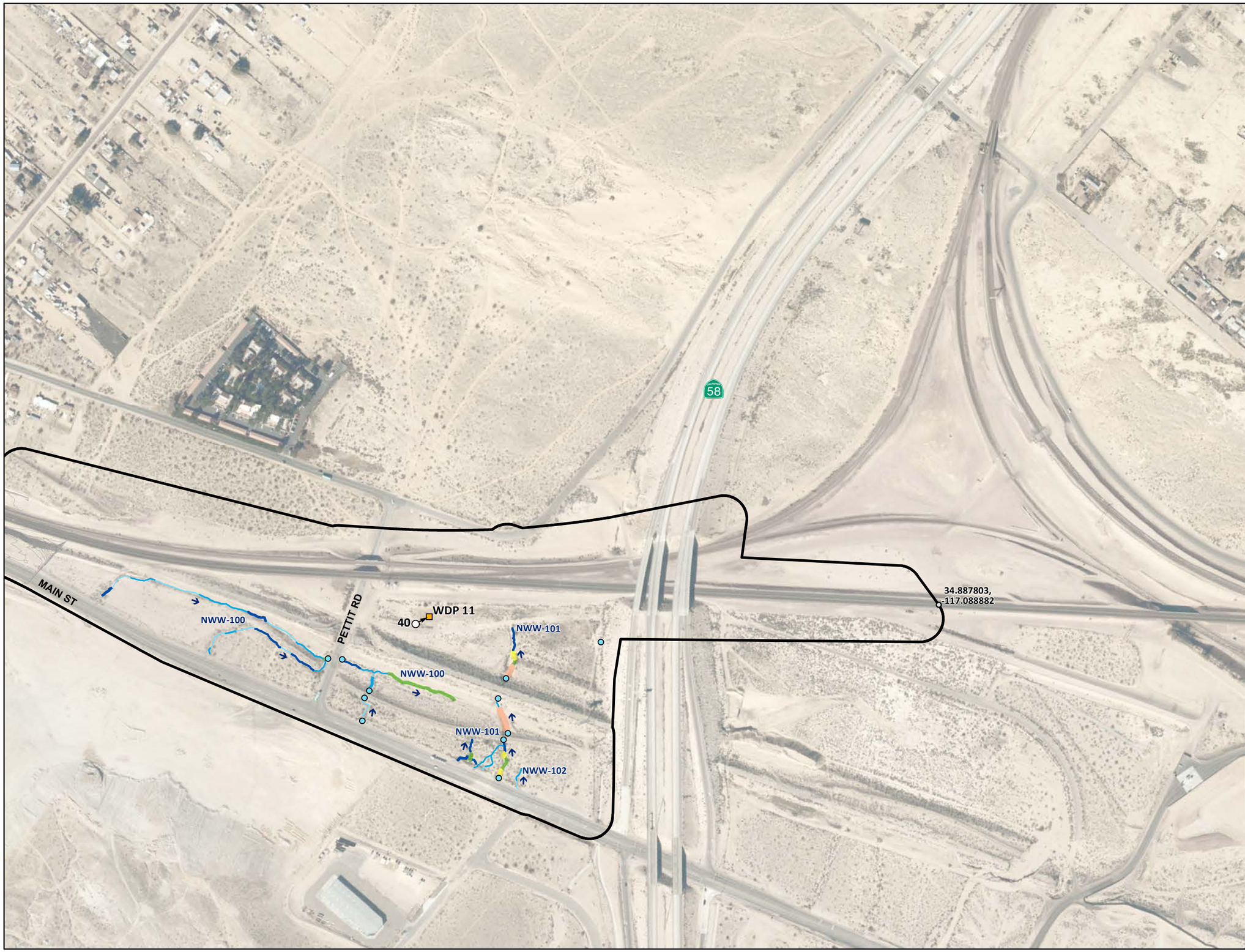
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Culvert

Wetland Data Form Point (WDP)

Flow Direction

Photo Location

Corps Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

16'-21'

24'-30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5A

PAGE 23 OF 23

Corps Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri

LORDS RD

AT & SF RR

34.772232,
-117.285959

NWW-1
NWW-2
NWW-3
NWW-4
NWW-5
NWW-6
NWW-7
NWW-8
NWW-9
NWW-10
NWW-11
NWW-12
NWW-13
NWW-14
NWW-15

ARDR Review Area (5104.5 ac)[1]
Culvert
Flow Direction

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE
5B

PAGE
1 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS
BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

N

Date: 9/22/2022
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Railroad Crossing

Flow Direction

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

11'-15'

24'-30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

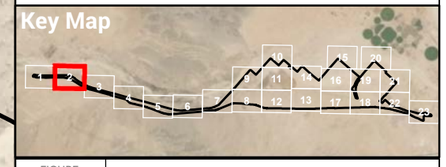


FIGURE 5B

PAGE 2 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Culvert

Railroad Crossing

Flow Direction

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

24'-30'

>30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

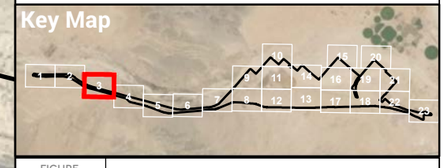


FIGURE 5B

PAGE 3 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

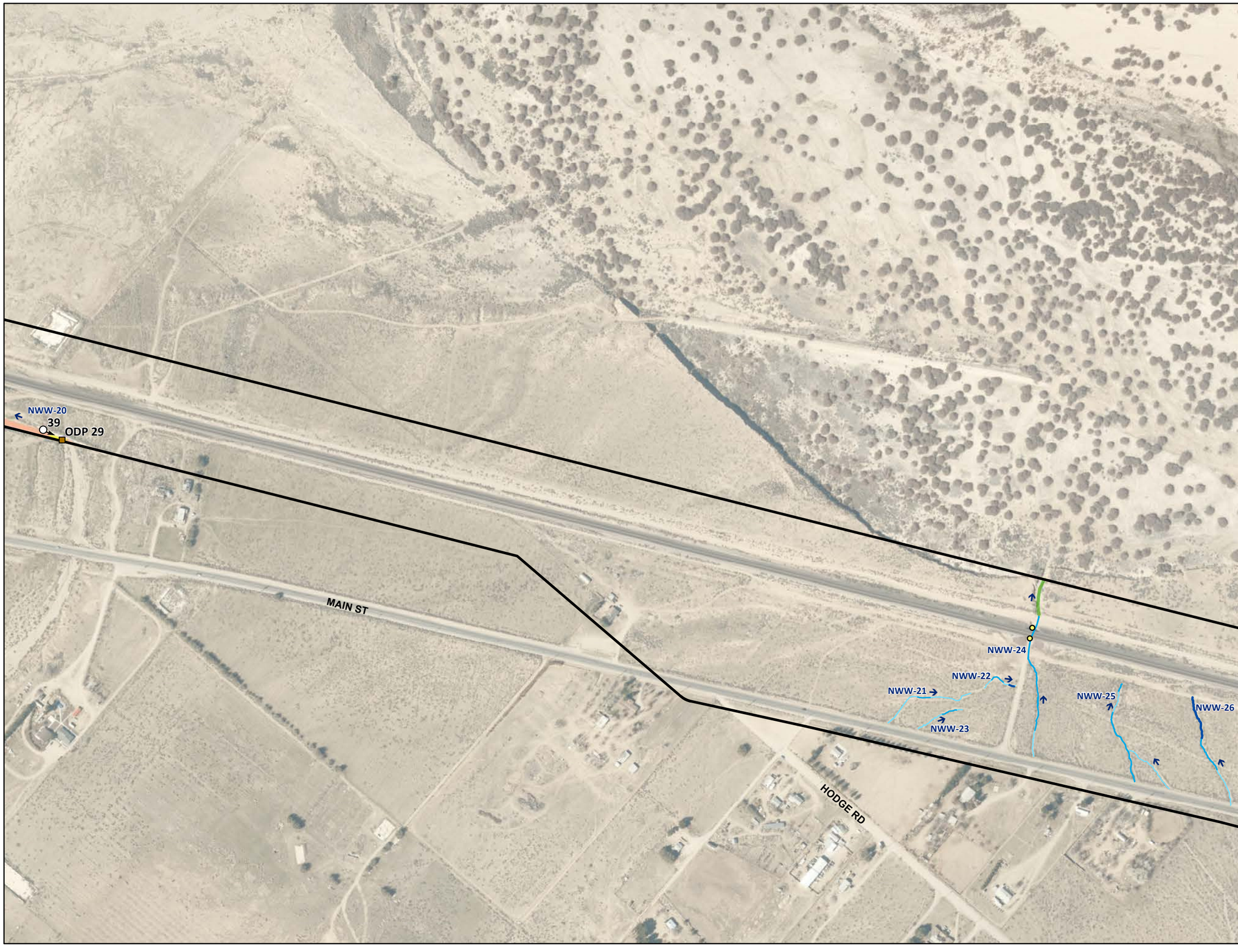
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Railroad Crossing

OHWM Datasheet Point (ODP)

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

16'-21'

24'-30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5B

PAGE 4 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Railroad Crossing

Wetland Data Form Point (WDP)

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

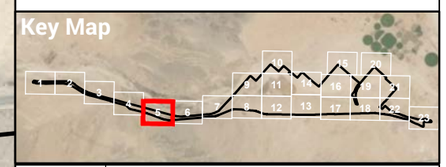


FIGURE 5B

PAGE 5 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

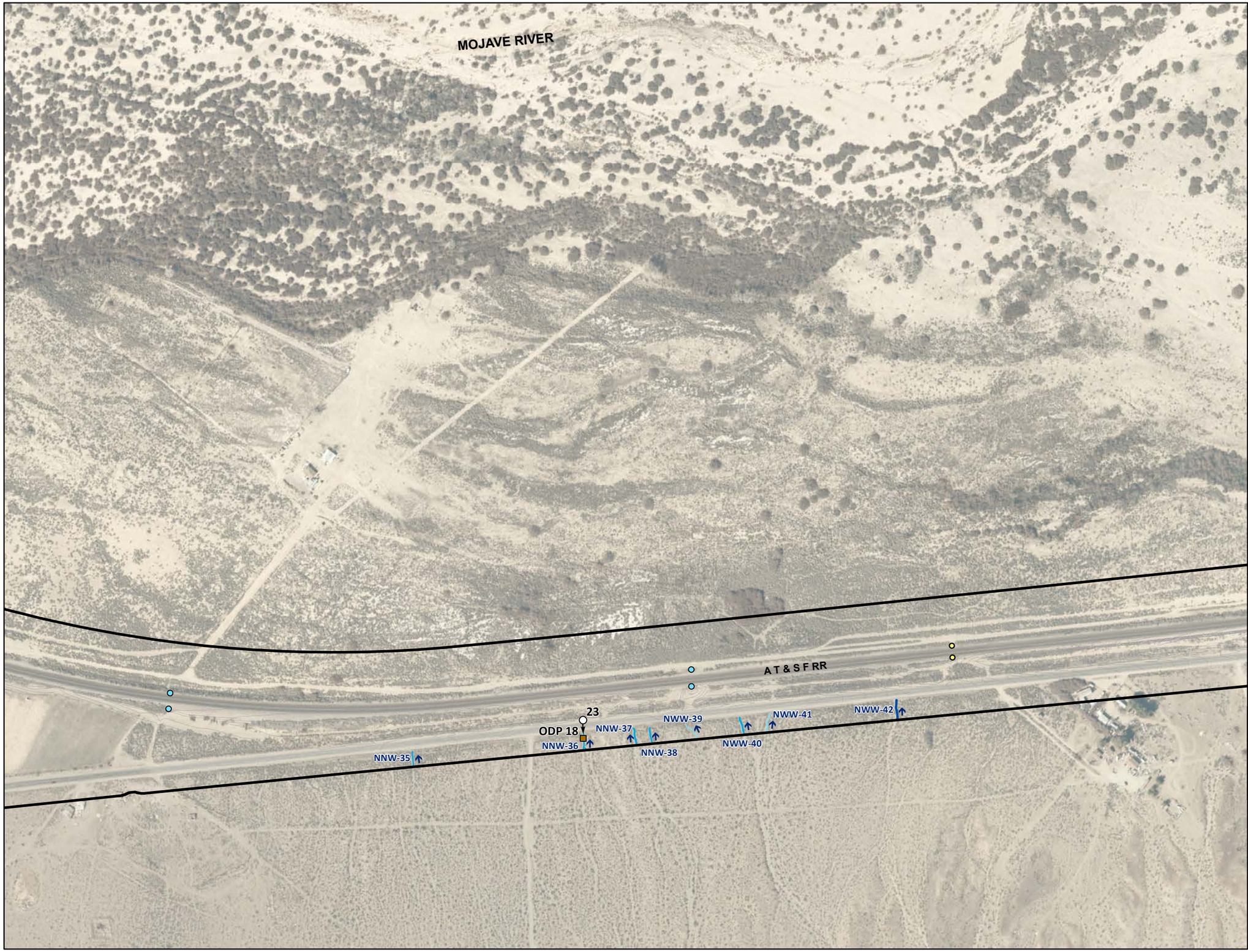
ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Culvert

Railroad Crossing

OHWM Datasheet Point (ODP)

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

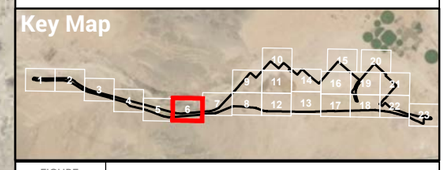


FIGURE 5B

PAGE 6 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

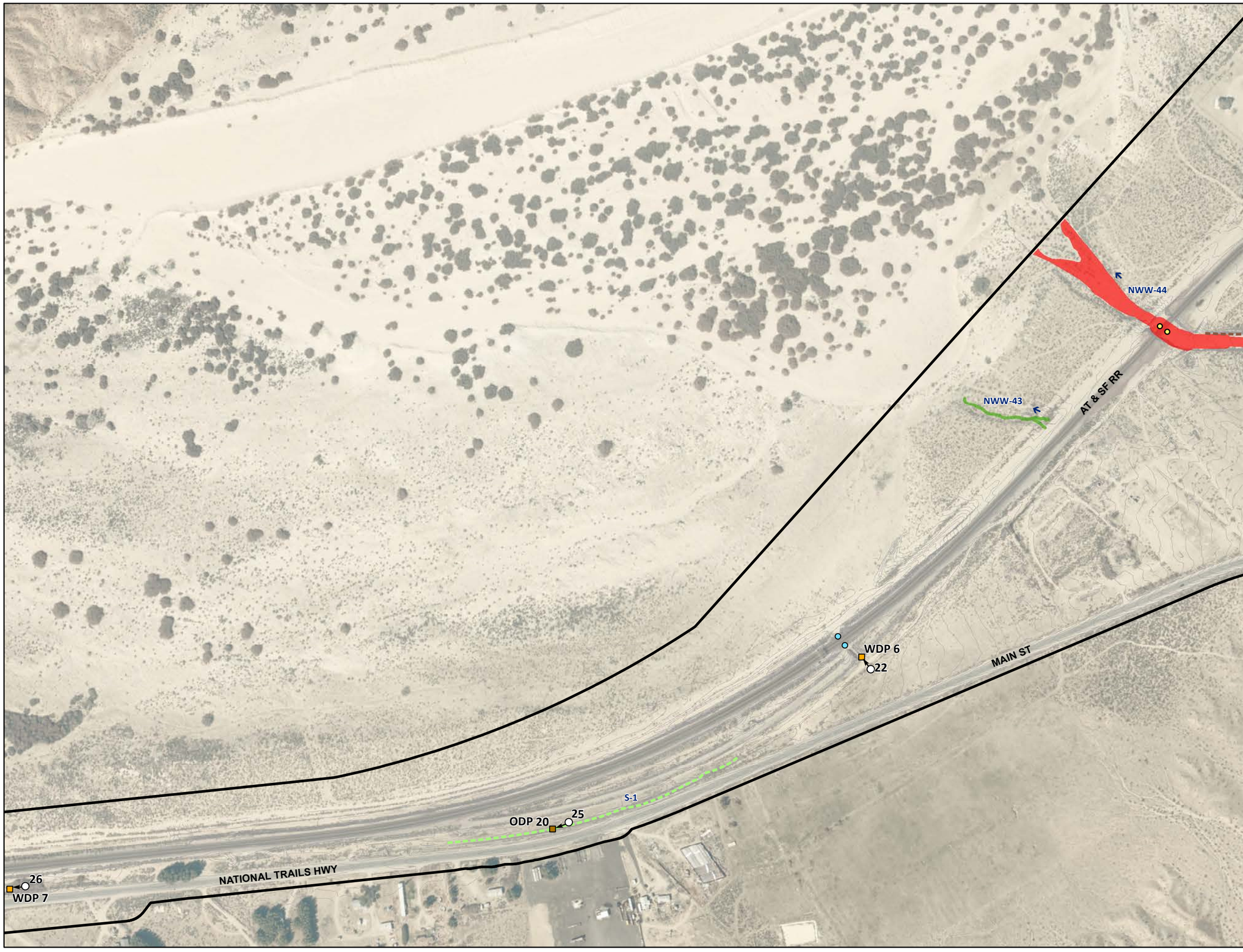
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Berm - Earthen Lined
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

11'-15'
>30'

Other Features[3]

Swale

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking OHWM or three-parameter wetland, and thus anticipated to be non-jurisdictional.

Key Map

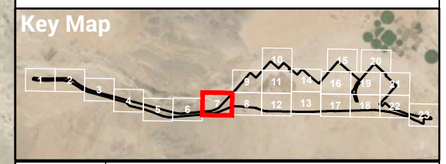


FIGURE 5B

PAGE 7 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

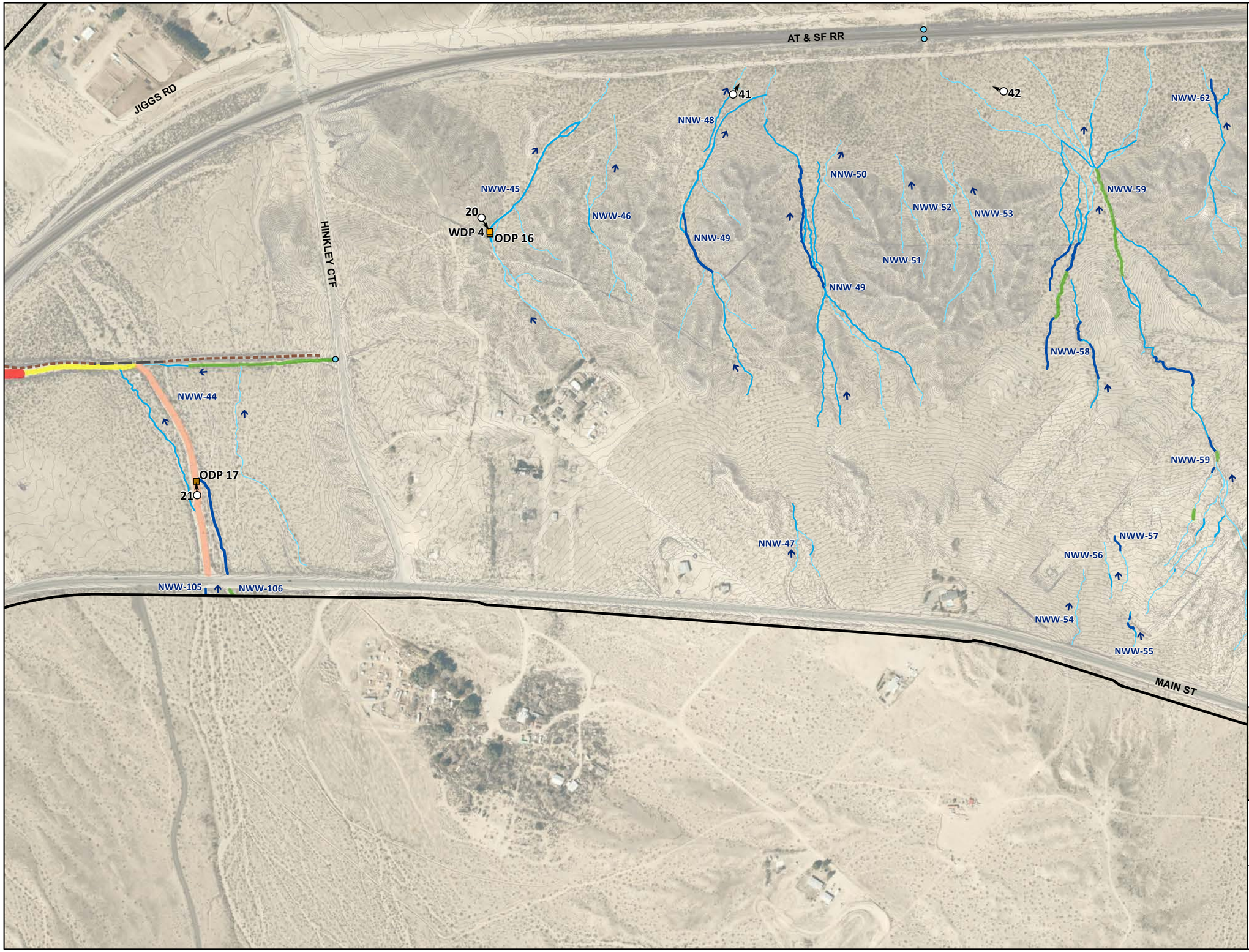
ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Berm - Concrete Slab
Berm - Earthen Lined
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

- 1'-3'
- 4'-6'
- 7'-10'
- 11'-15'
- 16'-21'
- 24'-30'
- >30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

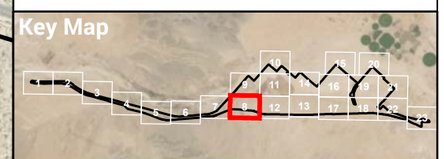


FIGURE 5B

PAGE 8 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Wetland Data Form Point (WDP)

OHWM Datasheet Point (ODP)

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

4'-6'

11'-15'

>30'

Other Features[3]

Basin

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking OHWM or three-parameter wetland, and thus anticipated to be non-jurisdictional.

Key Map

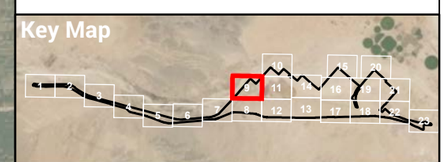


FIGURE 5B

PAGE 9 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri

ARDR Review Area (5104.5 ac)[1]

OHWM Datasheet Point (ODP)

AF = Active Floodplain

LF = Low-Flow Channel

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1]

Mojave River Extent

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

SWEETEN LA

1400'

NWW-109 (Mojave River)

500'

NWW-109 (Mojave River)

MOJAVE RIVER

ODP 28 (LF)

38

37

ODP 28 (AF)

Key Map

FIGURE 5B

PAGE 10 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022



ARDR Review Area (5104.5 ac)[1]

Photo Location

[1] Represents total acreage for ARDR review area.

Key Map

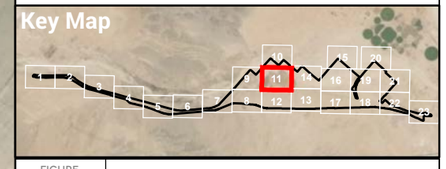


FIGURE 5B

PAGE 11 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

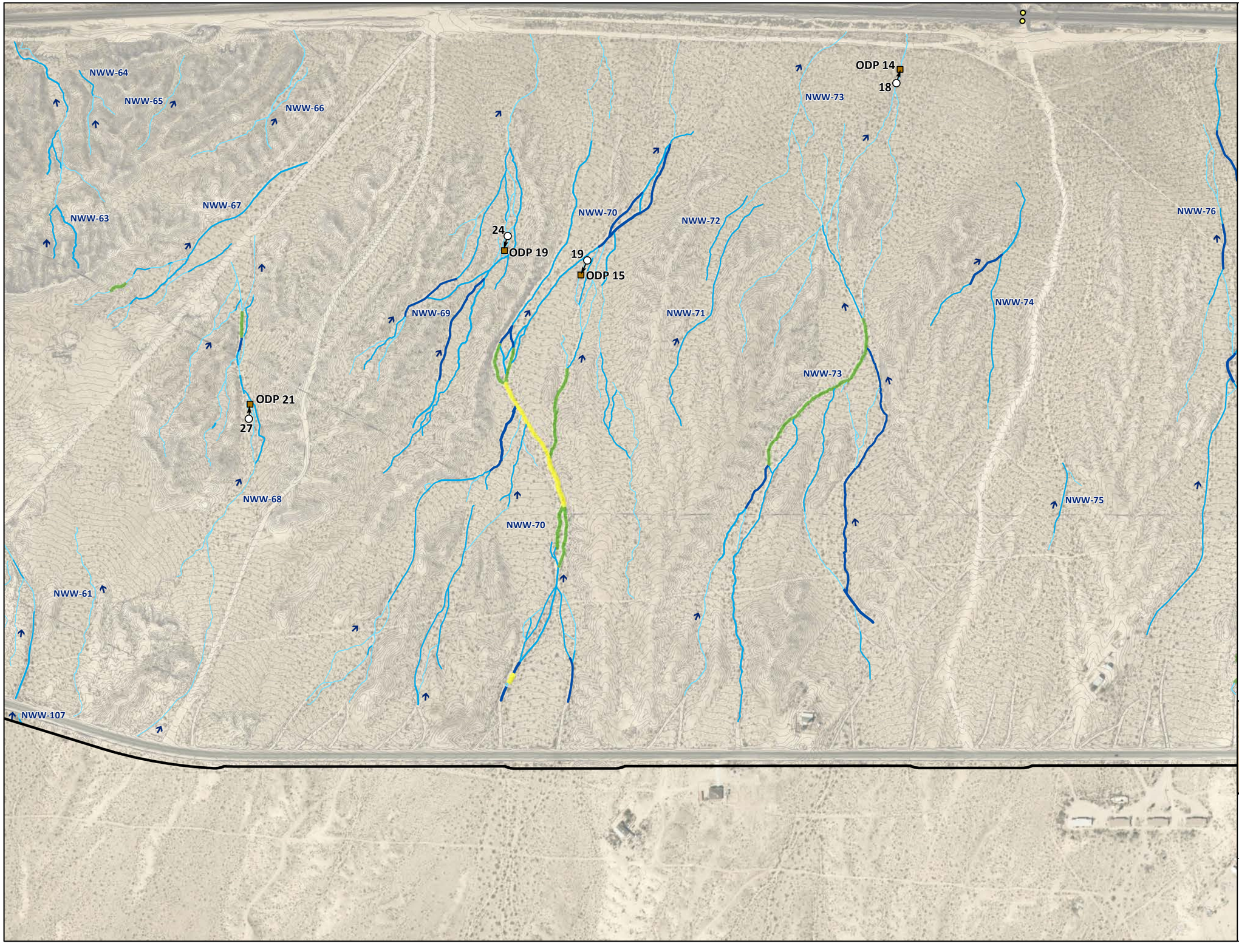
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Railroad Crossing

OHWM Datasheet Point (ODP)

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

16'-21'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

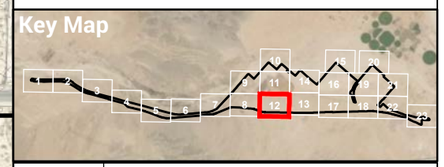


FIGURE 5B

PAGE 12 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

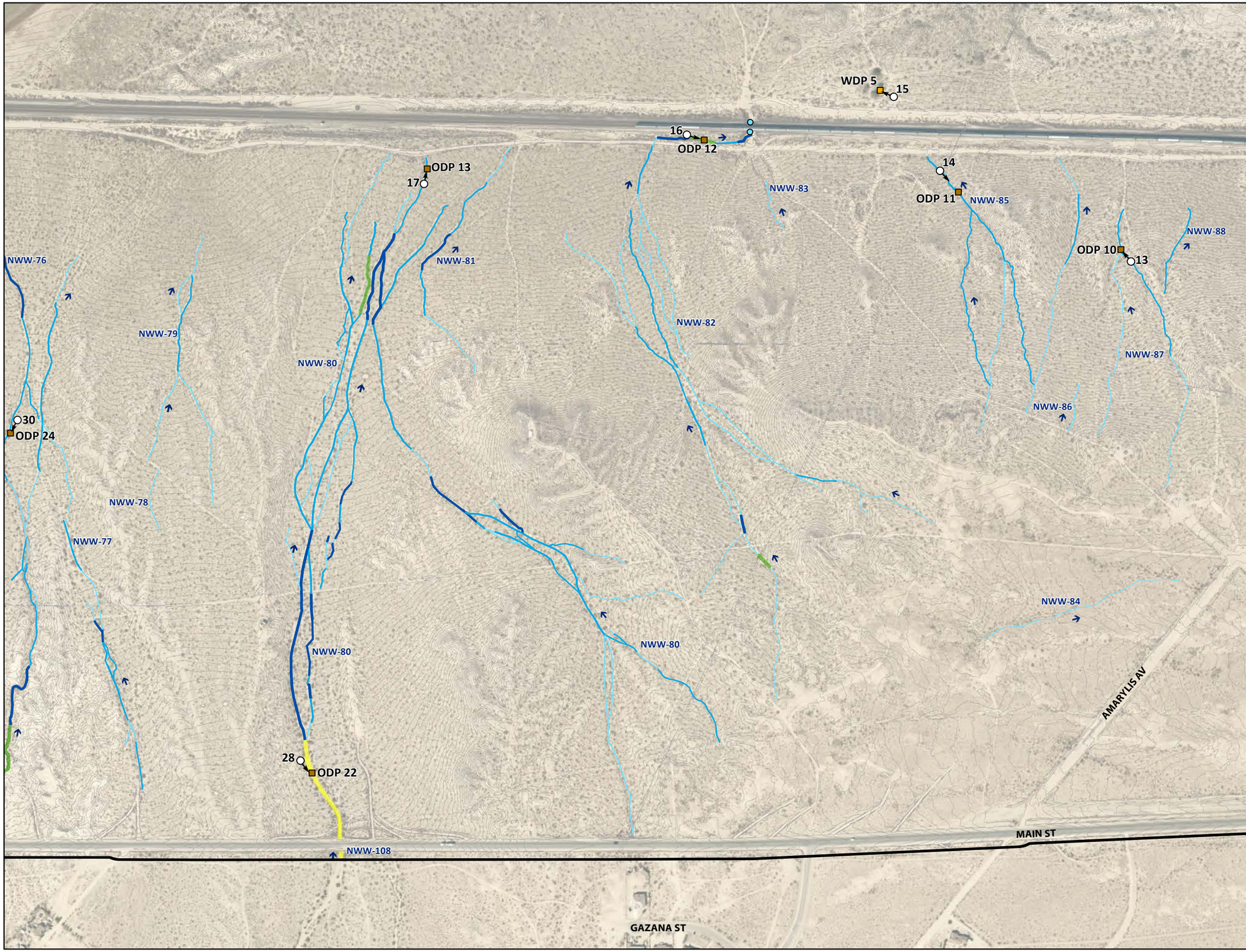
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5B

PAGE 13 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

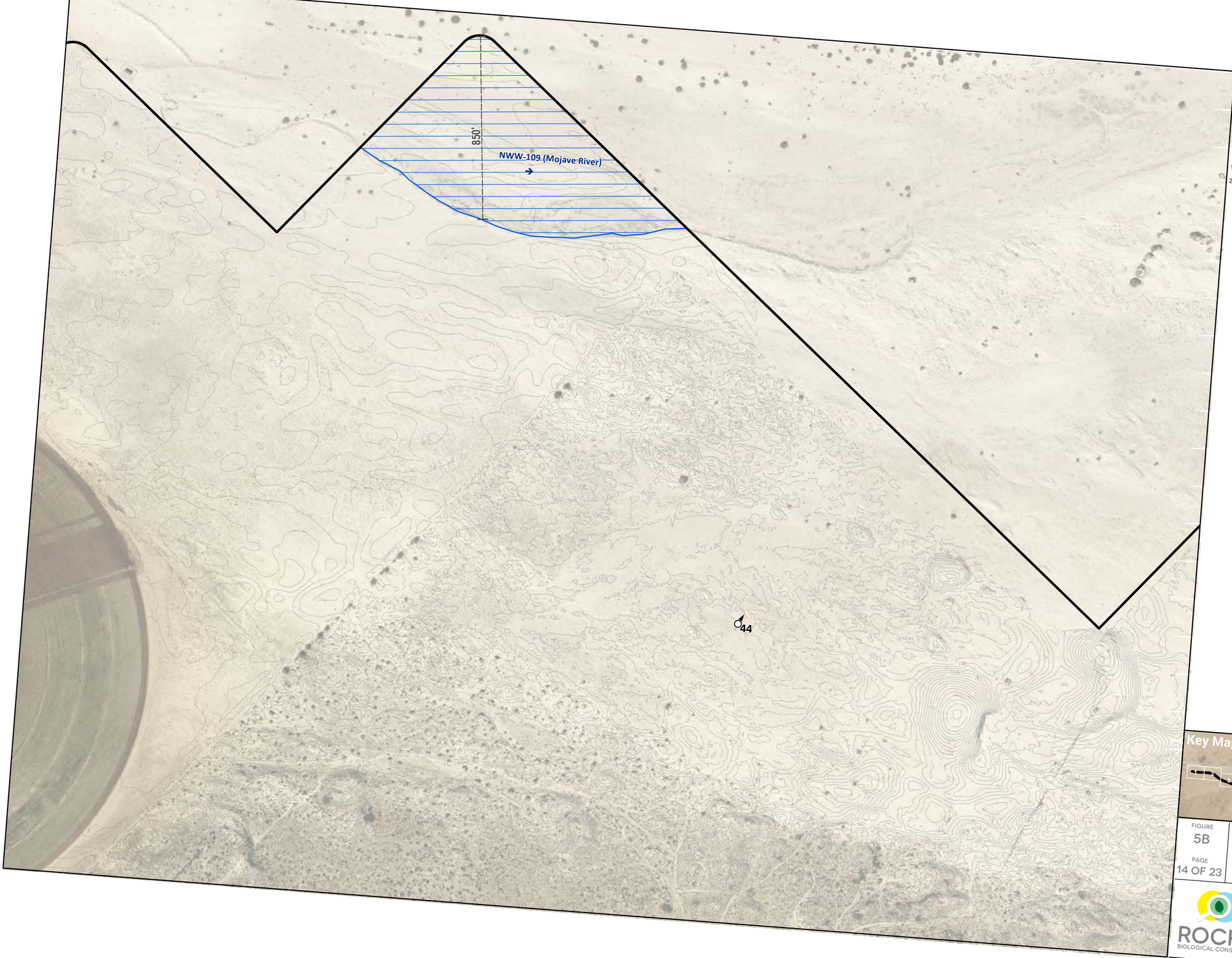
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1]

Mojave River Extent

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map



FIGURE 5B

PAGE 14 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

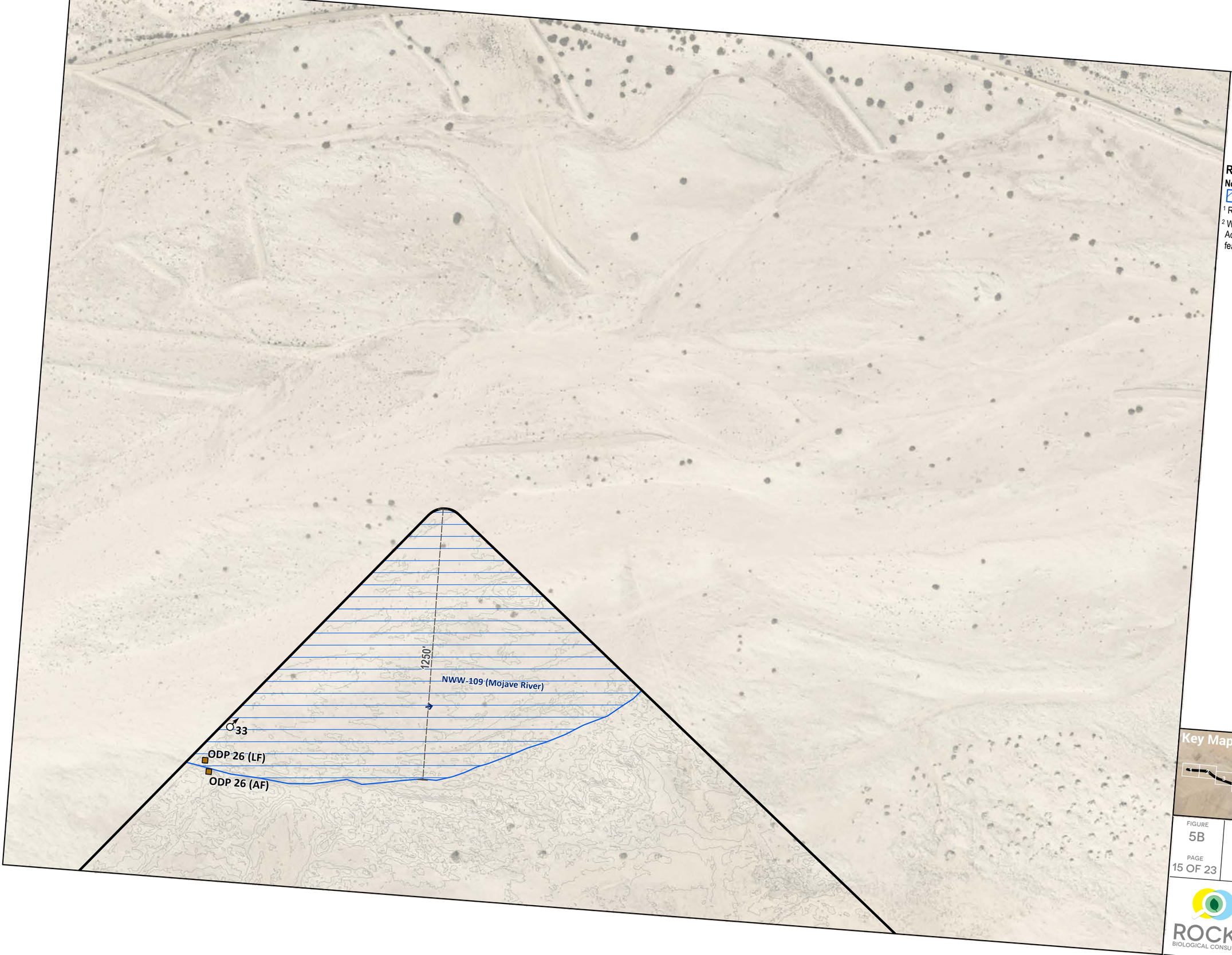
ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022



ARDR Review Area (5104.5 ac)[1]

OHWM Datasheet Point (ODP)

AF = Active Floodplain

LF = Low-Flow Channel

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1]

Mojave River Extent

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

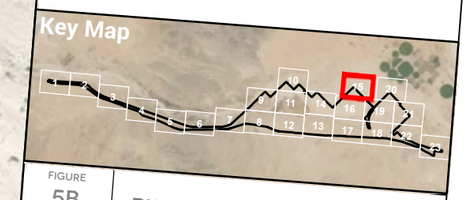


FIGURE 5B

PAGE 15 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022



ARDR Review Area (5104.5 ac)[1]

Photo Location

[1] Represents total acreage for ARDR review area.

Key Map

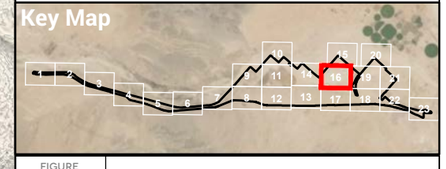


FIGURE
5B

PAGE
16 OF 23

RWQCB Aquatic Resources

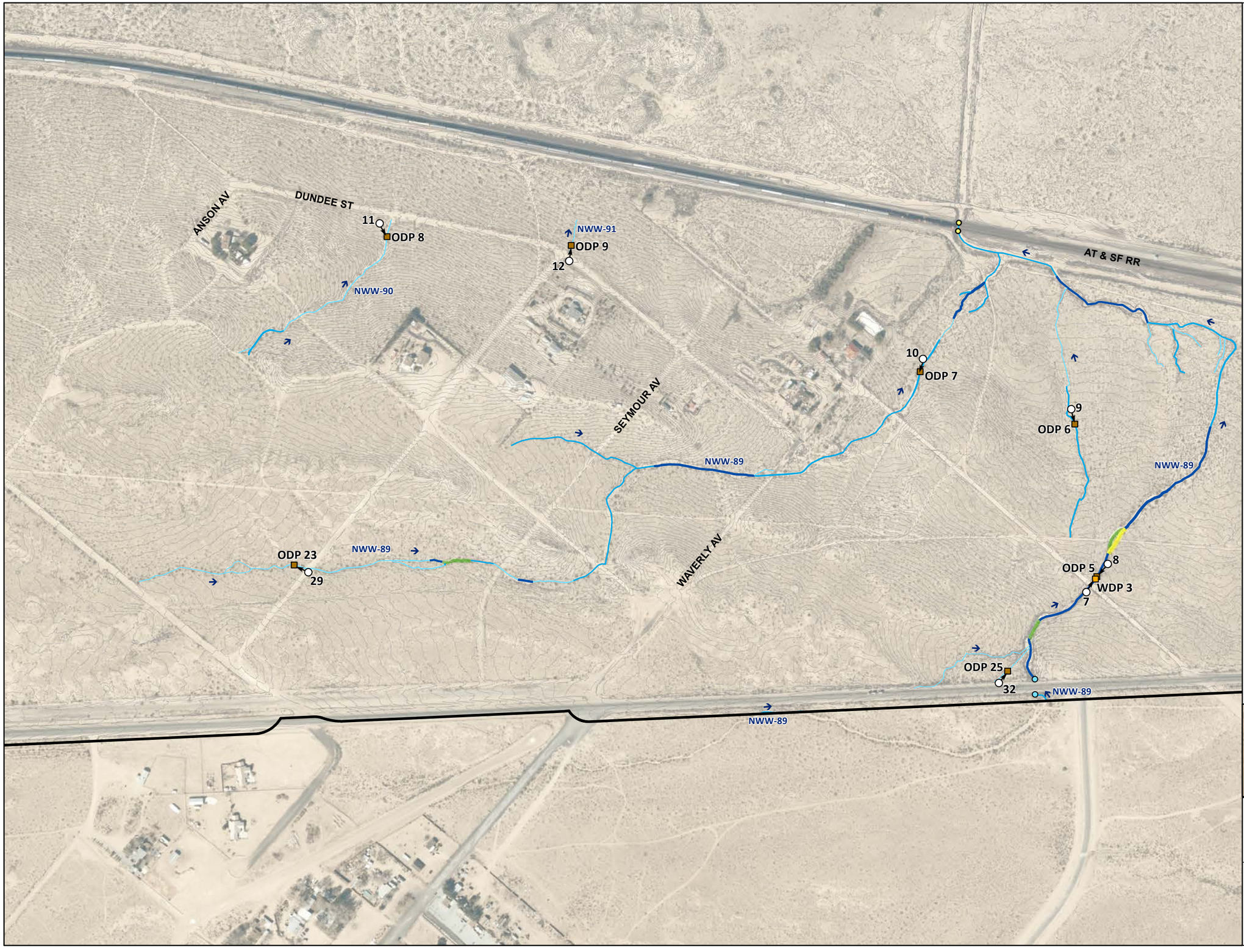
BIG BARSTOW

ROCKS
BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

N

Date: 9/22/2022
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5B

PAGE 17 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location
Off-site Flow Path

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])
4'-6'
11'-15'
16'-21'
>30'

Non-Wetland Waters - Rip-rap (0.06 ac)[1] (widths[2])
3'
20'

Non-Wetland Waters - Concrete (0.02 ac)[1] (widths[2])
6'

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

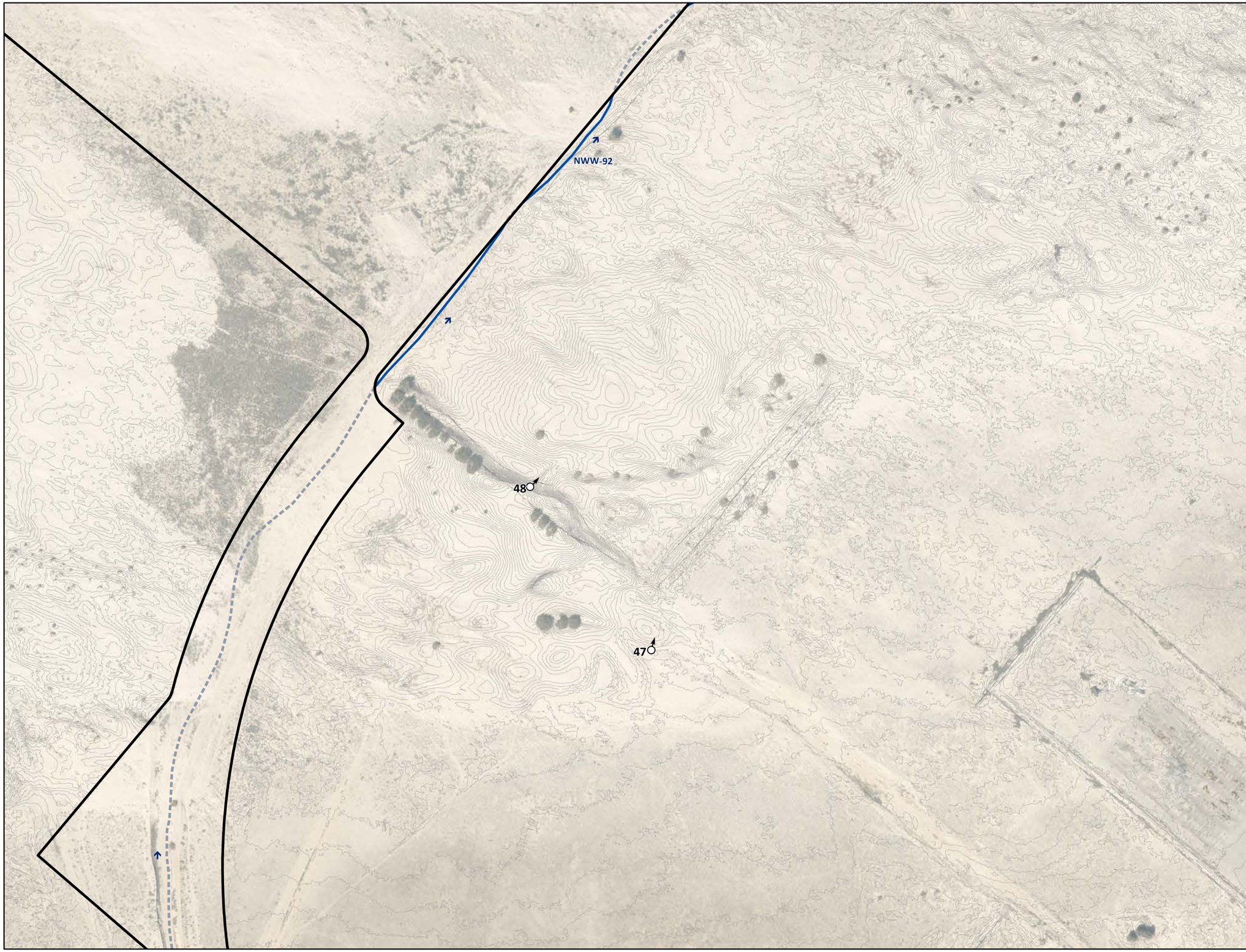
FIGURE 5B
PAGE 18 OF 23

RWQCB Aquatic Resources
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 9/22/2022
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

Photo Location

Off-site Flow Path

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

7'-10'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map



FIGURE 5B

PAGE 19 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

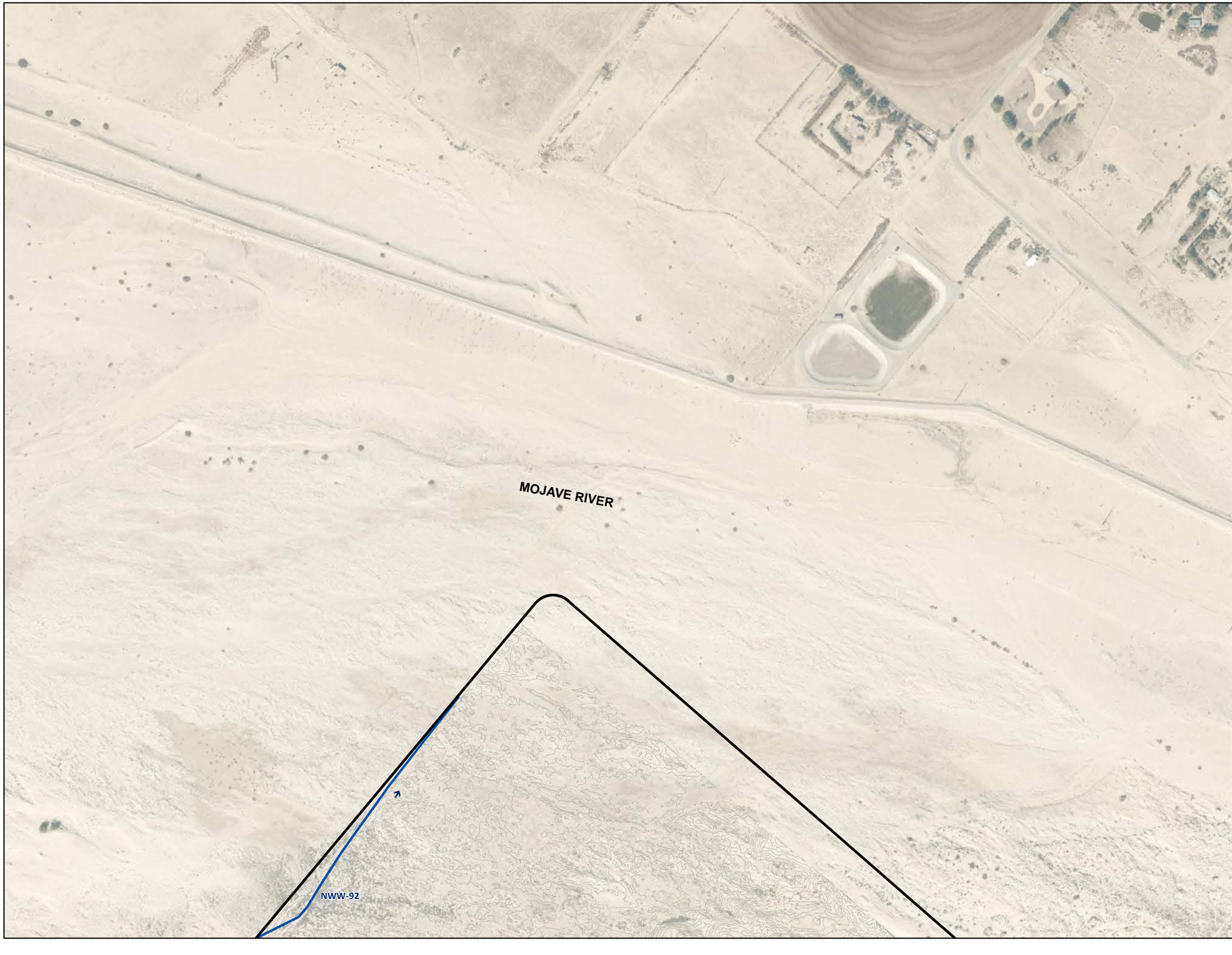
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

7'-10'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

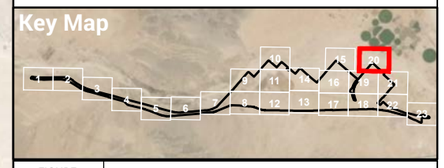


FIGURE 5B

PAGE 20 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

[1] Represents total acreage for ARDR review area.

Key Map

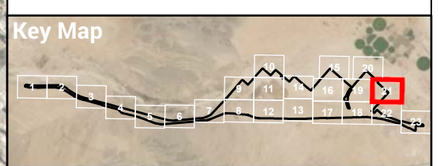


FIGURE
5B

PAGE
21 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS
BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

N

Date: 9/22/2022
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Culvert

Wetland Data Form Point (WDP)

OHWM Datasheet Point (ODP)

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

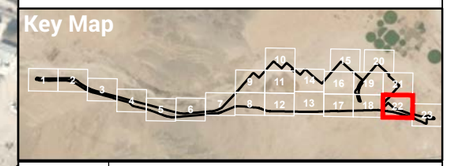


FIGURE 5B

PAGE 22 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

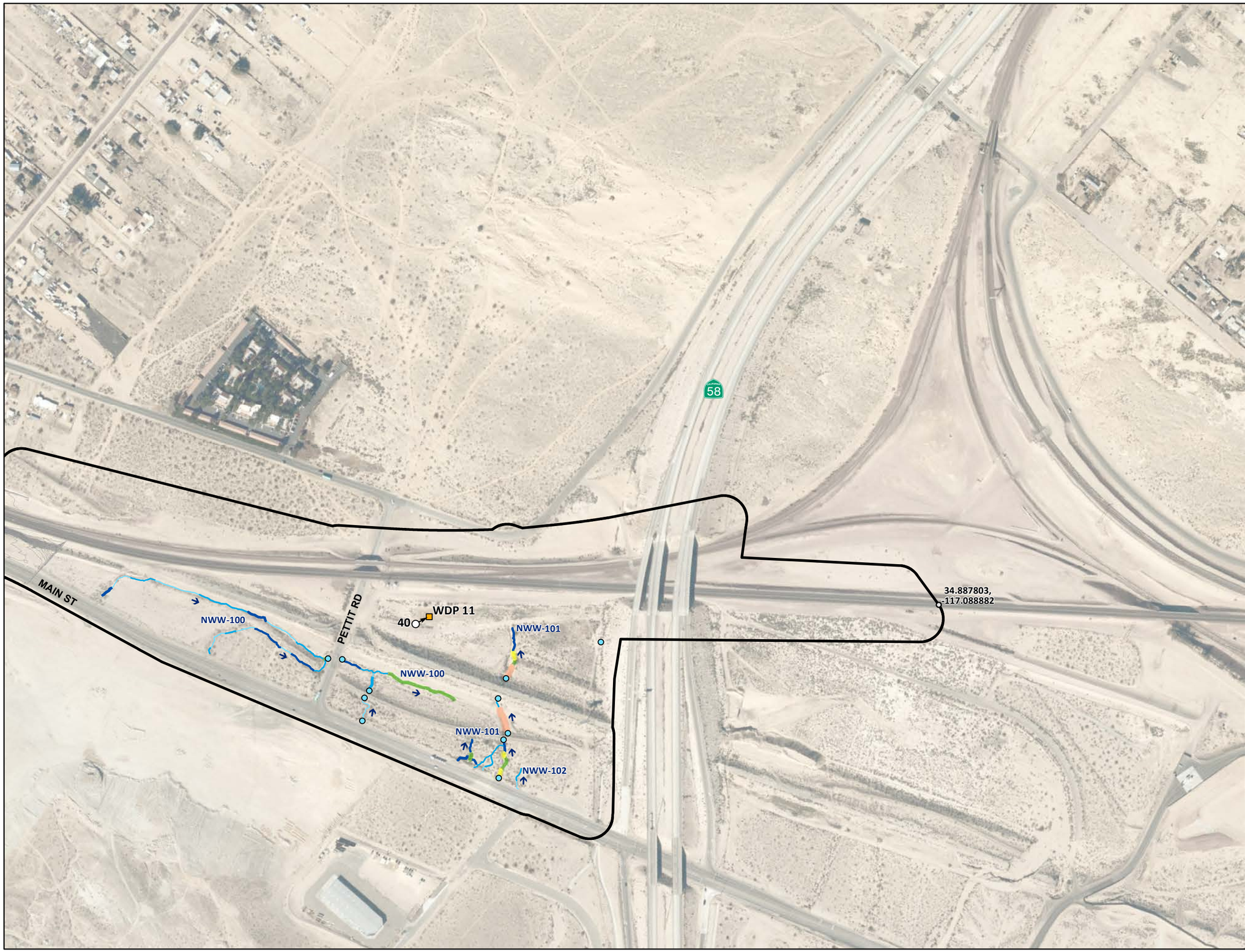
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Culvert

Wetland Data Form Point (WDP)

Flow Direction

Photo Location

RWQCB Aquatic Resources

Non-Wetland Waters (125.50 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

16'-21'

24'-30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5B

PAGE 23 OF 23

RWQCB Aquatic Resources

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

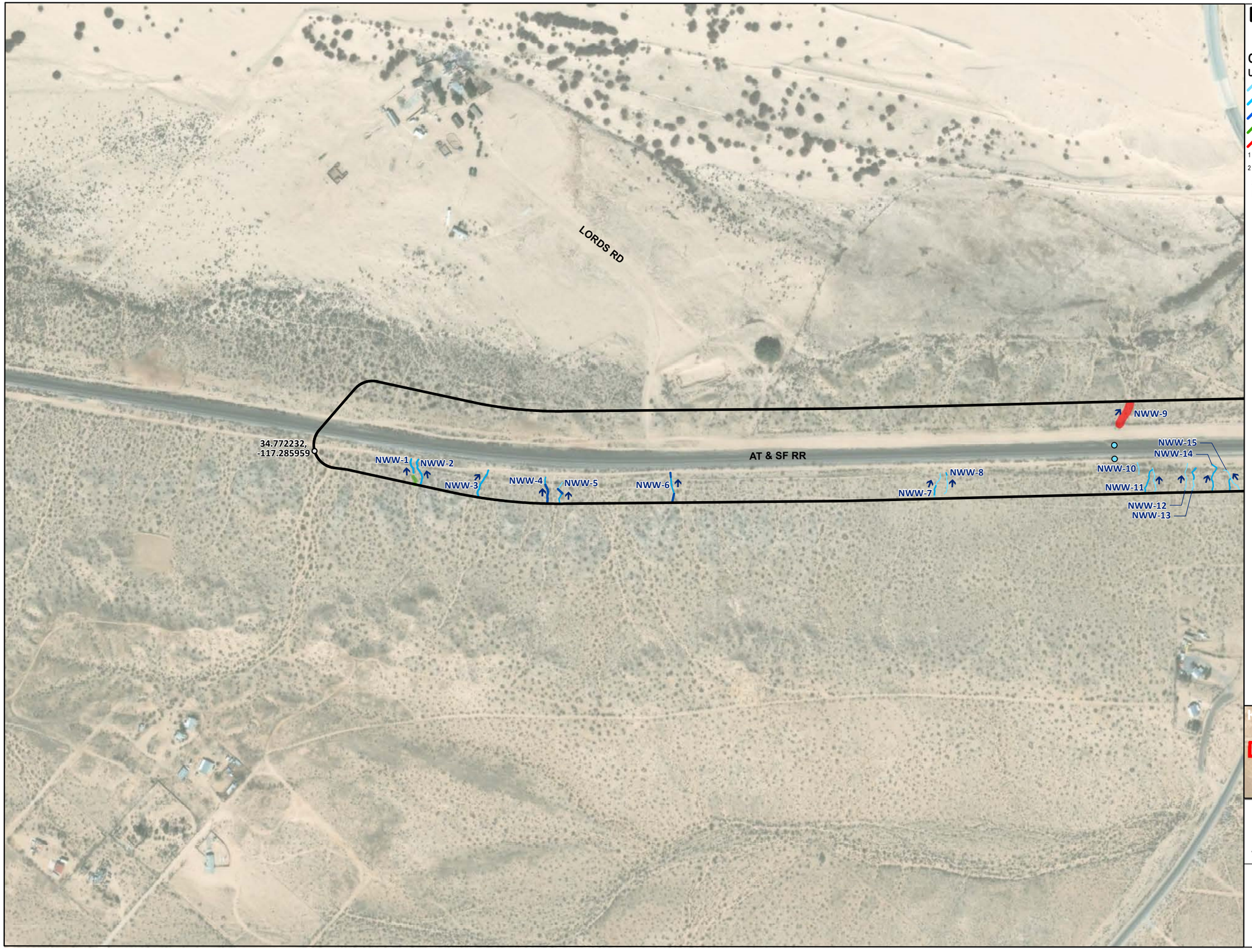
0 400 FEET

1 INCH = 400 FEET

N

Date: 9/22/2022

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Culvert

Flow Direction

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

1'-3'

4'-6'

7'-10'

11'-15'

>30'

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

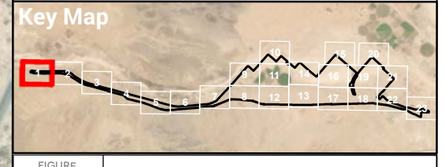


FIGURE 5C

PAGE 1 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Railroad Crossing
Flow Direction

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

16'-21'
22'-30'

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

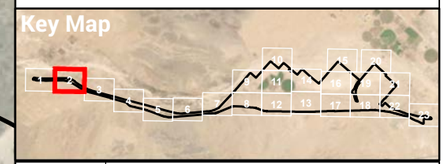


FIGURE 5C

PAGE 2 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Flow Direction

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])
1'-3'
4'-6'
>30'

Watercourse (55.18 ac)[1]
Watercourse

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

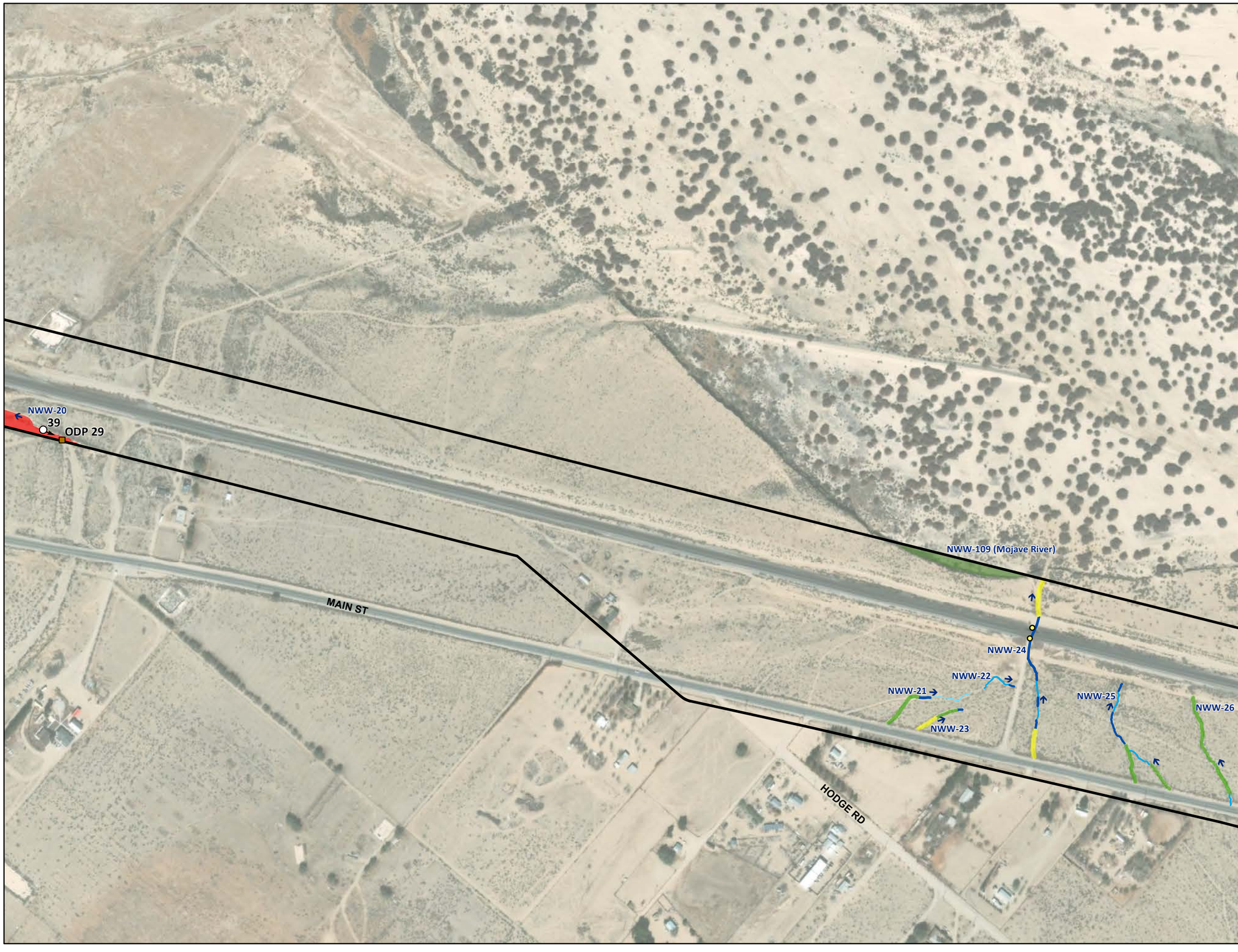
FIGURE 5C
PAGE 3 OF 23

CDFW
Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Railroad Crossing
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])
1'-3'
4'-6'
7'-10'
11'-15'
16'-21'
>30'

Mojave River Extent (590.34 ac)[1]
Vegetated Streambed

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5C
PAGE 4 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Railroad Crossing
Wetland Data Form Point (WDP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])
1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

Watercourse (55.18 ac)[1]
Watercourse

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5C
PAGE 5 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'

Watercourse (55.18 ac)[1]

Watercourse

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

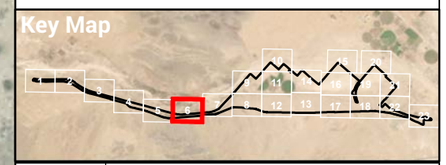


FIGURE 5C
PAGE 6 OF 23

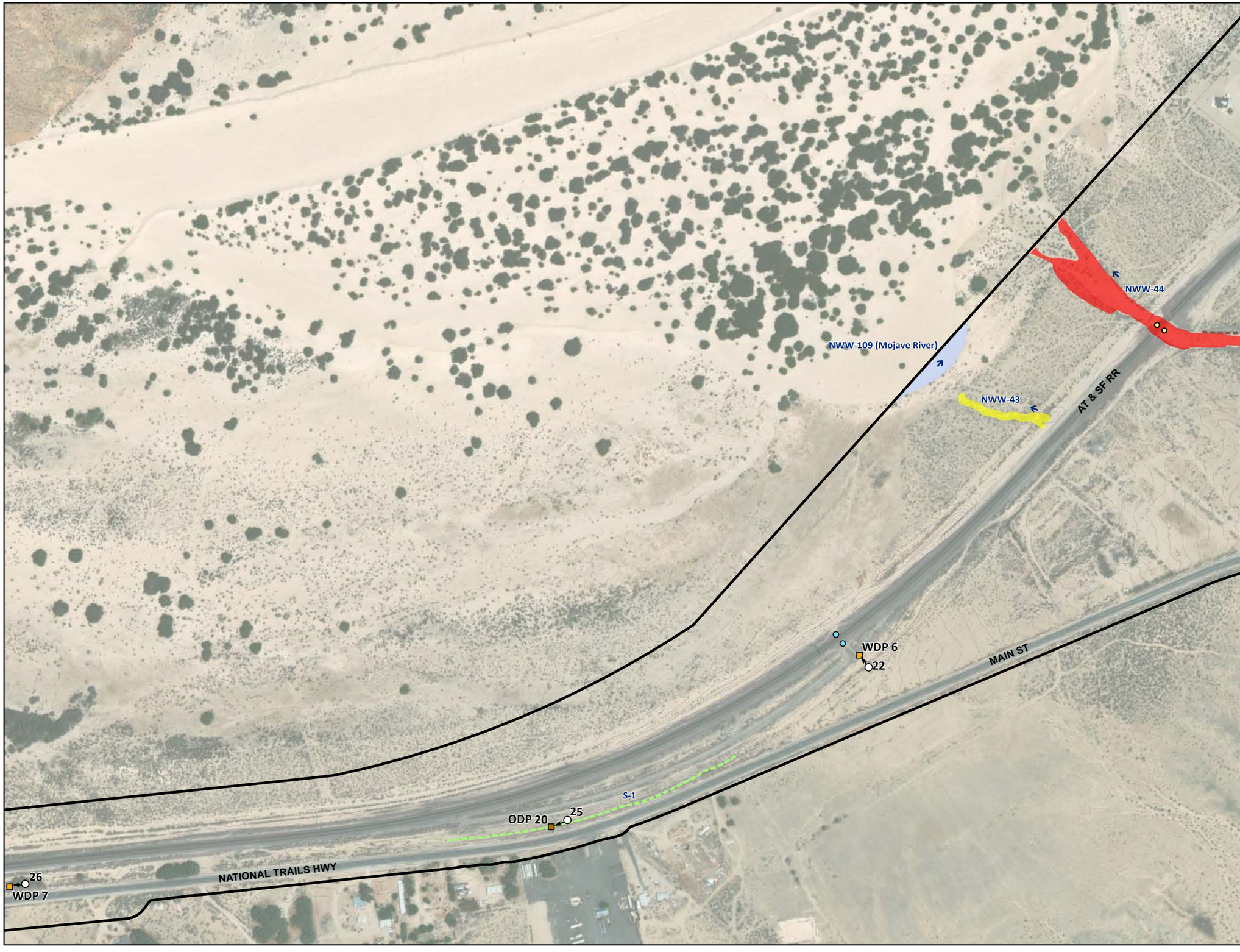
CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Berm - Earthen Lined
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

16'-21'

>30'

Mojave River Extent (590.34 ac)[1]

Unvegetated Streambed

Other Features[3]

Swale

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

[3] Features lacking a defined lake or streambed, and thus anticipated to be non-jurisdictional.

Key Map

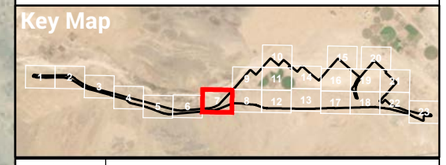


FIGURE 5C

PAGE 7 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

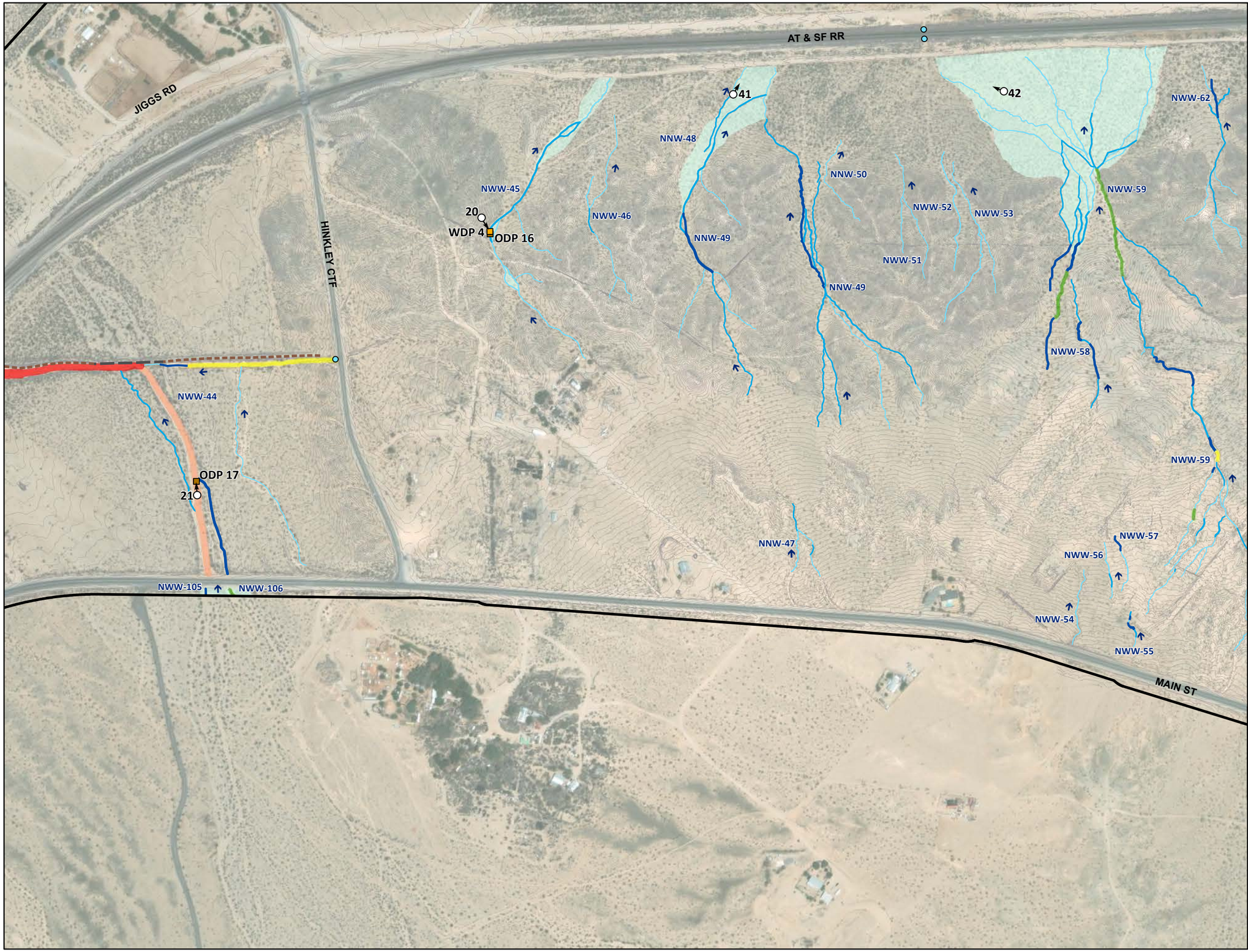
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Berm - Concrete Slab
Berm - Earthen Lined
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'
22'-30'
>30'

Watercourse (55.18 ac)[1]

Watercourse

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

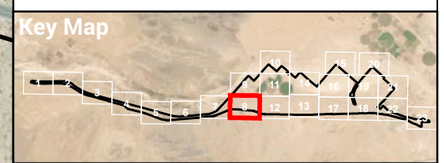


FIGURE 5C

PAGE 8 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Vegetated Streambed (0.28 ac)[1] (widths[2])
4'-6'
11'-15'
>30'

Mojave River Extent (590.34 ac)[1]
Vegetated Streambed
Unvegetated Streambed

Other Features[3]
Basin

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.
[3] Features lacking a defined lake or streambed, and thus anticipated to be non-jurisdictional.

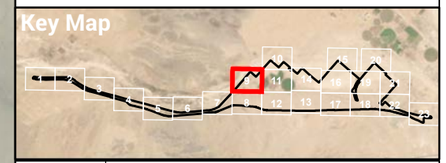


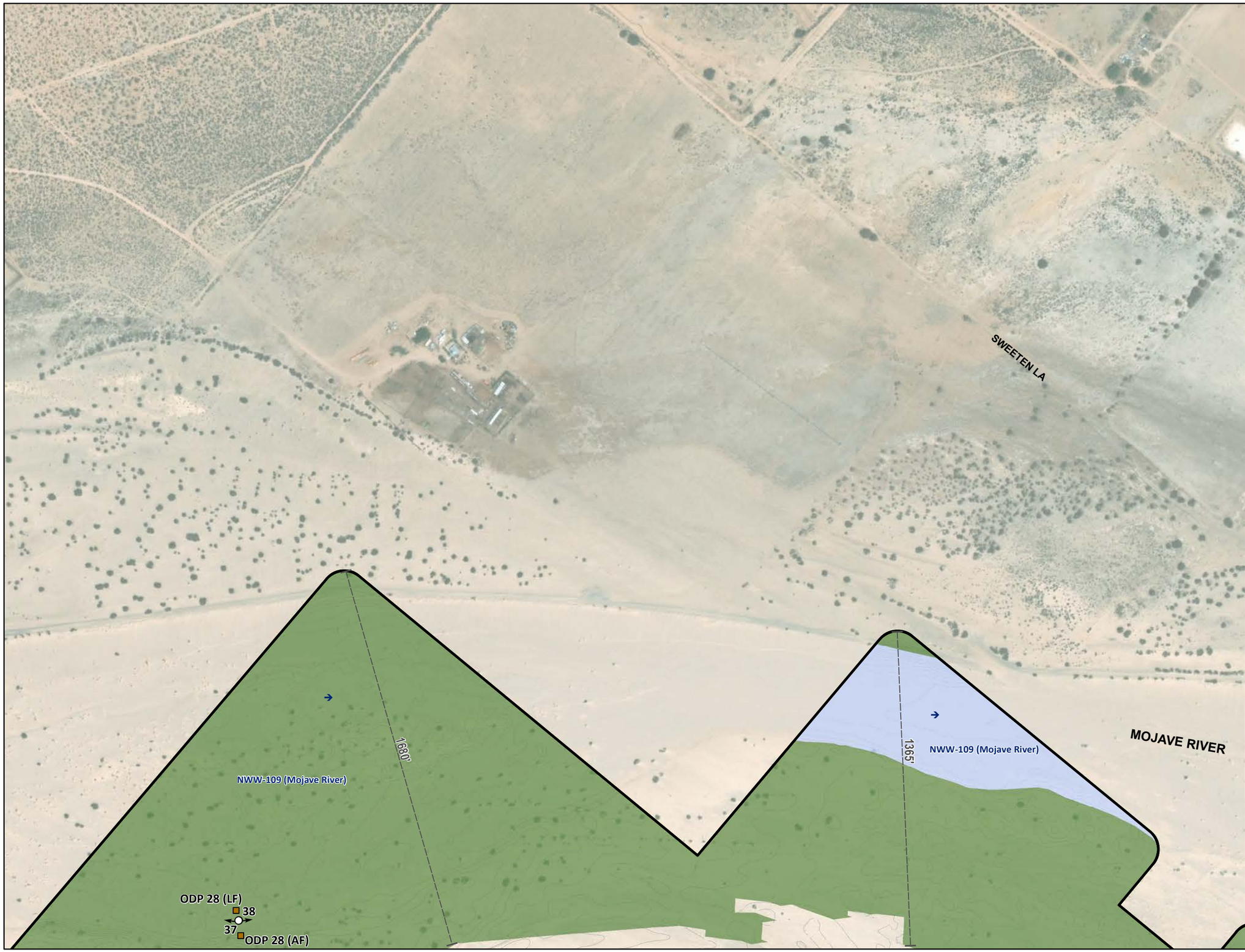
FIGURE 5C
PAGE 9 OF 23

CDFW Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
OHWM Datasheet Point (ODP)
AF = Active Floodplain
LF = Low-Flow Channel
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Mojave River Extent (590.34 ac)[1]

Vegetated Streambed
Unvegetated Streambed

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

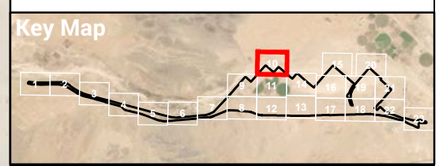


FIGURE 5C
PAGE 10 OF 23

CDFW Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

Photo Location

CDFW Streambed and Watercourse

Mojave River Extent (590.34 ac)[1]

Vegetated Streambed

[1] Represents total acreage for ARDR review area.



FIGURE 5C

PAGE 11 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

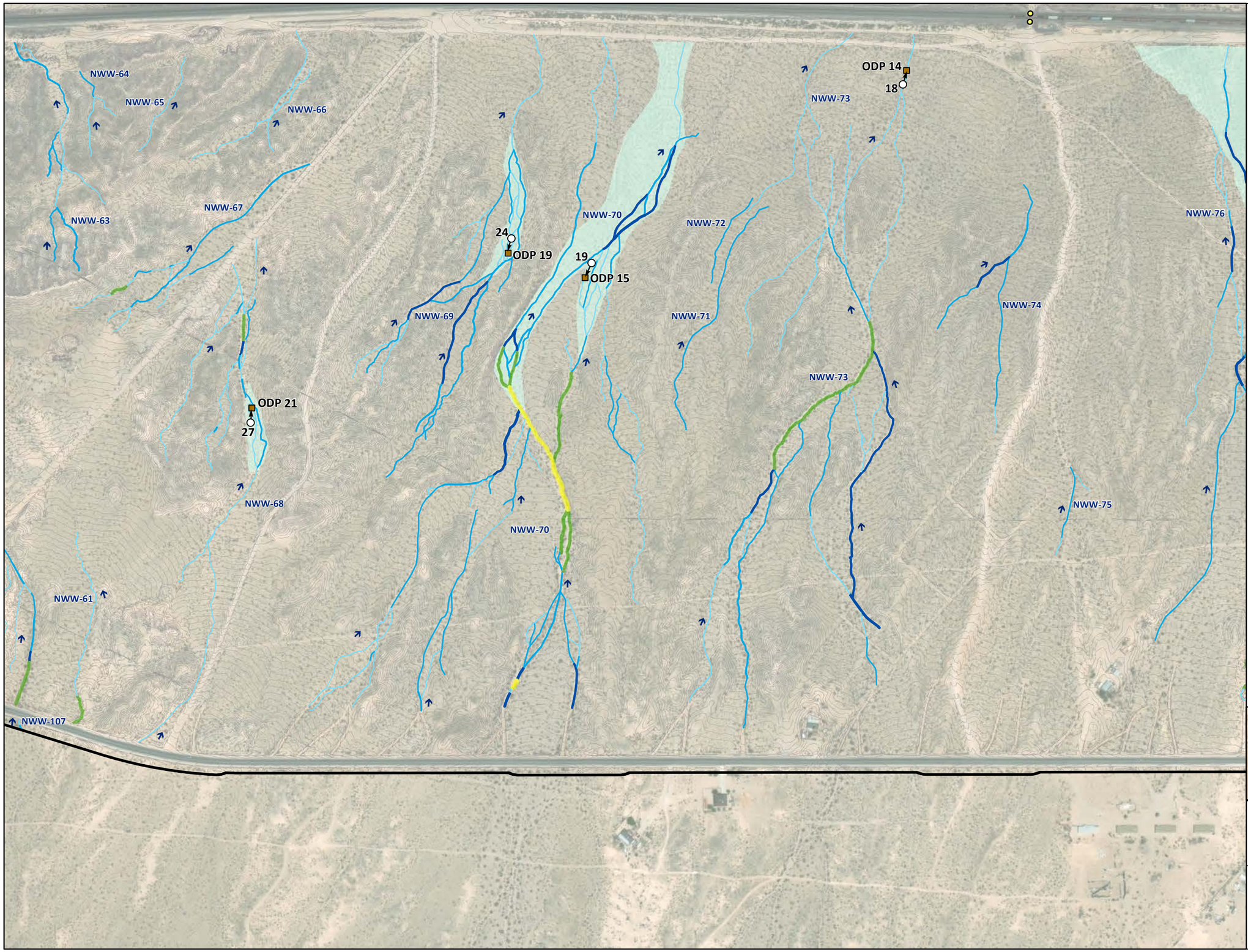
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Railroad Crossing
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

Watercourse (55.18 ac)[1]

Watercourse

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

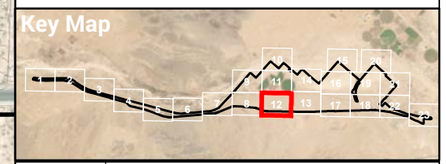


FIGURE 5C

PAGE 12 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri

WDP 5
15
16
ODP 12
ODP 13
17
14
ODP 11
NWW-83
NWW-85
NWW-88
ODP 10
13
NWW-76
NWW-81
NWW-82
NWW-79
NWW-80
NWW-87
NWW-86
30
ODP 24
NWW-78
NWW-77
NWW-80
NWW-84
NWW-80
AMARYLIS AV
28
ODP 22
NWW-108
MAIN ST
GAZANA ST

ARDR Review Area (5104.5 ac)[1]
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])
1'-3'
4'-6'
7'-10'
11'-15'
16'-21'

Watercourse (55.18 ac)[1]
Watercourse

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

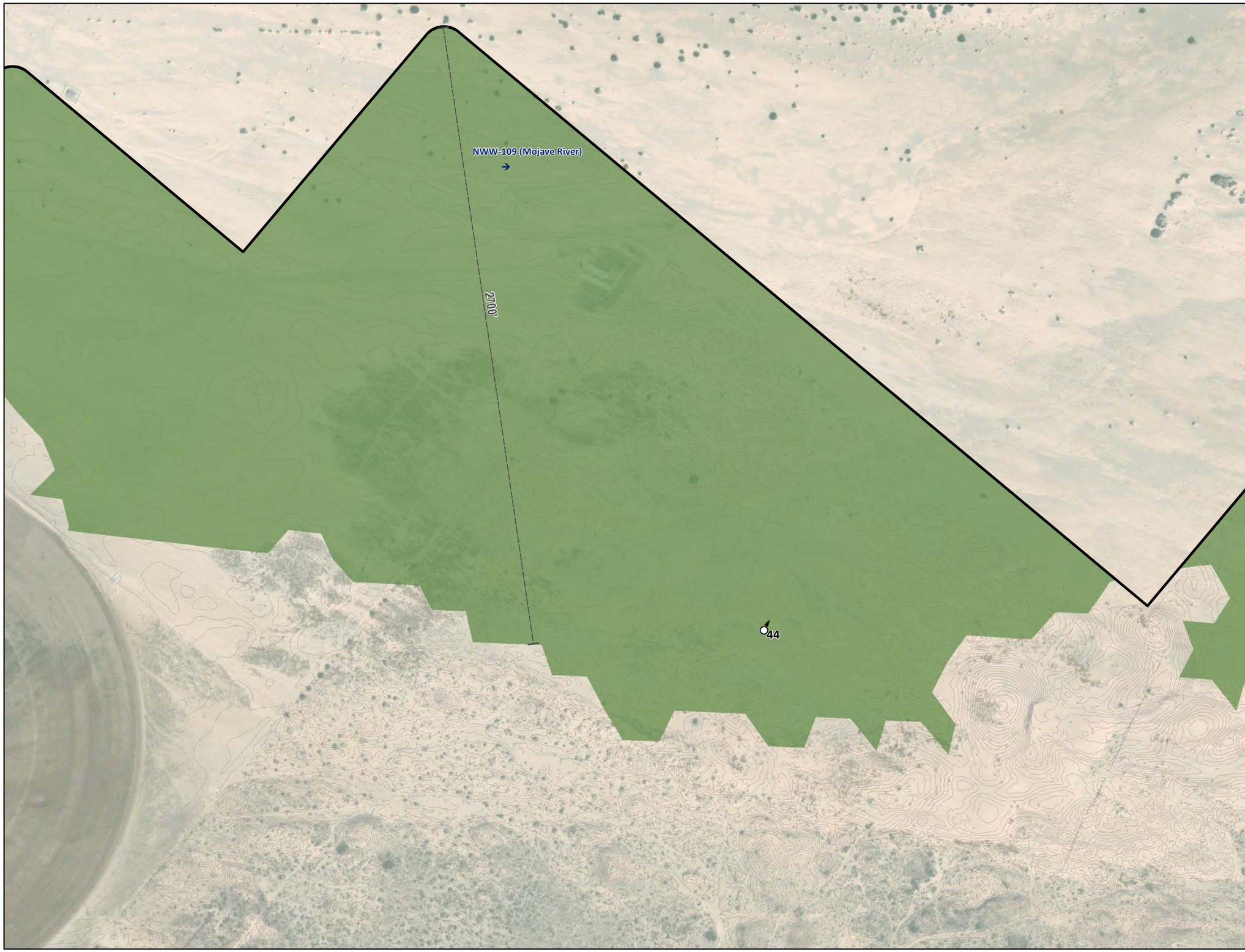
FIGURE 5C
PAGE 13 OF 23

CDFW Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

Photo Location

CDFW Streambed and Watercourse

Mojave River Extent (590.34 ac)[1]

Vegetated Streambed

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

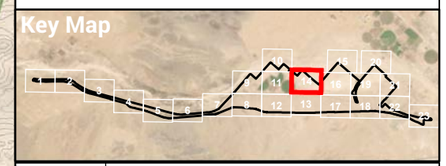


FIGURE 5C

PAGE 14 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

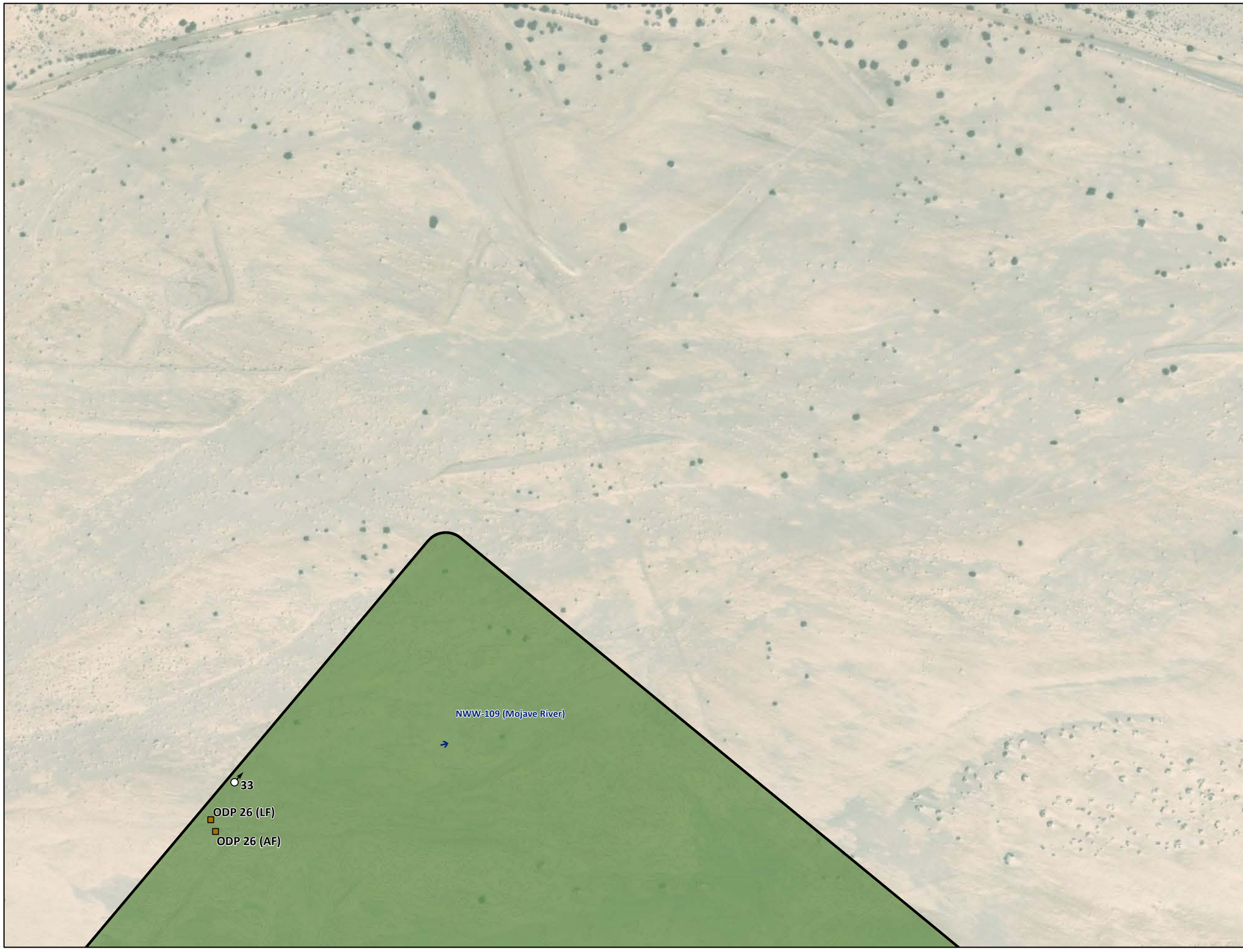
0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

OHWM Datasheet Point (ODP)

AF = Active Floodplain

LF = Low-Flow Channel

Flow Direction

Photo Location

CDFW Streambed and Watercourse

Mojave River Extent (590.34 ac)[1]

Vegetated Streambed

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

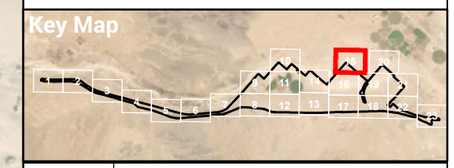


FIGURE 5C

PAGE 15 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

Photo Location

CDFW Streambed and Watercourse

Mojave River Extent (590.34 ac)[1]

Vegetated Streambed

[1] Represents total acreage for ARDR review area.

Key Map

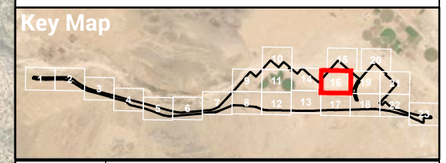


FIGURE 5C

PAGE 16 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

N

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'
22'-30'

Watercourse (55.18 ac)[1]

Watercourse

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5C
PAGE 17 OF 23

CDFW Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Railroad Crossing
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location
Off-site Flow Path

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])
7'-10'
16'-21'
>30'

Unvegetated Streambed - Rip-Rap (0.06 ac)[1] (widths[2])
3'
20'

Unvegetated Streambed - Concrete (0.04 ac)[1] (widths[2])
10'

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5C
PAGE 18 OF 23

CDFW Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Flow Direction
Photo Location
Off-site Flow Path

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])
7'-10'

Mojave River Extent (590.34 ac)[1]
Vegetated Streambed

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5C
PAGE 19 OF 23

CDFW
Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

Flow Direction

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

7'-10'

Mojave River Extent (590.34 ac)[1]

Vegetated Streambed

[1] Represents total acreage for ARDR review area.

[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

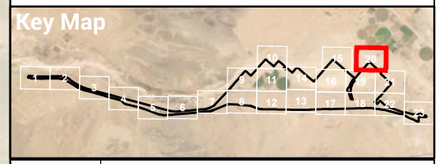


FIGURE 5C

PAGE 20 OF 23

CDFW Streambed and Watercourse

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET

1 INCH = 400 FEET

Date: 8/2/2023

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]

[1] Represents total acreage for ARDR review area.

Key Map

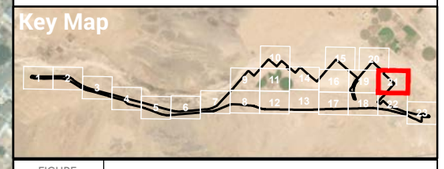


FIGURE
5C

PAGE
21 OF 23

CDFW
Streambed and Watercourse
BIG BARSTOW

ROCKS
BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Wetland Data Form Point (WDP)
OHWM Datasheet Point (ODP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Vegetated Streambed (0.28 ac)[1] (widths[2])
4'-6'
7'-10'
11'-15'

Unvegetated Streambed (24.06 ac)[1] (widths[2])
1'-3'
4'-6'
7'-10'

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

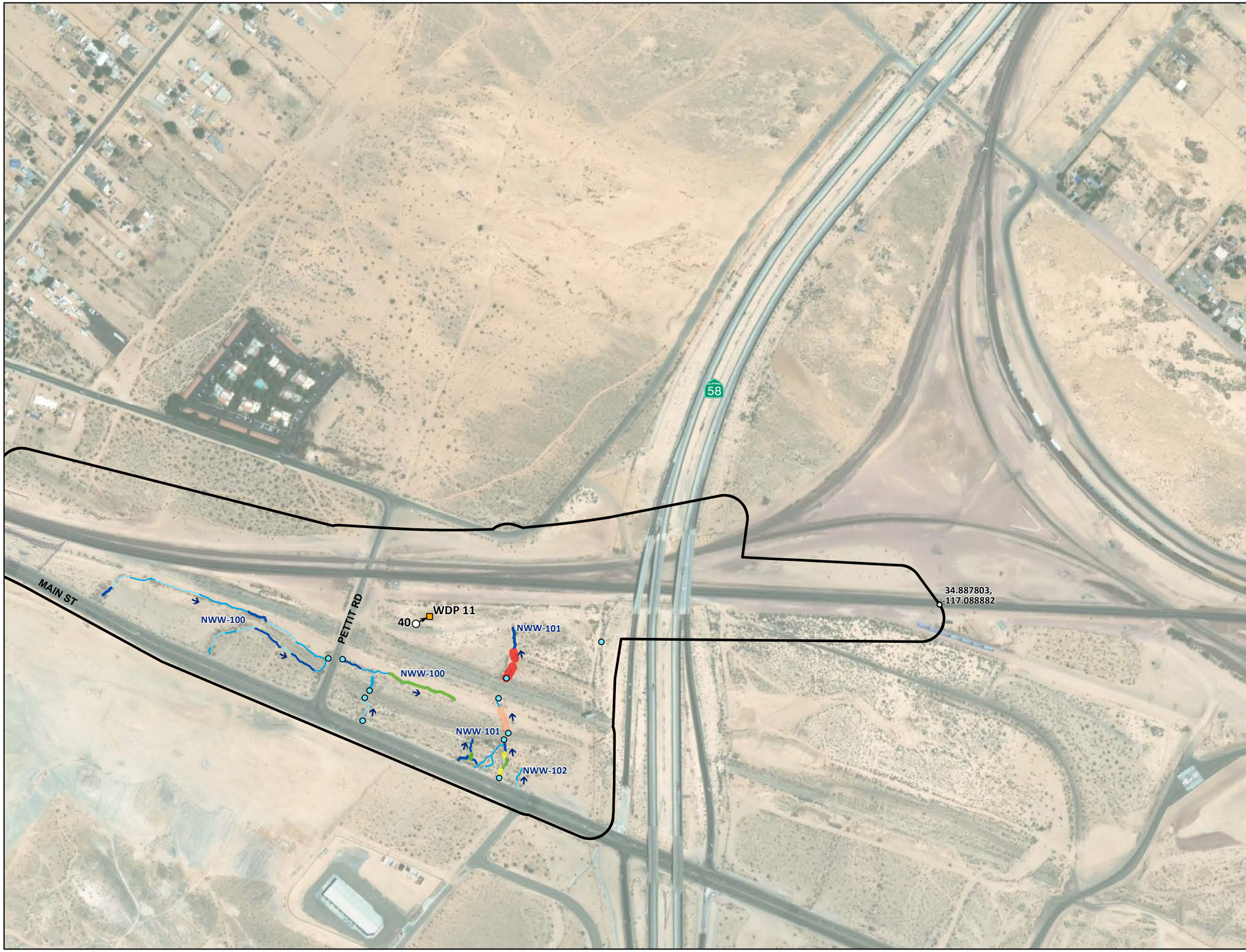
FIGURE 5C
PAGE 22 OF 23

CDFW Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 ac)[1]
Culvert
Wetland Data Form Point (WDP)
Flow Direction
Photo Location

CDFW Streambed and Watercourse

Unvegetated Streambed (24.06 ac)[1] (widths[2])

1'-3'
4'-6'
7'-10'
11'-15'
16'-21'
22'-30'
>30'

[1] Represents total acreage for ARDR review area.
[2] Width ranges used for display purposes only. Acreage calculations use varied widths of each feature.

Key Map

FIGURE 5C
PAGE 23 OF 23

CDFW
Streambed and Watercourse
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 400 FEET
1 INCH = 400 FEET

Date: 8/2/2023
Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Developed
- Disturbed Habitat

Key Map

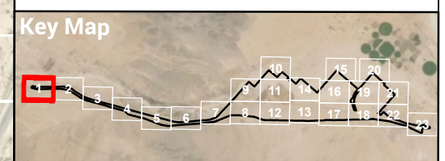


FIGURE 6

PAGE 1 OF 23

Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Developed
- Disturbed Habitat

Key Map

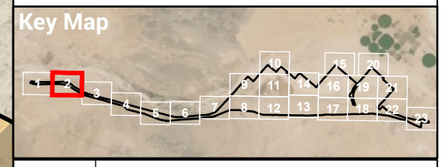


FIGURE 6

PAGE 2 OF 23

Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Developed
- Disturbed Habitat

Key Map

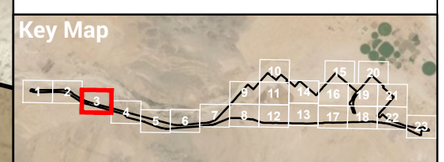


FIGURE 6

PAGE 3 OF 23

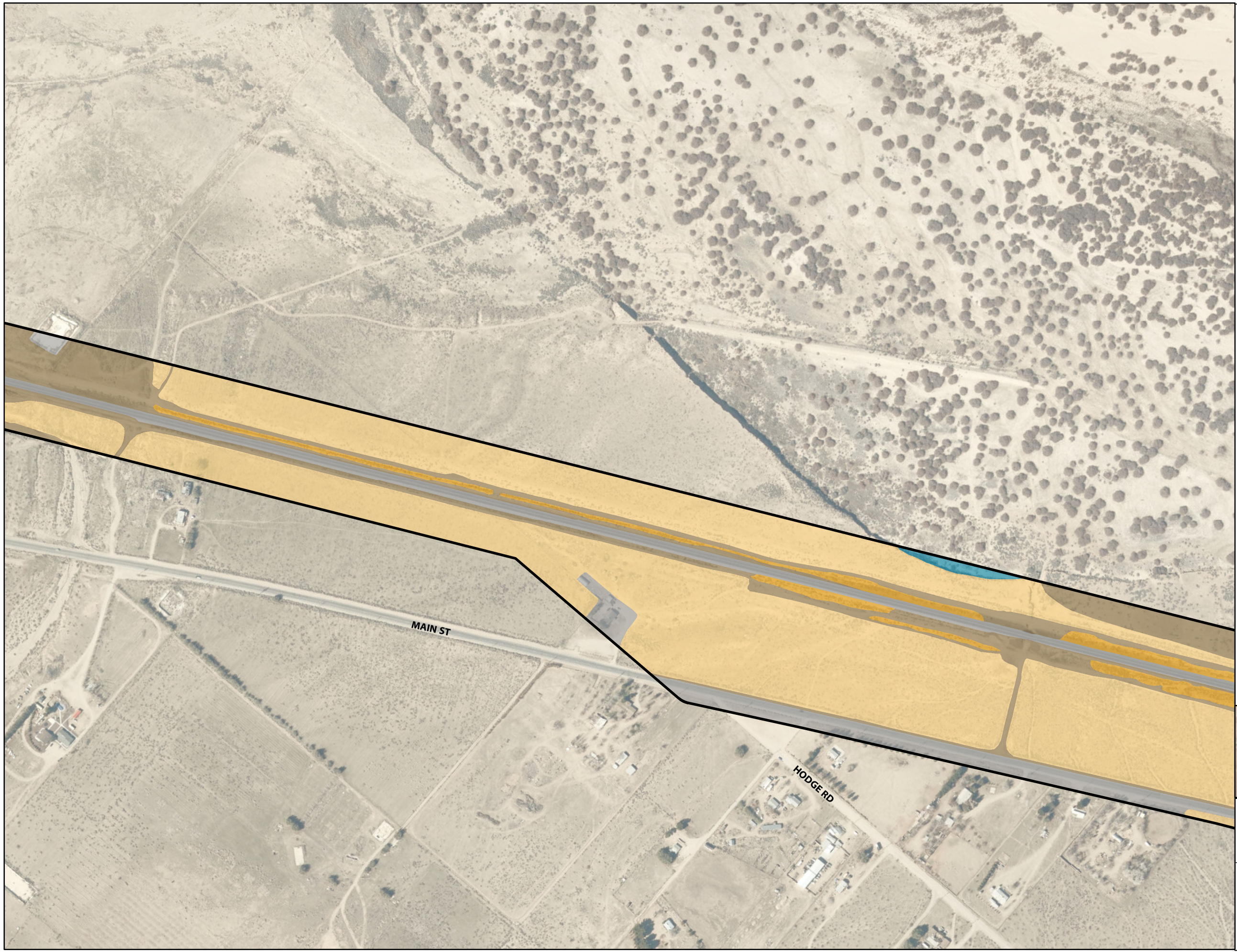
Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Developed
- Disturbed Habitat
- Tamarisk Thickets

Key Map



FIGURE 6

PAGE 4 OF 23

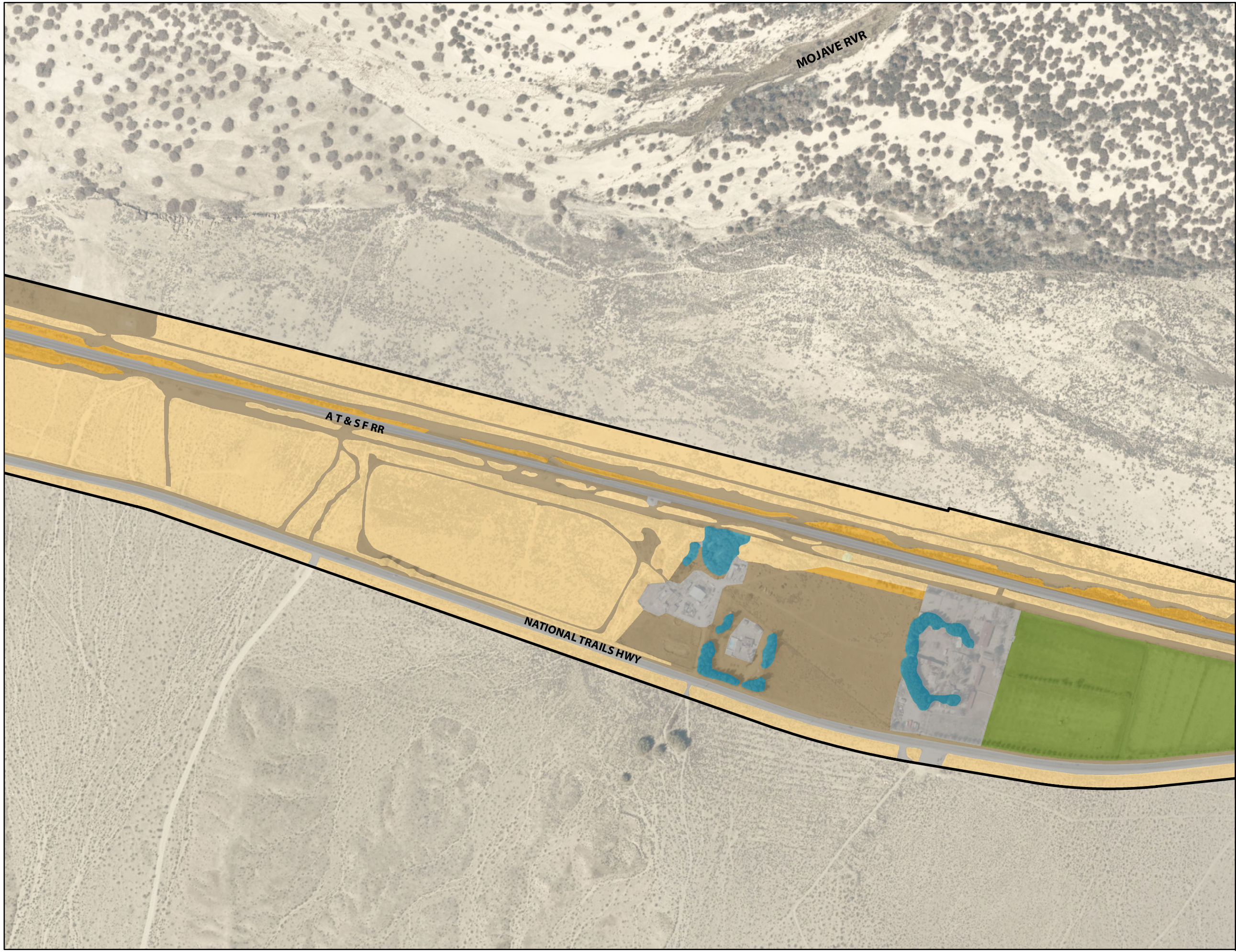
Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Developed
- Disturbed Habitat
- Pasture
- Tamarisk Thickets

Key Map

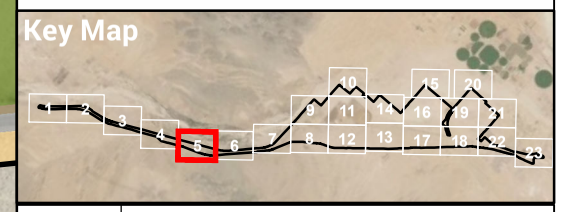


FIGURE 6

PAGE 5 OF 23

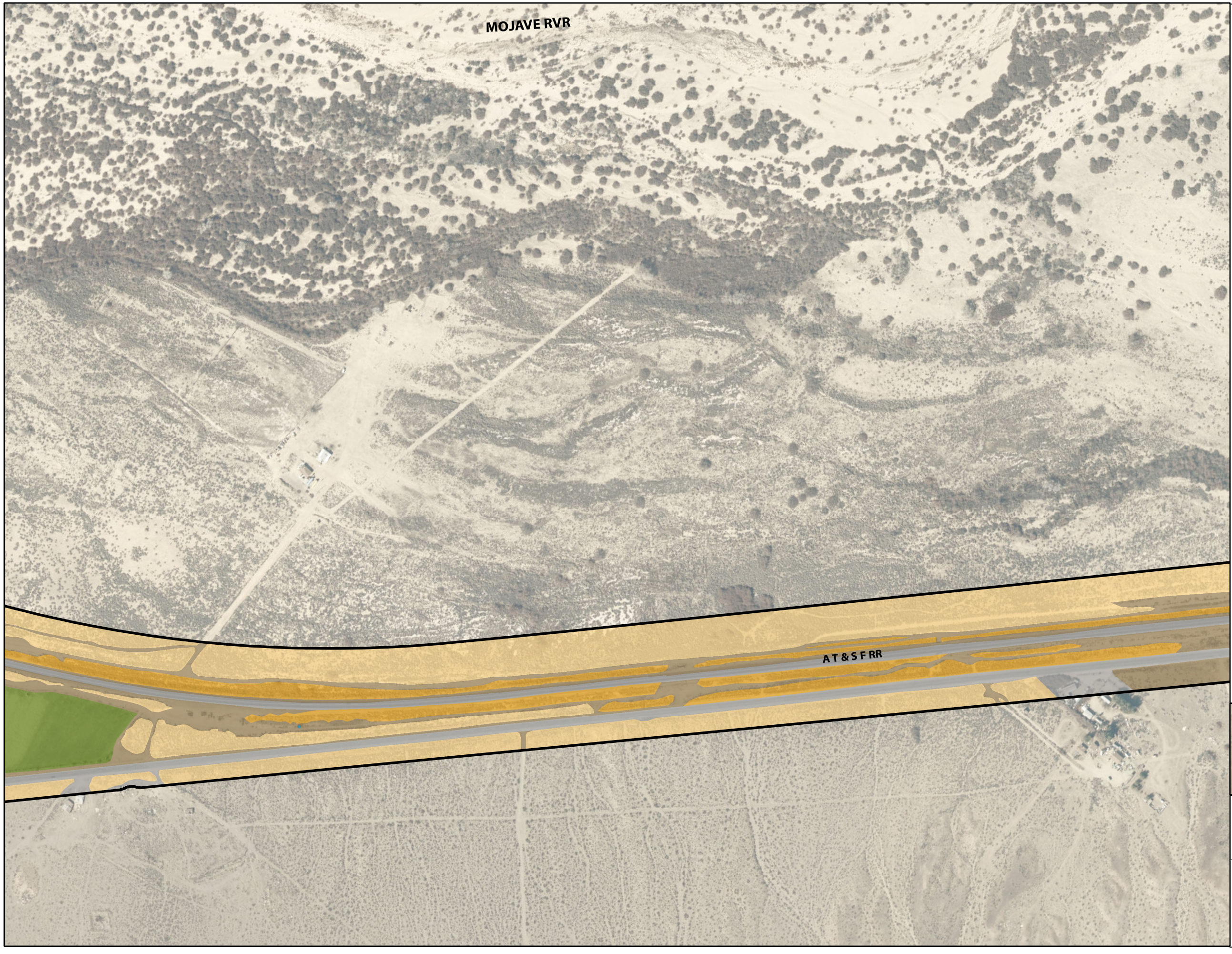
Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Developed
- Disturbed Habitat
- Pasture
- Tamarisk Thickets

Key Map

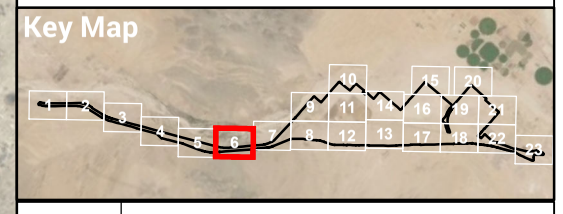


FIGURE 6

PAGE 6 OF 23

Vegetation

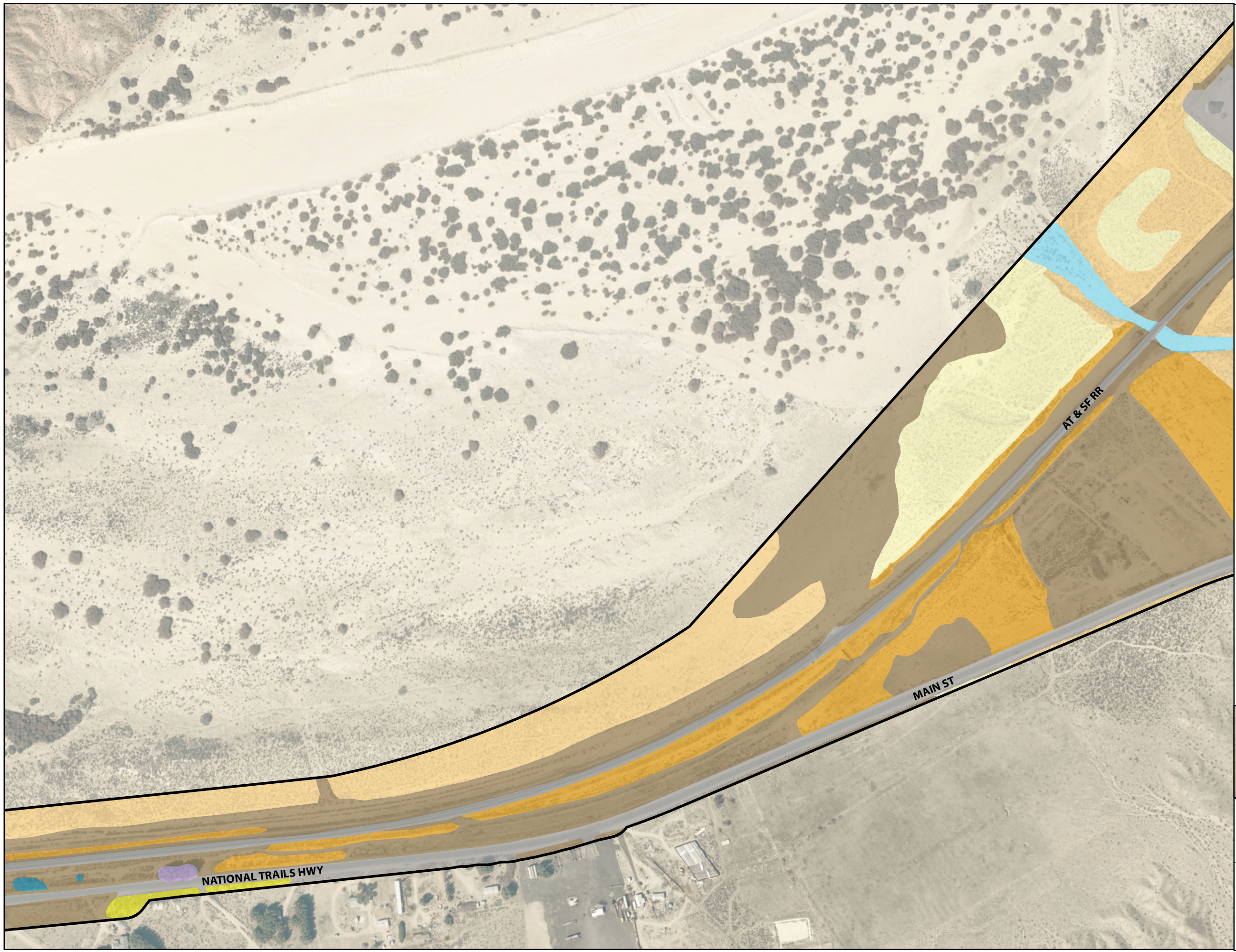
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Ornamental
- Tamarisk Thickets
- Unvegetated Channel

Key Map

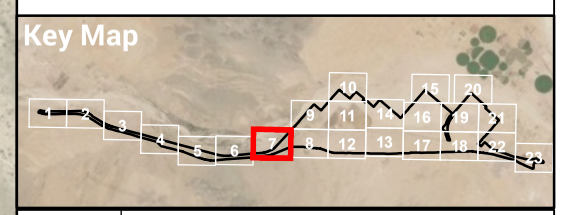


FIGURE 6

PAGE 7 OF 23

Vegetation

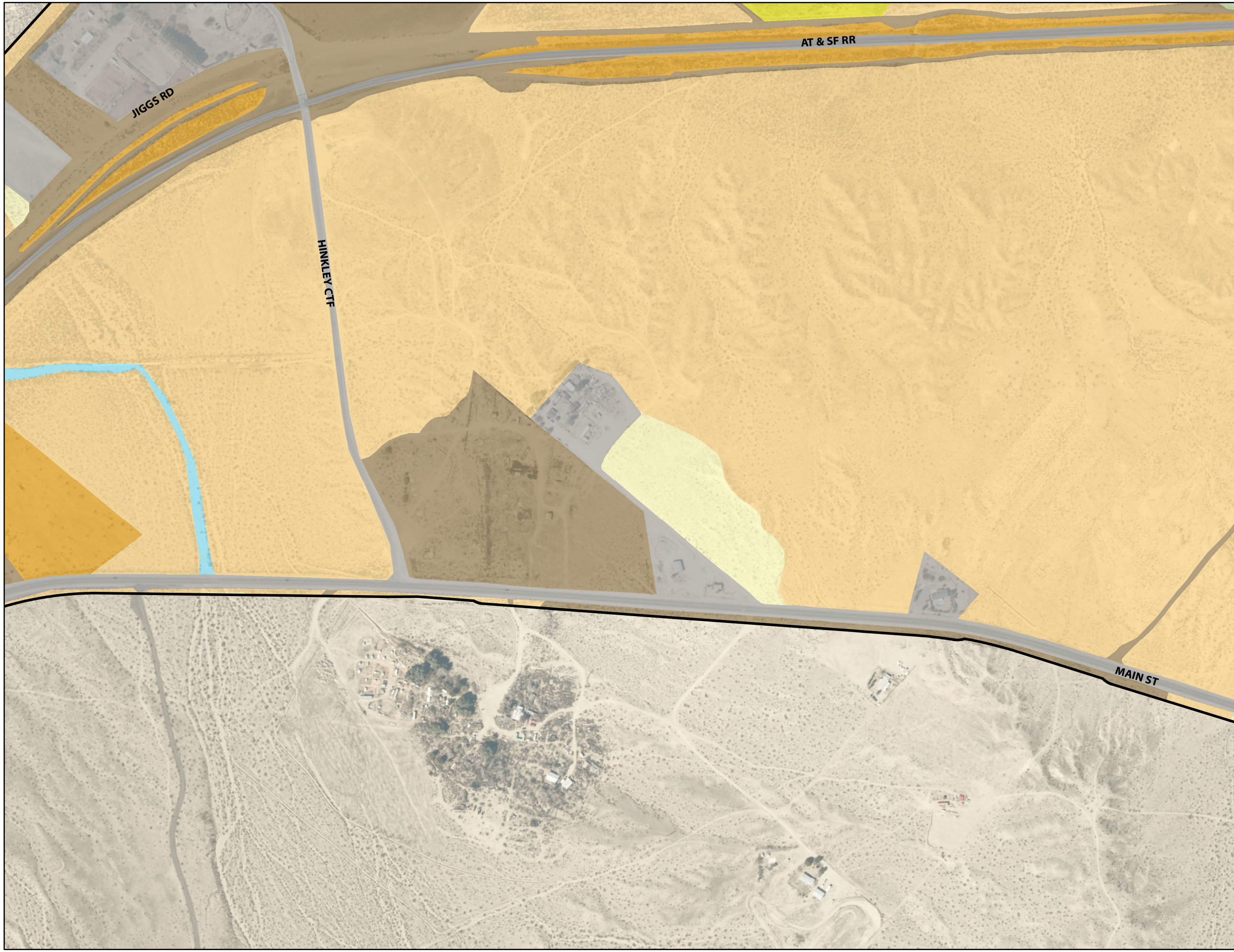
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Agriculture
- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Unvegetated Channel

Key Map

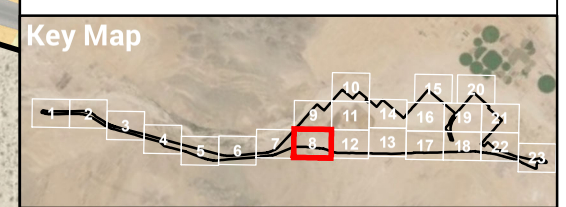


FIGURE 6

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Vegetation

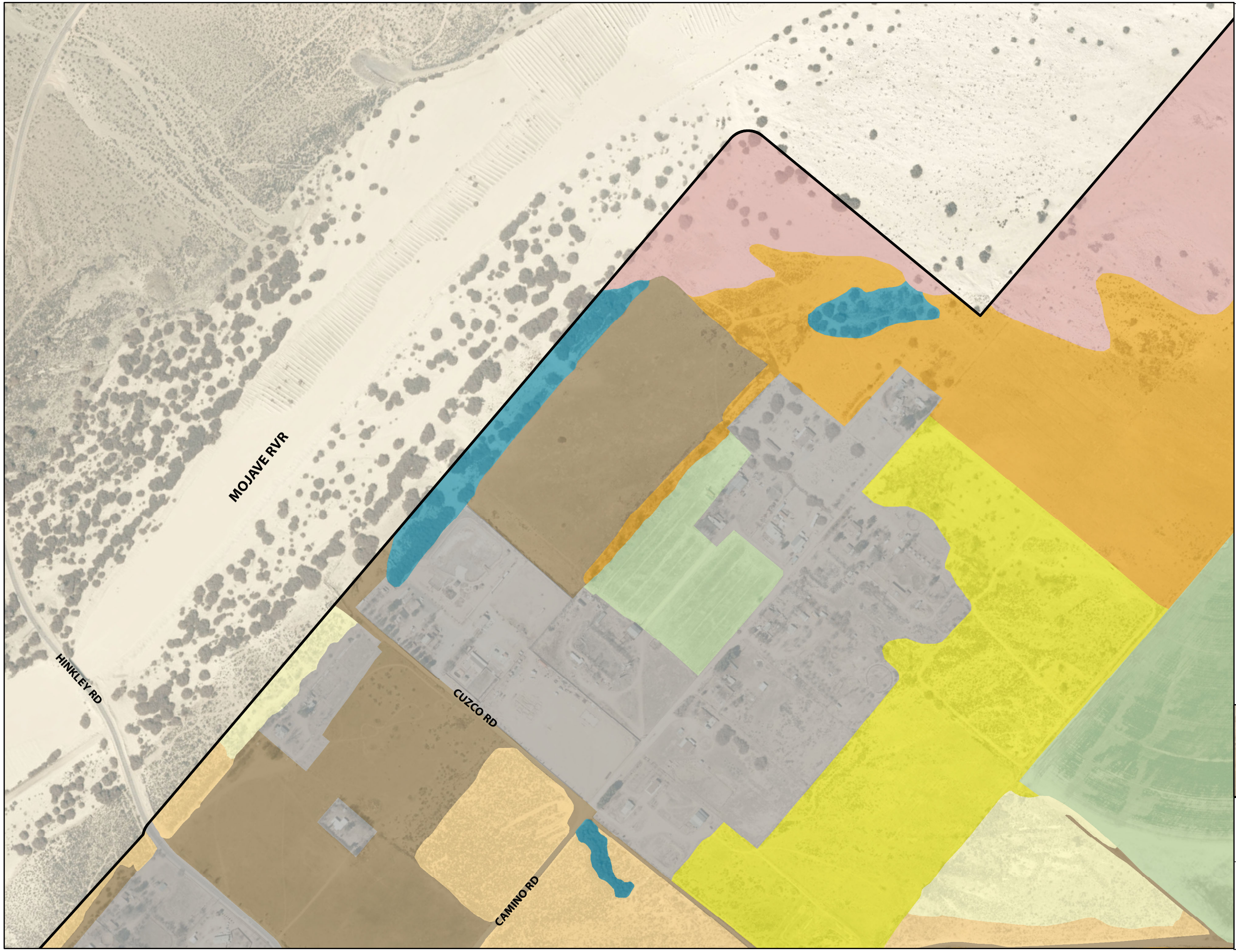
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes
- Agriculture
- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Tamarisk Thickets

Key Map

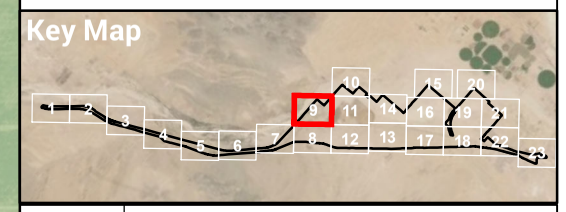


FIGURE 6

PAGE 9 OF 23

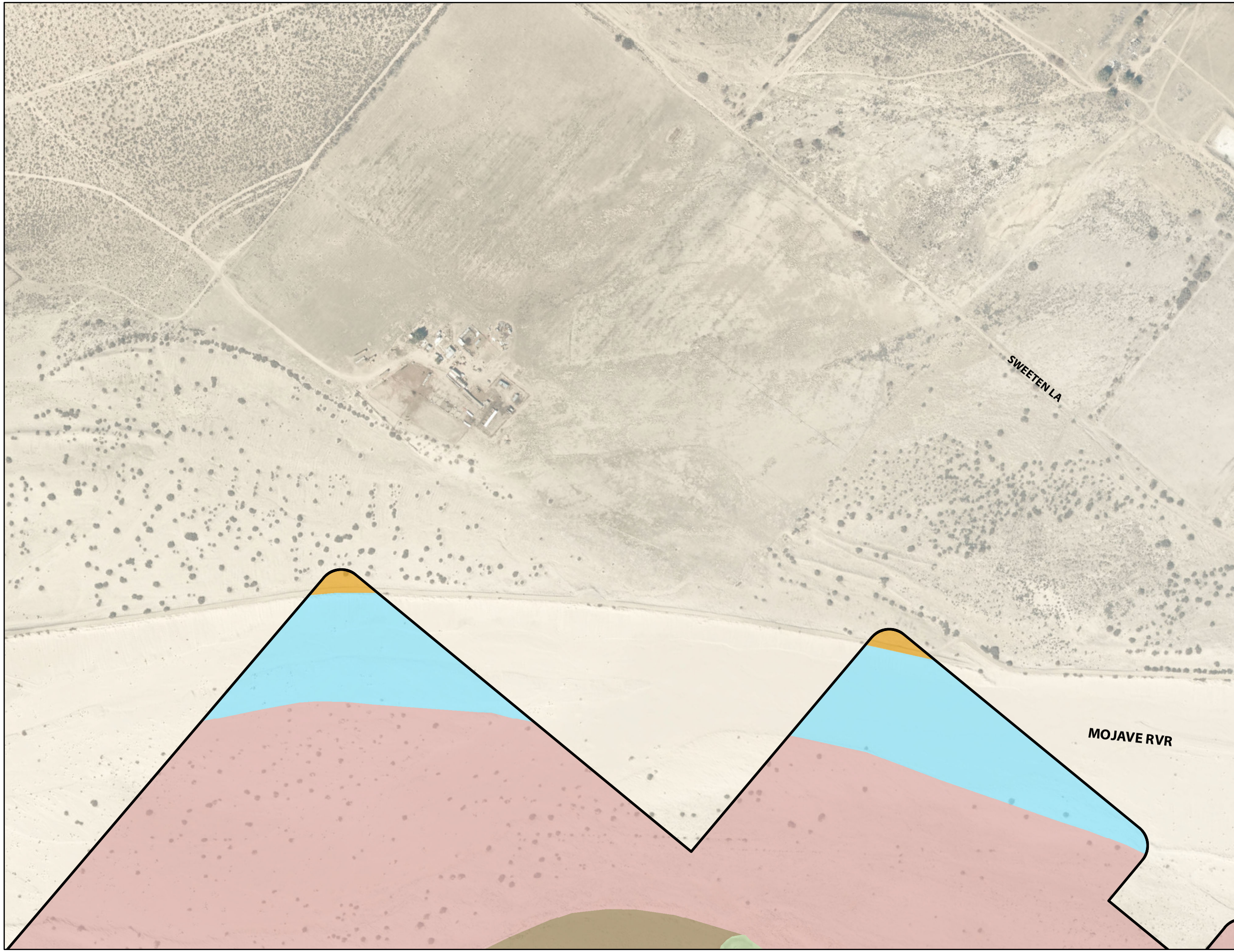
Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes
- Agriculture
- Allscale Scrub - Disturbed
- Disturbed Habitat
- Unvegetated Channel

Key Map

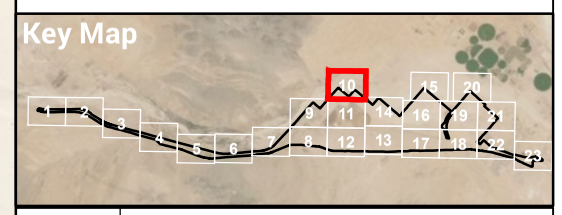


FIGURE 6

PAGE 10 OF 23

Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri

ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes
- Agriculture
- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Tamarisk Thickets

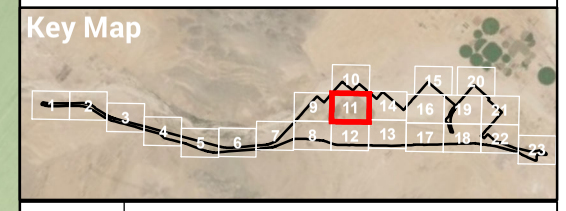


FIGURE 6

PAGE 11 OF 23

Vegetation

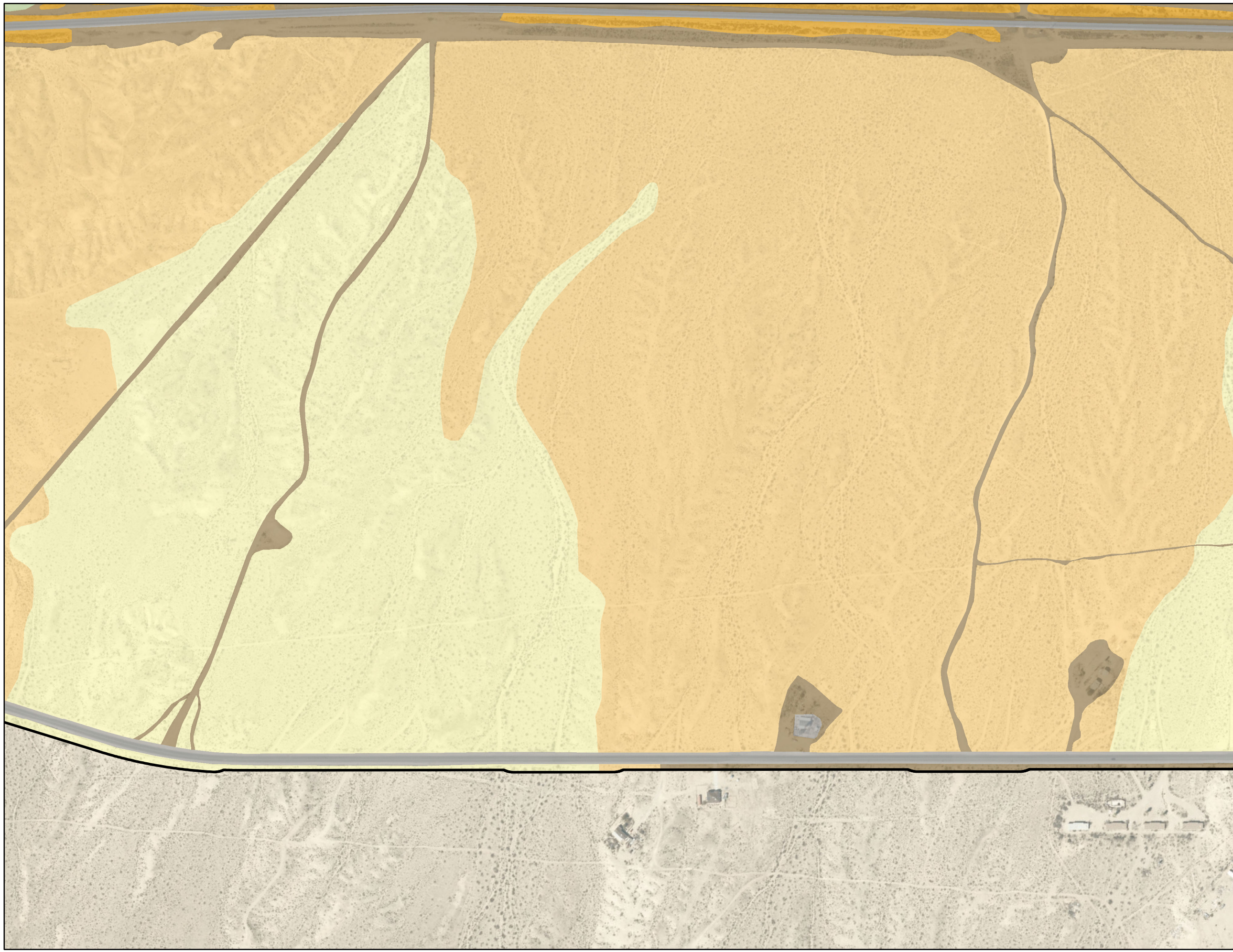
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Agriculture
- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Developed
- Disturbed Habitat

Key Map

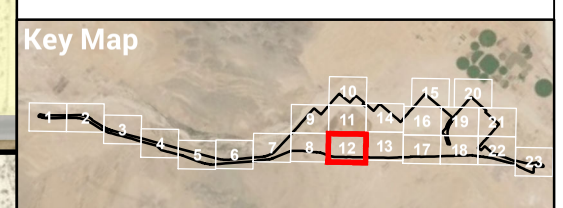


FIGURE 6

PAGE 12 OF 23

Vegetation

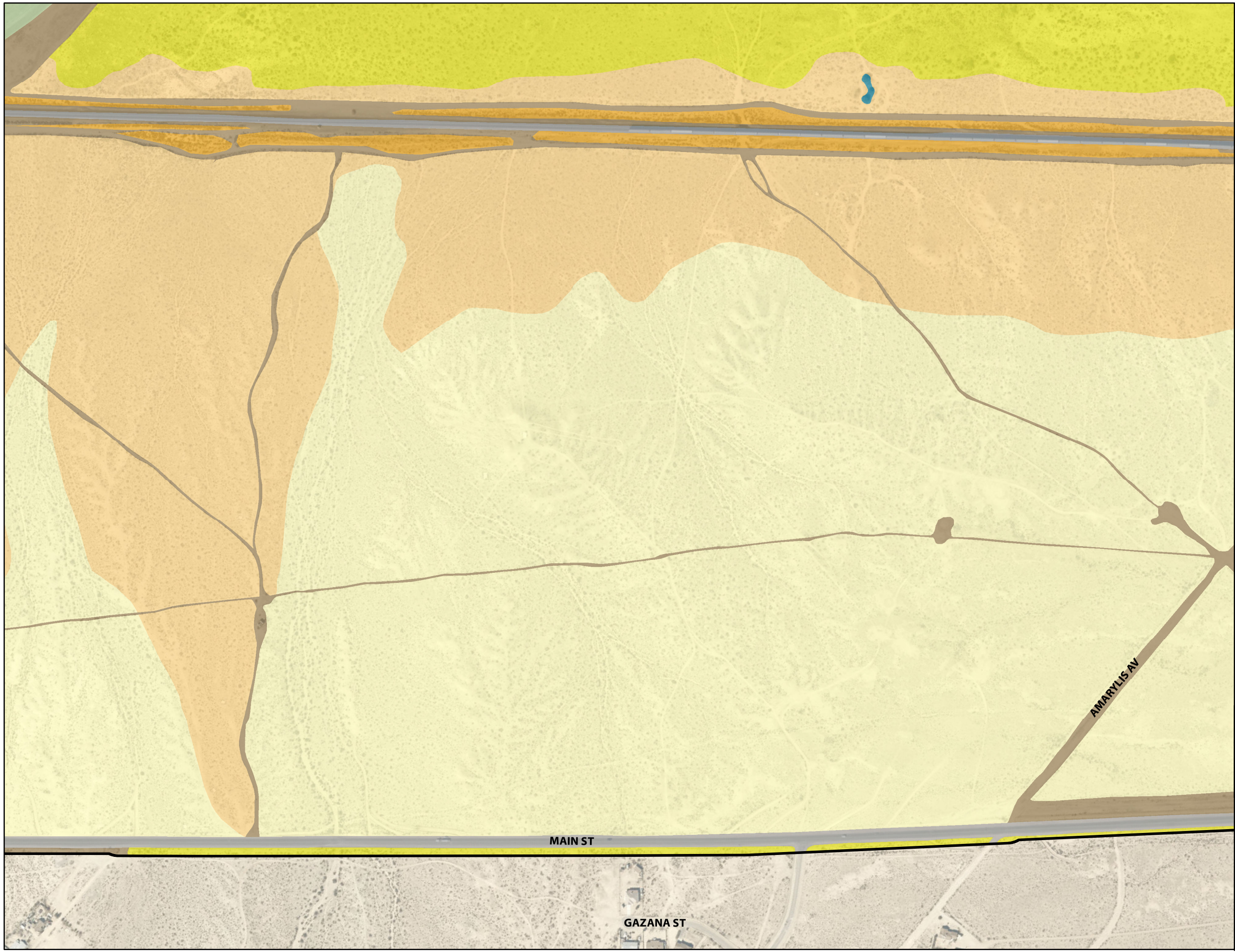
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Agriculture
- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Tamarisk Thickets

Key Map

FIGURE 6

PAGE 13 OF 23

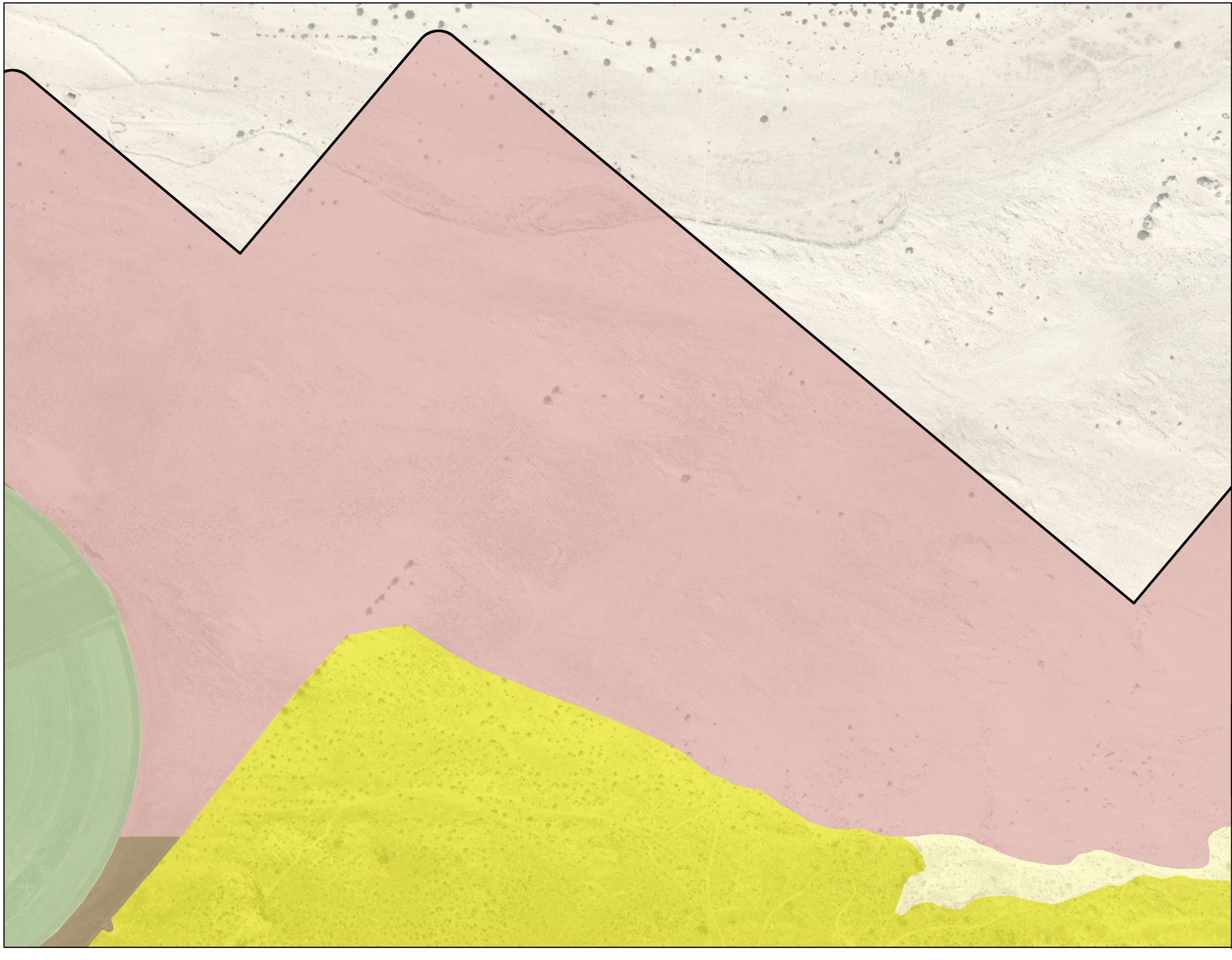
Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes
- Agriculture
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Disturbed Habitat

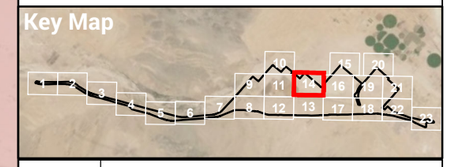


FIGURE 6

PAGE 14 OF 23

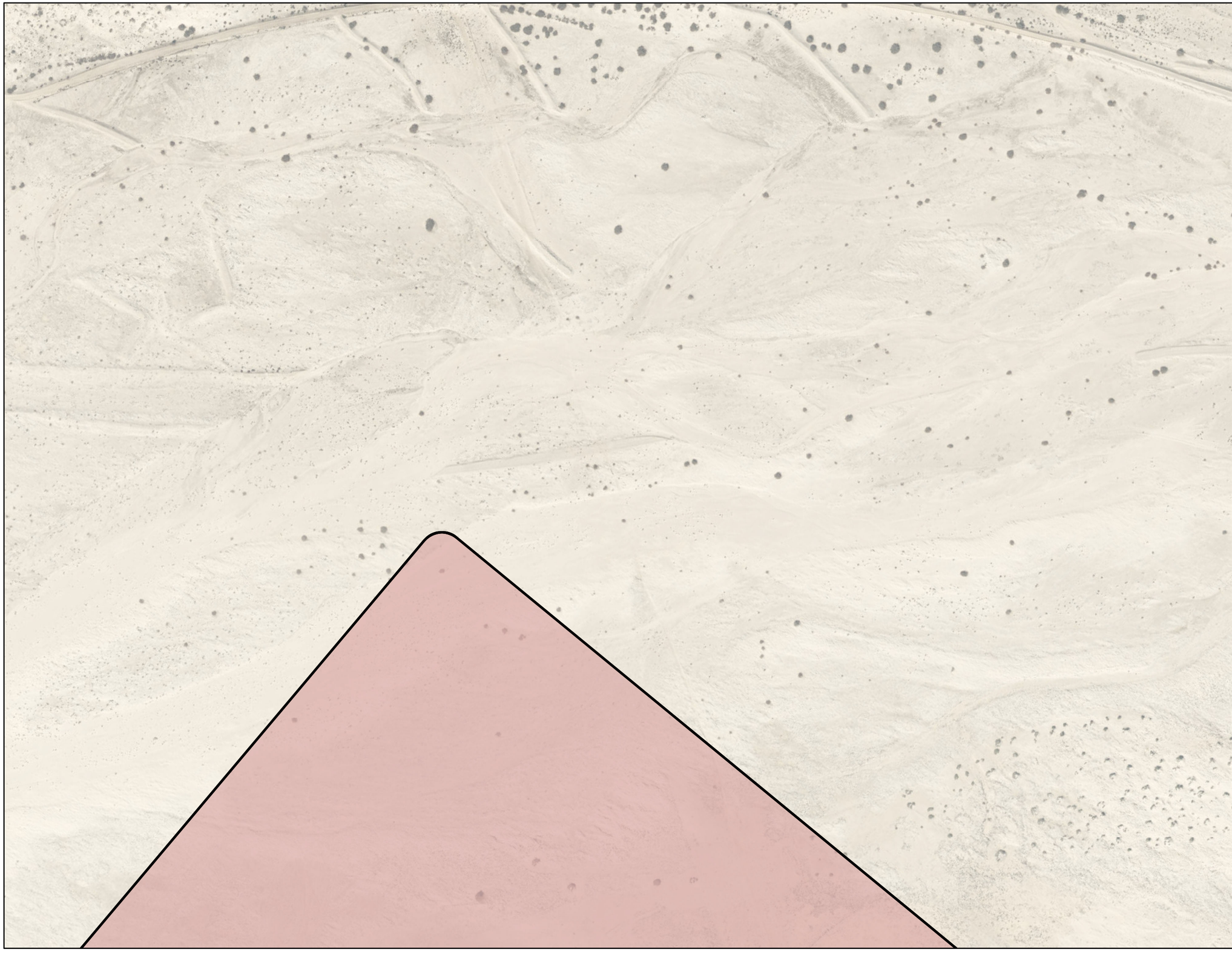
Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

Active Desert Dunes

Key Map

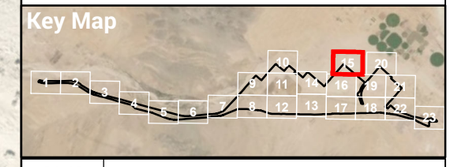


FIGURE 6

PAGE 15 OF 23

Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri

ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes
- Allscale Scrub
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Disturbed Habitat

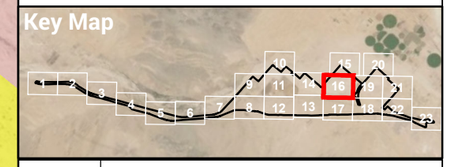


FIGURE 6

PAGE 16 OF 23

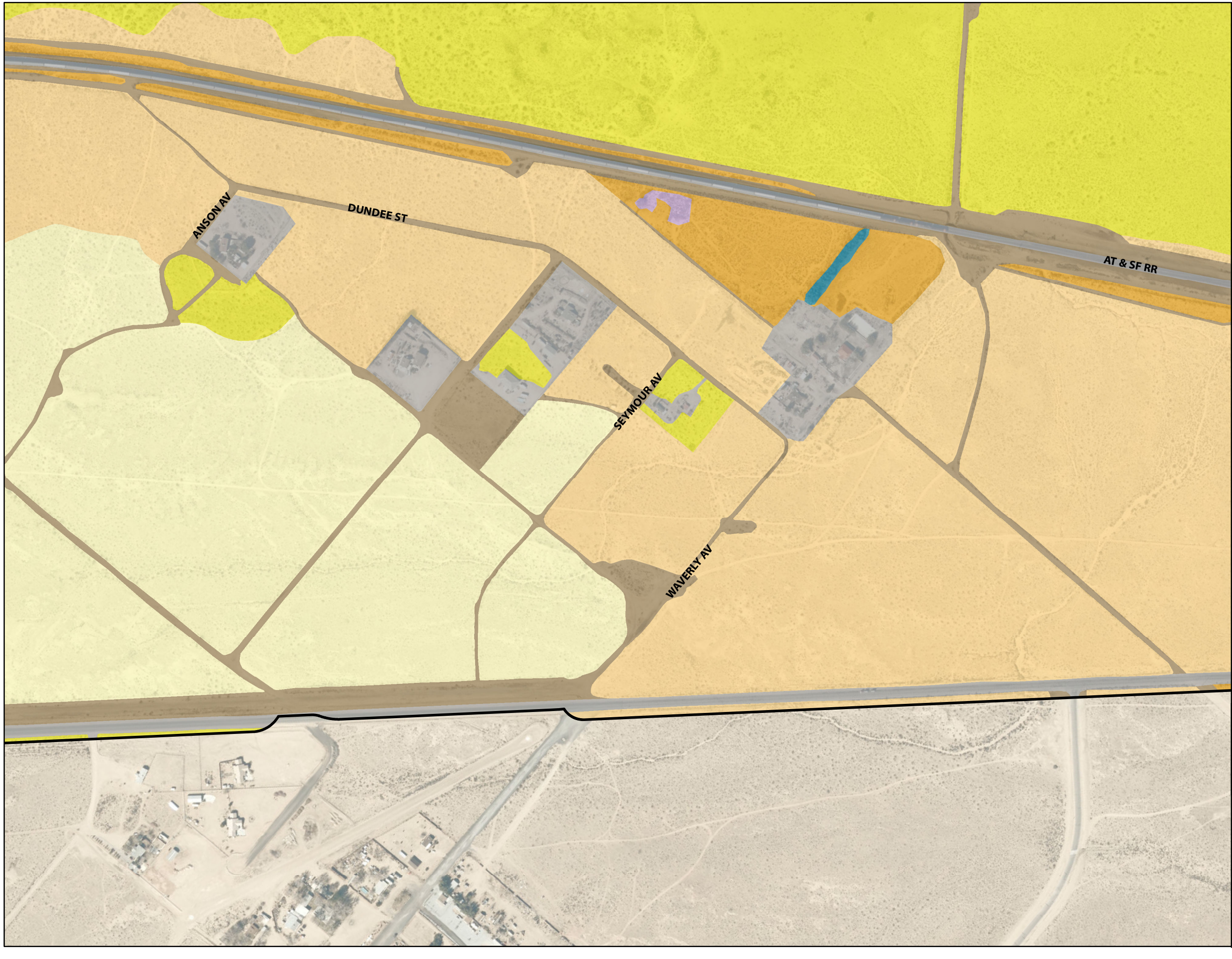
Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Ornamental
- Tamarisk Thickets

Key Map

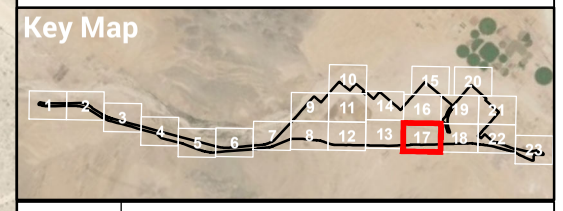


FIGURE 6

PAGE 17 OF 23

Vegetation

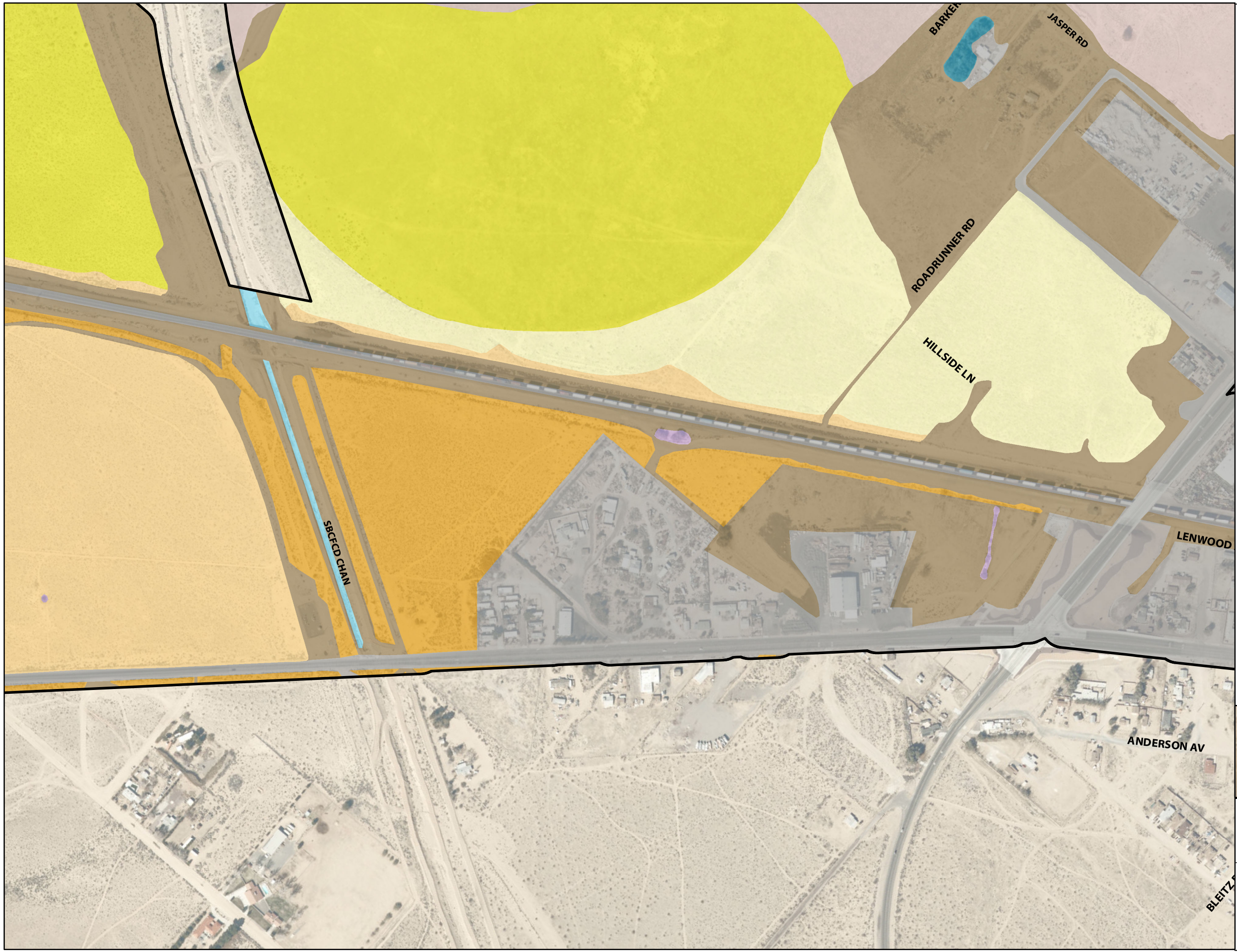
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes - Disturbed
- Allscale Scrub
- Allscale Scrub - Disturbed
- Creosote Bush Scrub
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Ornamental
- Tamarisk Thickets
- Unvegetated Channel

Key Map

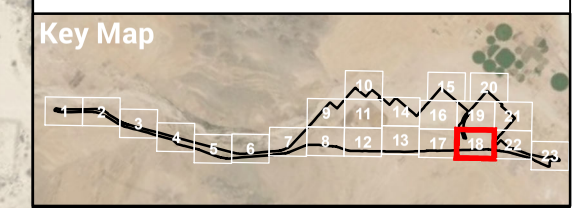


FIGURE 6

PAGE 18 OF 23

Vegetation

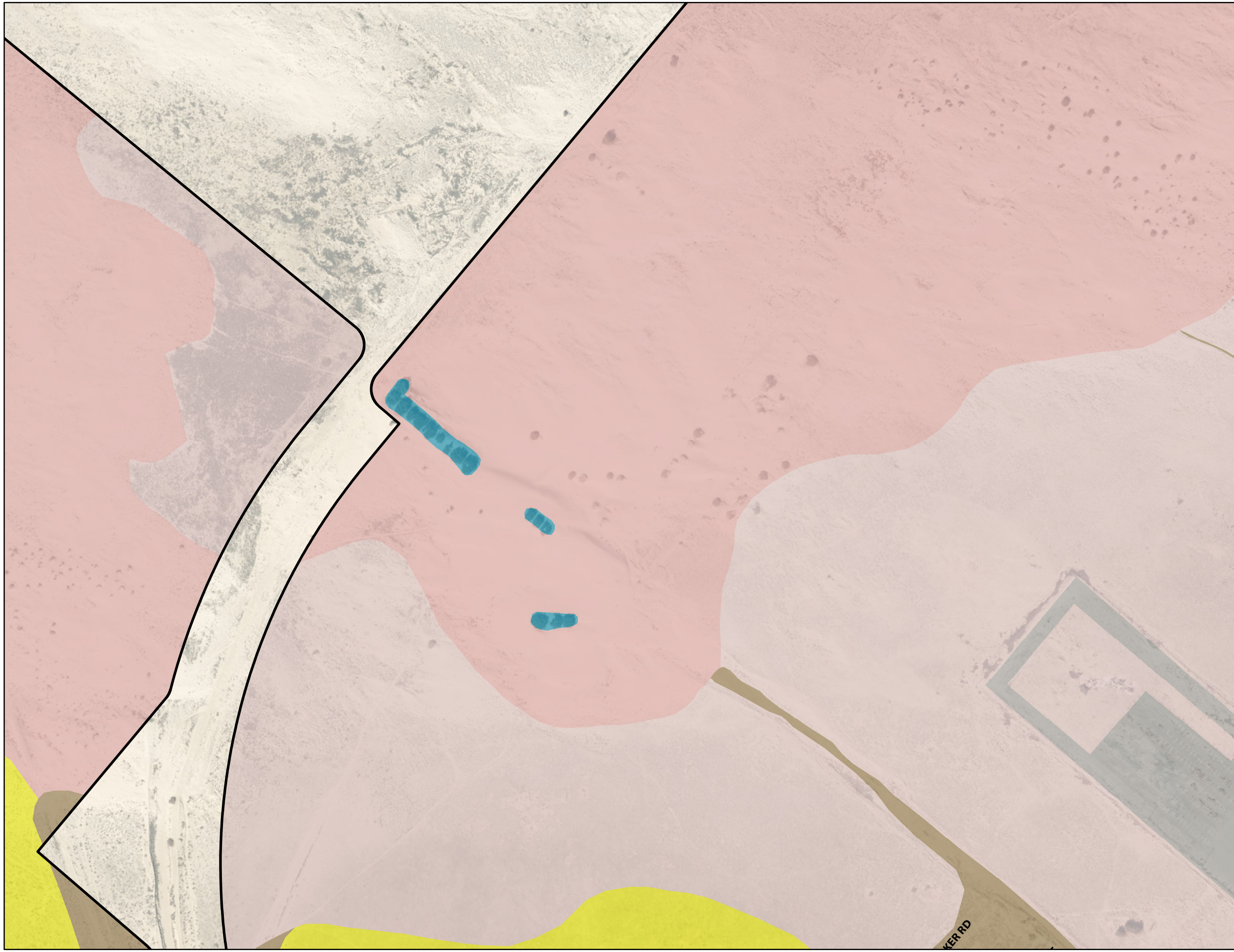
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes
- Active Desert Dunes - Disturbed
- Creosote Bush Scrub - Disturbed
- Developed
- Disturbed Habitat
- Tamarisk Thickets

Key Map

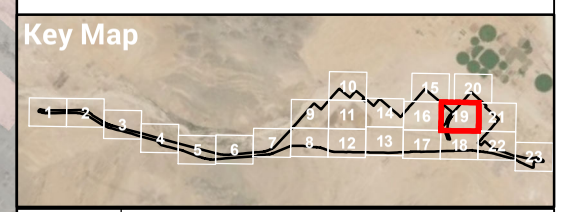


FIGURE 6

PAGE 19 OF 23

Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

Active Desert Dunes

Key Map

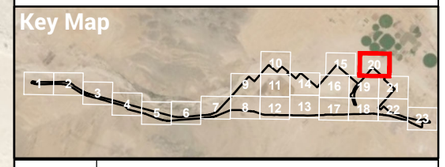


FIGURE 6

PAGE 20 OF 23

Vegetation

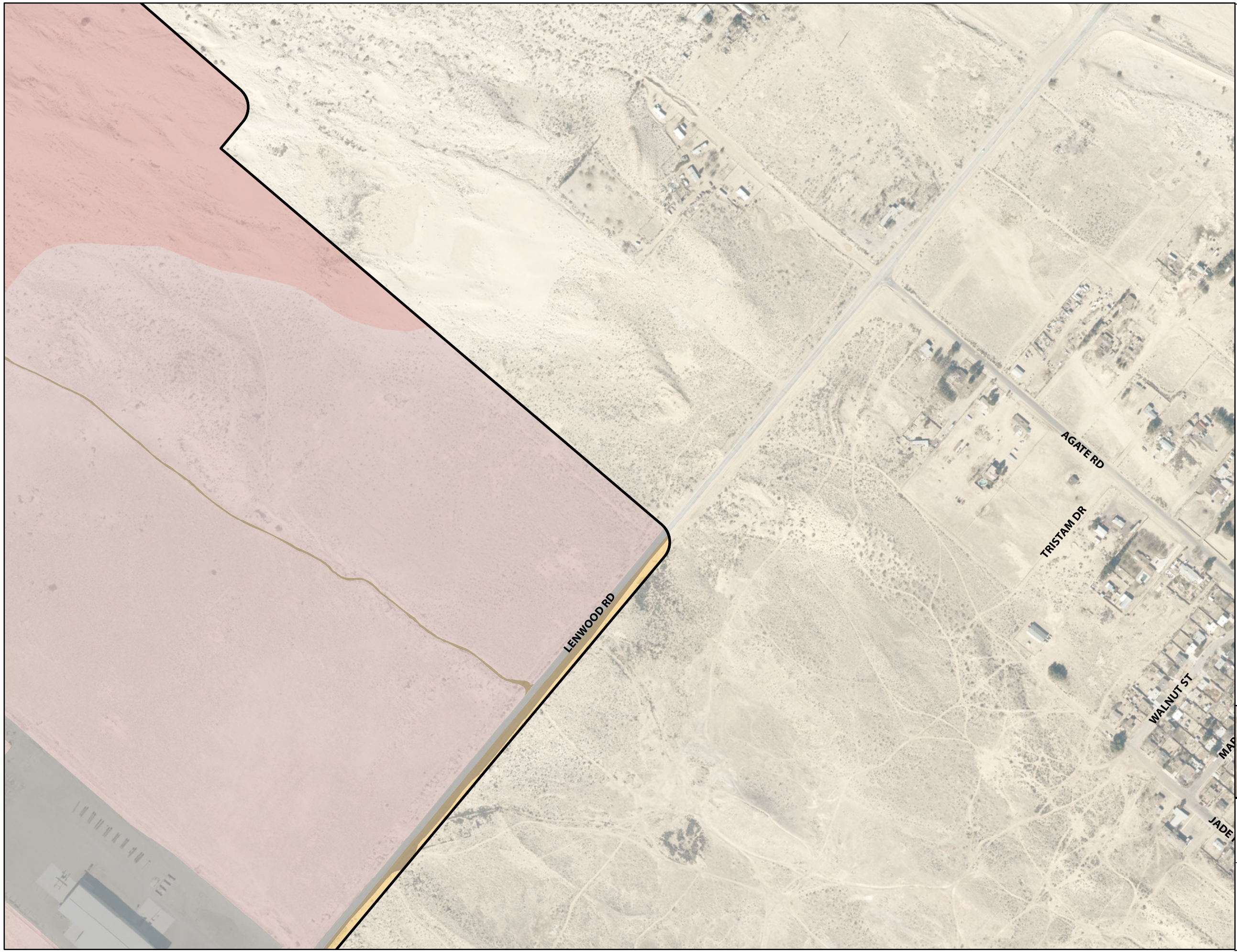
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes
- Active Desert Dunes - Disturbed
- Allscale Scrub
- Developed
- Disturbed Habitat

Key Map

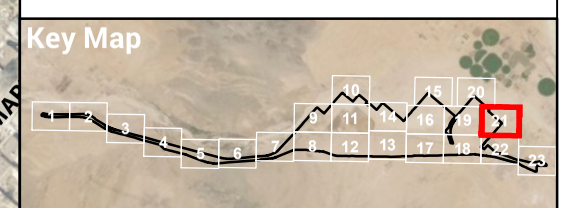


FIGURE 6

PAGE 21 OF 23

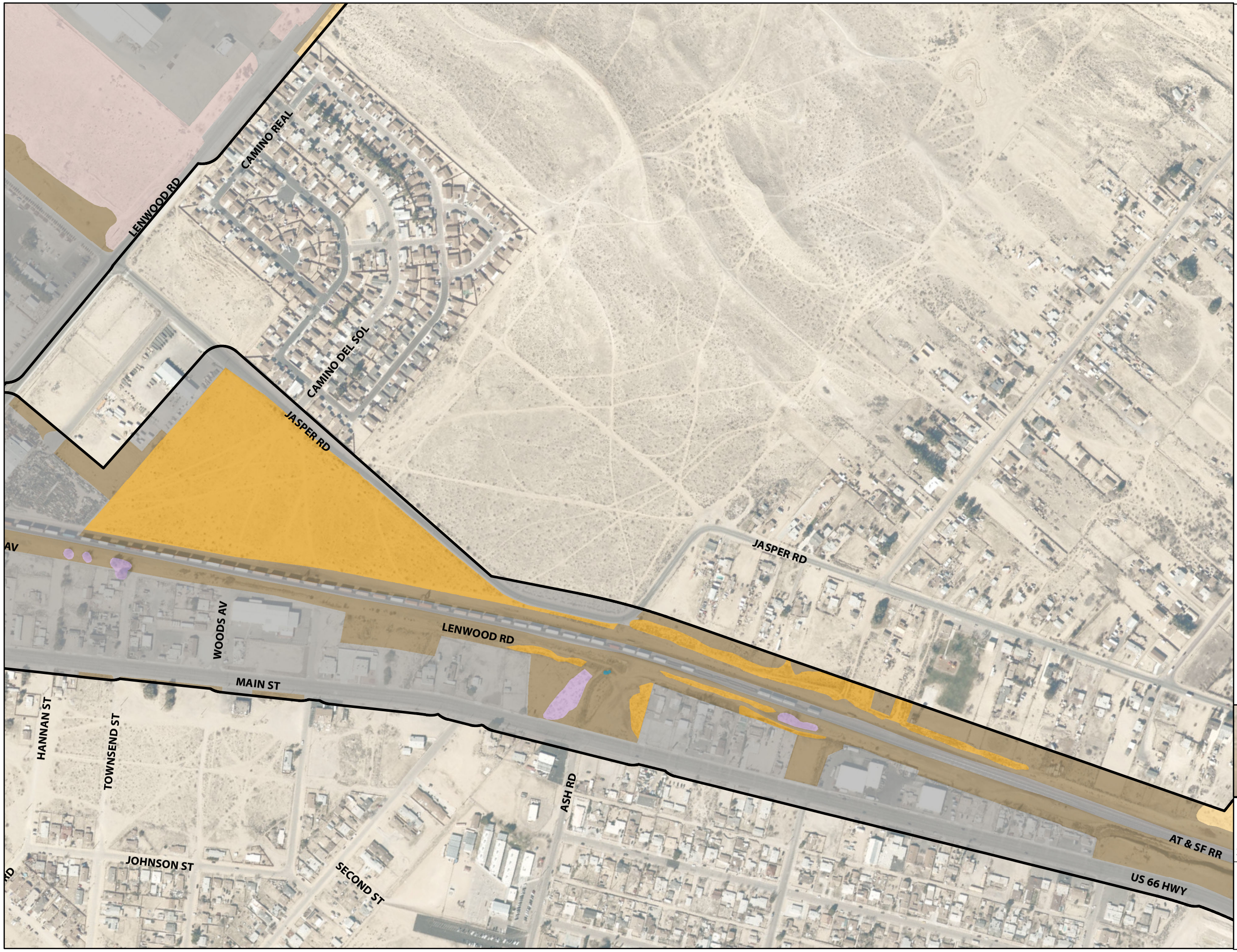
Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Active Desert Dunes - Disturbed
- Allscale Scrub
- Allscale Scrub - Disturbed
- Developed
- Disturbed Habitat
- Ornamental
- Tamarisk Thickets

Key Map

FIGURE 6

PAGE 22 OF 23

Vegetation

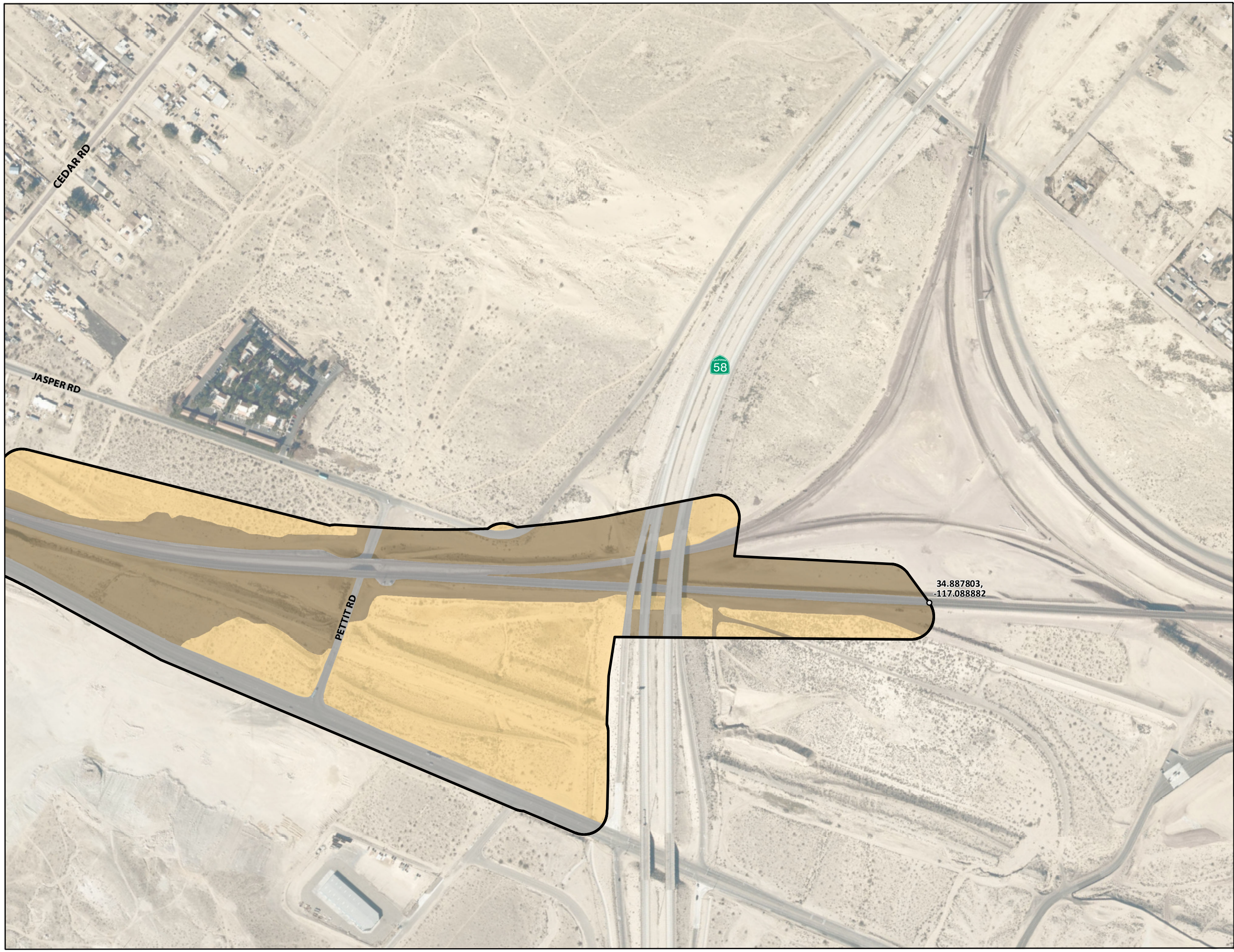
BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET

N

Aerial Photo: San Bernardino County 2020, Esri



ARDR Review Area (5104.5 Ac)

Vegetation

- Allscale Scrub
- Developed
- Disturbed Habitat

Key Map

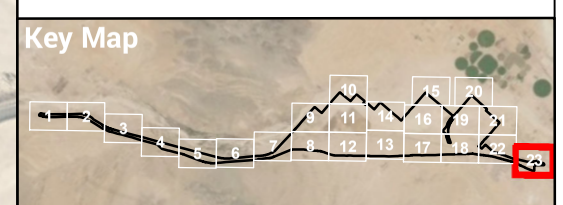


FIGURE 6

PAGE 23 OF 23

Vegetation

BIG BARSTOW

ROCKS BIOLOGICAL CONSULTING

0 450 FEET N

Aerial Photo: San Bernardino County 2020, Esri

APPENDIX A

CHECKLIST: MINIMUM STANDARDS FOR ACCEPTANCE OF AQUATIC RESOURCES DELINEATION REPORTS

APPENDIX A. CHECKLIST: MINIMUM STANDARDS FOR ACCEPTANCE OF AQUATIC RESOURCES DELINEATION REPORTS, LOS ANGELES DISTRICT REGULATORY DIVISION, USACE, MARCH 16, 2017

Report Section/ Page Number	Minimum Standards for Acceptance of Aquatic Resources Delineation Reports	Additional Notes
Section 1; Appendix B	1. JD REQUEST AND FORMS: ☑ A cover letter indicating whether you are requesting a jurisdictional determination (JD)*. ☑ If you are requesting a JD, you must complete, sign, and return the Request for Corps Jurisdictional Determination (JD) sheet. ☑ For preliminary jurisdictional determinations the Preliminary Jurisdictional Determination Form must be signed and submitted.	*Text provided in ARDR in lieu of formal cover letter.
Section 9	2. CONTACT INFORMATION: Contact information for the ☑ applicant(s), ☑ property owner(s), and ☑ agent(s).	
N/A	3. SITE ACCESS: If the property owner or their representatives will not accompany the Corps to the site, a signed statement from the property owner(s) allowing Corps personnel to enter the property and to collect samples during normal business hours. If the property lacks direct access by public roads (in other words, access requires passage through private property not owned by the applicant), the owner or proponent must obtain permission from the adjacent property owner(s) to provide access for Corps personnel.	Property owner and/or representatives will accompany the Corps/RWQCB/CDFW for a site visit upon request.
Section 2.1	4. LOCATION: ☐ Directions to the survey area, ☐ an address (if available) and ☑ one or more set of geographic coordinates expressed in decimal degrees.	
Section 3.2.1	5. DELINEATION MANUAL CONFIRMATION: ☑ A statement confirming the delineation has been conducted in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual and applicable regional supplement(s). ☑ The regional supplement(s) used must be identified. ☑ For OHWM delineations, a statement must be included confirming the use of the OHWM field guide or that it is not applicable.	
Section 6; Appendix H, Table H-1	6. AQUATIC RESOURCE(S) DESCRIPTION: ☑ A narrative describing all aquatic resources on-site and an explanation of the mapped boundaries and any complex transition zones. ☑ If the site contains resources that only meet one or two of the three wetland criteria or do not exhibit a clear OHWM, describe the rationale for their inclusion or exclusion from the delineation. ☑ Also explain if any erosional features, upland swales, ditches and other potential aquatic features were considered but not included in the delineation.	
Figure 1 and Figure 5 series; Section 6; Table 7; Appendix H, Table H-1	7. AQUATIC RESOURCE MAPPING AND ACREAGE: ☑ Map of the outside survey boundary, ☑ total extent of aquatic and proposed non-aquatic features, ☑ type of feature(s) (waters of the United States or wetland), and include ☑ the total acreage for each polygon.	
Section 3.2	8. FIELD WORK DATES: ☑ Date(s) field work was completed.	
Appendix H, Table H-1	9. AQUATIC RESOURCE TABLE: A table listing all aquatic resources. The table must include ☑ the name of each aquatic resource (actual or arbitrary), ☑ its Cowardin type, ☑ acreage, ☑ summary of OHWM/wetland presence, ☑ dominant vegetation for each, and ☑ location (latitude/longitude in decimal	

	degrees). ☑ For linear features, the table must show both acreage and linear feet as well as channel measurements (active channel width).	
Section 4; Tables 1 and 4 through 6; Appendices D, E, and F	10. FIELD CONDITIONS: A description of existing field conditions, including ☑ current land use, ☑ normal conditions, ☑ flood/drought conditions, ☐ irrigation practices, ☑ past or recent manipulation to the site, and ☑ characteristics considered atypical (for criteria see OHWM and wetland supplement guides). ☑ Include WETS tables or pre-site visit precipitation data as appropriate: https://www.wcc.nrcs.usda.gov/climate/wets_doc.html.*	N/A for unchecked; APT data provided in lieu of WETS tables
Section 4.2	11. HYDROLOGY: ☑ A discussion of the hydrology at the site, including ☑ all known surface or subsurface sources, ☑ drainage gradients, ☑ downstream connections to the nearest traditional navigable waterway or interstate water, and ☑ any influence from manmade water sources such as irrigation.	
N/A	12. REMOTE SENSING: ☐ If remote sensing was used in the delineation, provide an explanation of how it was used and include the name, date and source of the tools and data used and copies of the maps/photographs.	N/A
Section 4.1; Figure 4; Appendix G	13. SOILS: ☑ Soil descriptions, ☑ soil map(s), ☑ soil photos, and ☑ a discussion of hydric soils (for wetland delineations only).	
Figure 2	14. USGS QUADRANGLE: ☑ A site location map on a 7.5-minute USGS quadrangle. The map must provide ☑ the name of the USGS quadrangle, ☑ Section, ☑ Township, ☑ Range, and ☑ the latitude and longitude in decimal degree format.	
Appendix I	15. BULK UPLOAD FORM: ☑ For sites with 3 or more separate aquatic features a completed copy of the ORM Bulk Upload Aquatic Resources or Consolidated Excel spreadsheet must be submitted.	
Figure 5 series	16. FIGURES: ☑ Map(s) of all delineated aquatic resources in accordance with the Final Map and Drawing Standards for the South Pacific Division Regulatory Program.	
Figure 5 series and Appendix G	17. SITE PHOTOGRAPHS: ☑ Ground photographs showing representative aquatic resource sites (or lack of), ☑ as well as an accompanying map of photo-points and table of photographic information (see Final Map and Drawing Standards for the South Pacific Division Regulatory Program item no. 8 a-c).	
Appendix E	18. DATA FORMS: ☑ Completed data forms including all essential information to make a jurisdictional determination [e.g. 2006 Wetland Determination Data Form -- Arid West Supplement; 2010 Arid West Ephemeral and Intermittent Streams OHWM Datasheet].	
Section 3	19. METHODS: ☑ A description of the methods used to survey the aquatic resource boundaries. ☑ If GPS data is used, the level of accuracy must be included. Ideally, the GPS equipment should have the capability of sub-meter (<=1 meter) level horizontal accuracy.	
Appendix K	20. GIS DATA: ☑ Digital data for the site, aquatic resource boundaries, and data point locations must be provided in a geographic information system (GIS) format, preferably either ESRI shapefiles or Geodatabase format, but GoogleEarth KMZ or KML files may be acceptable non-complex projects. Each GIS data file must be accompanied by a metadata file containing the appropriate geographic coordinate system, projection, datum, and labeling description. If GIS data is unavailable or otherwise cannot be produced and the Corps determines a site visit is necessary, the aquatic resource boundaries should be physically marked with numbered flags or stakes to facilitate verification by the Corps.	

APPENDIX B

JURISDICTIONAL DETERMINATION REQUEST FORMS

Appendix 1 - REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD)

To: District Name Here

- I am requesting a JD on property located at: south of and within the Mojave River, northwest of National Trails Highway, and south and west of California State Route (CA)-58
  (Street Address)
  City/Township/Parish: Barstow/Unincorp County: San Bernardino State: CA
  Acreage of Parcel/Review Area for JD: 5,104.49 acres
  Section: Various Township: 8N; 9N Range: 4W & 3W; 3W & 2W
  Latitude (decimal degrees): 34.853903 Longitude (decimal degrees): -117.159799
  (For linear projects, please include the center point of the proposed alignment.)
- Please attach a survey/plat map and vicinity map identifying location and review area for the JD.
- ✓ I currently own this property. ✓ I plan to purchase this property.
  ___ I am an agent/consultant acting on behalf of the requestor.
  ✓ Other (please explain): Right-of-entry to Corps staff limited to BNSF-owned properties until other properties purchased by BNSF.
- Reason for request: (check as many as applicable)
  ___ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
  ___ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
  ✓ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
  ___ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.
  ___ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide.
  ___ A Corps JD is required in order to obtain my local/state authorization.
  ___ I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
  ___ I believe that the site may be comprised entirely of dry land.
  ___ Other: _____
- Type of determination being requested:
  ___ I am requesting an approved JD.
  ✓ I am requesting a preliminary JD.
  ___ I am requesting a "no permit required" letter as I believe my proposed activity is not regulated.
  ___ I am unclear as to which JD I would like to request and require additional information to inform my decision.

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.

Note: Right-of-entry to Corps staff limited to BNSF-owned properties until other properties purchased by BNSF.

*Signature: David Rankin Date: 9/22/22

- Typed or printed name: David Rankin

Company name: BNSF Railway Company

Address: 2500 Lou Menk Drive, AOB-3
Forth Worth, TX 76131

Daytime phone no.: 817-352-2383

Email address: David.Rankin@BNSF.com

*Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD:

B. NAME AND ADDRESS OF PERSON REQUESTING PJD: David Rankin, BNSF Railway, 2500 Lou Menk Dr, AOB-3, Forth Worth, TX 76131

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: CA County/parish/borough: San Bernardino City: Barstow/Unincorporated

Center coordinates of site (lat/long in degree decimal format):

Lat.: 34.853903 Long.: -117.159799

Universal Transverse Mercator: 11S 485392.2m E 3856853.3m N

Name of nearest waterbody: Mojave River

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☐ Field Determination. Date(s):

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
		SEE	ATTACHED		

1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- [x] Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
  Map: 2022 ARDR, prepared by Rocks Biological Consulting.
- [x] Data sheets prepared/submitted by or on behalf of the PJD requestor.
  - [ ] Office concurs with data sheets/delineation report.
  - [ ] Office does not concur with data sheets/delineation report. Rationale: _____.
- [ ] Data sheets prepared by the Corps: _____.
- [ ] Corps navigable waters' study: _____.
- [x] U.S. Geological Survey Hydrologic Atlas: 2022 ARDR, Figure 2; USGS NHD 2020.
  - [x] USGS NHD data.
  - [x] USGS 8 and 12 digit HUC maps.
- [x] U.S. Geological Survey map(s). Cite scale & quad name: 2022 ARDR, Figure 2; 1" = 4,500'; USGS 7.5' Quads (Hodge, Hinkley, Barstow SE, Barstow).
- [x] Natural Resources Conservation Service Soil Survey. Citation: 2022 ARDR, Figure 4; USDA NRCS 2018.
- [x] National wetlands inventory map(s). Cite name: 2022 ARDR, Figure 4; USFWS NWI 2019.
- [ ] State/local wetland inventory map(s): _____.
- [ ] FEMA/FIRM maps: _____.
- [ ] 100-year Floodplain Elevation is: _____.(National Geodetic Vertical Datum of 1929)
- [x] Photographs: [x] Aerial (Name & Date): See 2022 ARDR, Figures 1 & 4-6 (Maxar, Esri 2020; San Bernardino County, Esri 2020); Appendix D, Recent and Historic Aerials.
  or [x] Other (Name & Date): See 2022 ARDR Appendix G, Site Photographs.
- [ ] Previous determination(s). File no. and date of response letter: _____.
- [x] Other information (please specify): 2022 ARDR, prepared by Rocks Biological Consulting.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

_____	David Rambo 9/22/2022
Signature and date of Regulatory staff member completing PJD	Signature and date of person requesting PJD (REQUIRED, unless obtaining the signature is impracticable)[1]

[1] Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resources (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
NWW-1	34.772787	-117.284653	0.02 ac/123 ln ft	Non-wetland waters	Section 404
NWW-2	34.772847	-117.284610	0.01 ac/121 ln ft	Non-wetland waters	Section 404
NWW-3	34.773221	-117.283817	0.02 ac/132 ln ft	Non-wetland waters	Section 404
NWW-4	34.773653	-117.283036	0.01 ac/113 ln ft	Non-wetland waters	Section 404
NWW-5	34.773734	-117.282869	0.01 ac/109 ln ft	Non-wetland waters	Section 404
NWW-6	34.774652	-117.281701	0.01 ac/126 ln ft	Non-wetland waters	Section 404
NWW-7	34.776674	-117.278786	0.01 ac/119 ln ft	Non-wetland waters	Section 404
NWW-8	34.776786	-117.278705	0.01 ac/96 ln ft	Non-wetland waters	Section 404
NWW-9	34.778794	-117.277384	0.03 ac/107 ln ft	Non-wetland waters	Section 404
NWW-10	34.778399	-117.276743	<0.01 ac/52 ln ft	Non-wetland waters	Section 404
NWW-11	34.778377	-117.276478	0.02 ac/223 ln ft	Non-wetland waters	Section 404
NWW-12	34.778670	-117.276121	0.01 ac/127 ln ft	Non-wetland waters	Section 404
NWW-13	34.778712	-117.276024	0.01 ac/113 ln ft	Non-wetland waters	Section 404
NWW-14	34.778886	-117.275827	0.01 ac/133 ln ft	Non-wetland waters	Section 404
NWW-15	34.778978	-117.275585	0.01 ac/184 ln ft	Non-wetland waters	Section 404
NWW-16	34.784276	-117.262668	0.07 ac/214 ln ft	Non-wetland waters	Section 404
NWW-17	34.784361	-117.262104	0.05 ac/81 ln ft	Non-wetland waters	Section 404
NWW-18	34.786948	-117.252605	0.01 ac/104 ln ft	Non-wetland waters	Section 404
NWW-19	34.787318	-117.251761	0.01 ac/114 ln ft	Non-wetland waters	Section 404
NWW-20	34.791189	-117.241868	0.65 ac/852 ln ft	Non-wetland waters	Section 404
NWW-21	34.795810	-117.228450	0.03 ac/428 ln ft	Non-wetland waters	Section 404
NWW-22	34.796559	-117.227801	0.02 ac/176 ln ft	Non-wetland waters	Section 404
NWW-23	34.795776	-117.228162	0.02 ac/221 ln ft	Non-wetland waters	Section 404
NWW-24	34.797160	-117.227759	0.11 ac/801 ln ft	Non-wetland waters	Section 404
NWW-25	34.796981	-117.225815	0.07 ac/727 ln ft	Non-wetland waters	Section 404
NWW-26	34.797595	-117.225008	0.07 ac/522 ln ft	Non-wetland waters	Section 404
NWW-27	34.798258	-117.223204	0.18 ac/1,155 ln ft	Non-wetland waters	Section 404
NWW-28	34.797819	-117.222127	0.01 ac/109 ln ft	Non-wetland waters	Section 404
NWW-29	34.798766	-117.222983	<0.01 ac/96 ln ft	Non-wetland waters	Section 404
NWW-30	34.798508	-117.221906	0.03 ac/311 ln ft	Non-wetland waters	Section 404
NWW-31	34.798583	-117.221247	0.01 ac/145 ln ft	Non-wetland waters	Section 404
NWW-32	34.798456	-117.220065	<0.01 ac/32 ln ft	Non-wetland waters	Section 404
NWW-33	34.799322	-117.219846	0.02 ac/171 ln ft	Non-wetland waters	Section 404
NWW-34	34.800955	-117.215818	0.03 ac/572 ln ft	Non-wetland waters	Section 404

NWW-35	34.807290	-117.203290	0.01 ac/66 ln ft	Non-wetland waters	Section 404
NWW-36	34.808738	-117.201555	0.01 ac/183 ln ft	Non-wetland waters	Section 404
NWW-37	34.809189	-117.201054	0.01 ac/150 ln ft	Non-wetland waters	Section 404
NWW-38	34.809316	-117.200892	0.01 ac/141 ln ft	Non-wetland waters	Section 404
NWW-39	34.809671	-117.200471	<0.01 ac/182 ln ft	Non-wetland waters	Section 404
NWW-40	34.810099	-117.199975	0.01 ac/155 ln ft	Non-wetland waters	Section 404
NWW-41	34.810323	-117.199718	0.01 ac/172 ln ft	Non-wetland waters	Section 404
NWW-42	34.811425	-117.198424	0.02 ac/175 ln ft	Non-wetland waters	Section 404
NWW-43	34.826693	-117.188511	0.13 ac/475 ln ft	Non-wetland waters	Section 404
NWW-44	34.829248	-117.186429	3.13 ac/5,956 ln ft	Non-wetland waters	Section 404
NWW-45	34.834684	-117.182237	0.21 ac/2,468 ln ft	Non-wetland waters	Section 404
NWW-46	34.835168	-117.181479	0.06 ac/1,172 ln ft	Non-wetland waters	Section 404
NWW-47	34.833706	-117.176283	0.04 ac/580 ln ft	Non-wetland waters	Section 404
NWW-48	34.836991	-117.181122	0.03 ac/481 ln ft	Non-wetland waters	Section 404
NWW-49	34.836110	-117.179064	0.73 ac/7,138 ln ft	Non-wetland waters	Section 404
NWW-50	34.837239	-117.179203	0.02 ac/461 ln ft	Non-wetland waters	Section 404
NWW-51	34.837464	-117.178078	0.04 ac/842 ln ft	Non-wetland waters	Section 404
NWW-52	34.837867	-117.177679	0.04 ac/562 ln ft	Non-wetland waters	Section 404
NWW-53	34.837648	-117.177101	0.07 ac/1,131 ln ft	Non-wetland waters	Section 404
NWW-54	34.835210	-117.172619	0.02 ac/354 ln ft	Non-wetland waters	Section 404
NWW-55	34.835454	-117.171863	0.02 ac/170 ln ft	Non-wetland waters	Section 404
NWW-56	34.835773	-117.172617	0.02 ac/252 ln ft	Non-wetland waters	Section 404
NWW-57	34.836014	-117.172631	0.02 ac/264 ln ft	Non-wetland waters	Section 404
NWW-58	34.838348	-117.176084	0.50 ac/4,358 ln ft	Non-wetland waters	Section 404
NWW-59	34.838248	-117.174160	0.75 ac/8,262 ln ft	Non-wetland waters	Section 404
NWW-60	34.840401	-117.179750	0.17 ac/188 ln ft	Non-wetland waters	Section 404
NWW-61	34.837031	-117.169791	0.05 ac/910 ln ft	Non-wetland waters	Section 404
NWW-62	34.840397	-117.175307	0.14 ac/1,696 ln ft	Non-wetland waters	Section 404
NWW-63	34.840934	-117.174275	0.20 ac/2,174 ln ft	Non-wetland waters	Section 404
NWW-64	34.841711	-117.174418	0.04 ac/538 ln ft	Non-wetland waters	Section 404
NWW-65	34.842293	-117.173643	0.02 ac/482 ln ft	Non-wetland waters	Section 404
NWW-66	34.843147	-117.172457	0.08 ac/1,260 ln ft	Non-wetland waters	Section 404
NWW-67	34.841131	-117.171984	0.22 ac/2,373 ln ft	Non-wetland waters	Section 404
NWW-68	34.839992	-117.170094	0.34 ac/5,708 ln ft	Non-wetland waters	Section 404
NWW-69	34.842933	-117.168625	0.68 ac/6,858 ln ft	Non-wetland waters	Section 404
NWW-70	34.842209	-117.166408	2.09 ac/18,554 ln ft	Non-wetland waters	Section 404
NWW-71	34.844554	-117.165718	0.10 ac/1,128 ln ft	Non-wetland waters	Section 404
NWW-72	34.845370	-117.166236	0.04 ac/427 ln ft	Non-wetland waters	Section 404
NWW-73	34.844453	-117.163545	1.24 ac/13,348 ln ft	Non-wetland waters	Section 404
NWW-74	34.846950	-117.162756	0.17 ac/1,582 ln ft	Non-wetland waters	Section 404
NWW-75	34.845550	-117.159978	0.04 ac/487 ln ft	Non-wetland waters	Section 404
NWW-76	34.848019	-117.159133	0.86 ac/8,649 ln ft	Non-wetland waters	Section 404
NWW-77	34.847129	-117.156396	0.16 ac/1,677 ln ft	Non-wetland waters	Section 404

NWW-78	34.848845	-117.157242	0.01 ac/278 ln ft	Non-wetland waters	Section 404
NWW-79	34.850248	-117.158057	0.13 ac/1,874 ln ft	Non-wetland waters	Section 404
NWW-80	34.850680	-117.154564	2.02 ac/15,877 ln ft	Non-wetland waters	Section 404
NWW-81	34.853340	-117.156269	0.12 ac/1,229 ln ft	Non-wetland waters	Section 404
NWW-82	34.854433	-117.152784	0.64 ac/8,328 ln ft	Non-wetland waters	Section 404
NWW-83	34.856239	-117.153167	0.01 ac/250 ln ft	Non-wetland waters	Section 404
NWW-84	34.854958	-117.146066	0.02 ac/909 ln ft	Non-wetland waters	Section 404
NWW-85	34.857281	-117.149898	0.31 ac/3,921 ln ft	Non-wetland waters	Section 404
NWW-86	34.856698	-117.147965	0.02 ac/218 ln ft	Non-wetland waters	Section 404
NWW-87	34.857936	-117.147949	0.13 ac/2,162 ln ft	Non-wetland waters	Section 404
NWW-88	34.858906	-117.148308	0.04 ac/403 ln ft	Non-wetland waters	Section 404
NWW-89	34.863711	-117.134655	1.39 ac/12,490 ln ft	Non-wetland waters	Section 404
NWW-90	34.860552	-117.142795	0.08 ac/995 ln ft	Non-wetland waters	Section 404
NWW-91	34.863147	-117.140564	0.01 ac/150 ln ft	Non-wetland waters	Section 404
NWW-92	34.874455	-117.131291	1.32 ac/4,629 ln ft	Non-wetland waters	Section 404
NWW-93	34.873485	-117.118709	0.06 ac/409 ln ft	Non-wetland waters	Section 404
NWW-94	34.874055	-117.117372	0.06 ac/401 ln ft	Non-wetland waters	Section 404
NWW-95	34.877087	-117.110926	0.03 ac/307 ln ft	Non-wetland waters	Section 404
NWW-96	34.878268	-117.108708	0.05 ac/439 ln ft	Non-wetland waters	Section 404
NWW-97	34.879422	-117.105552	0.03 ac/506 ln ft	Non-wetland waters	Section 404
NWW-98	34.880017	-117.105950	0.01 ac/124 ln ft	Non-wetland waters	Section 404
NWW-99	34.880936	-117.101226	0.03 ac/353 ln ft	Non-wetland waters	Section 404
NWW-100	34.882602	-117.095407	0.34 ac/2,524 ln ft	Non-wetland waters	Section 404
NWW-101	34.883416	-117.092671	0.29 ac/1,003 ln ft	Non-wetland waters	Section 404
NWW-102	34.883038	-117.091930	0.01 ac/99 ln ft	Non-wetland waters	Section 404
NWW-103	34.797426	-117.223080	0.01 ac/43 ln ft	Non-wetland waters	Section 404
NWW-104	34.797510	-117.222886	0.01 ac/70 ln ft	Non-wetland waters	Section 404
NWW-105	34.828712	-117.182373	0.01 ac/29 ln ft	Non-wetland waters	Section 404
NWW-106	34.828907	-117.182084	0.01 ac/36 ln ft	Non-wetland waters	Section 404
NWW-107	34.835555	-117.169501	<0.01 ac/51 ln ft	Non-wetland waters	Section 404
NWW-108	34.847053	-117.151904	0.01 ac/36 ln ft	Non-wetland waters	Section 404
NWW-109	34.863277	-117.170128	104.30 ac/4,818 ln ft	Non-wetland waters	Section 404

APPENDIX C

APPLICABLE AQUATIC RESOURCE PROTECTION REGULATIONS

APPENDIX C. APPLICABLE AQUATIC RESOURCE PROTECTION REGULATIONS

Several regulations have been established by federal, state, and local agencies to protect and conserve aquatic resources. The descriptions below provide a brief overview of agency regulations that may be applicable to the project.

Executive Order 11990

Executive Order 11990 aims to avoid direct or indirect impacts on wetlands from federal or federally approved projects when a practicable alternative is available. If wetland impacts cannot be avoided, all practicable measures to minimize harm must be included.

Clean Water Act

Pursuant to Section 404 of the Clean Water Act (33 U.S. Code [USC] § 1251 et seq.; CWA), the U.S. Army Corps of Engineers (Corps) is authorized to regulate any activity that would result in the discharge of dredged or fill material into waters of the U.S. (including wetlands), which include those waters listed in 33 Code of Federal Regulations (CFR) 328.3 (51 Federal Register [FR] 41217, November 13, 1983; 53 FR 20764, June 6, 1988) and further defined by the 2001 *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC; 531 U.S. 159) decision and the 2006 *Rapanos v. United States* (547 U.S. 715) decision. The Corps, with oversight from the U.S. Environmental Protection Agency (USEPA), has the principal authority to issue CWA Section 404 permits. The Corps would require a Standard Individual Permit (SIP) for more than minimal impacts to waters of the U.S. as determined by the Corps. Projects with minimal individual and cumulative adverse effects on the environment may meet the conditions of an existing Nationwide Permit (NWP).

A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for all Section 404 permitted actions. The Regional Water Quality Control Board (RWQCB), a division of the State Water Resources Control Board, provides oversight of the Section 401 certification process in California. The RWQCB is required to provide Water Quality Certification for licenses or permits that authorize an activity that may result in a discharge from a point source into a water of the U.S. Water Quality Certification authorization "is limited to assuring that a discharge from a Federally licensed or permitted activity will comply with water quality requirements" (40 CFR 121.3).

The National Pollutant Discharge Elimination System (NPDES) is the permitting program for discharge of pollutants into surface waters of the U.S. under Section 402 of the CWA.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Water Code Section 13000 et seq.) provides for statewide coordination of water quality regulations. The SWRCB was established as the statewide authority and nine separate RWQCBs were developed to oversee water quality on a day-to-day basis. The RWQCBs have primary responsibility for protecting water quality in California. As discussed above, the RWQCBs regulate discharges to surface waters under the CWA. In addition, the RWQCBs are responsible for administering the Porter-Cologne Water Quality Control Act.

Pursuant to the Porter-Cologne Water Quality Control Act, the state is given authority to regulate waters of the State, which are defined as any surface water or groundwater, including saline waters. As such, any person proposing to discharge waste into a water body that could

affect its water quality must first file a Report of Waste Discharge if a Section 404 permit is not required for the activity. “Waste” is partially defined as any waste substance associated with human habitation, including fill material discharged into water bodies.

California Fish and Game Code Section 1600-1602

Pursuant to Division 2, Chapter 6, Section 1602 of the California Fish and Game Code (CFGC), California Department of Fish and Wildlife (CDFW) regulates all diversions, obstructions, or changes to the natural flow or bed, channel or bank of any river, stream or lake that supports fish or wildlife. A Notification of Lake or Streambed Alteration must be submitted to CDFW for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake.” CDFW has jurisdiction over riparian habitats associated with watercourses and wetland habitats supported by a river, lake, or stream. Jurisdictional waters are delineated by the outer edge of riparian vegetation (i.e., drip line) or at the top of the bank of streams or lakes, whichever is wider. CDFW jurisdiction does not include tidal areas or isolated resources (e.g., riparian or wetland areas not supported by a river, lake, or stream). CDFW reviews the proposed actions and, if necessary, submits (to the applicant) a proposal that includes measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and applicant is the Lake or Streambed Alteration Agreement.

APPENDIX D

RECENT AND HISTORIC AERIALS ANALYSIS

Appendix D

Recent and Historic Aerials Analysis

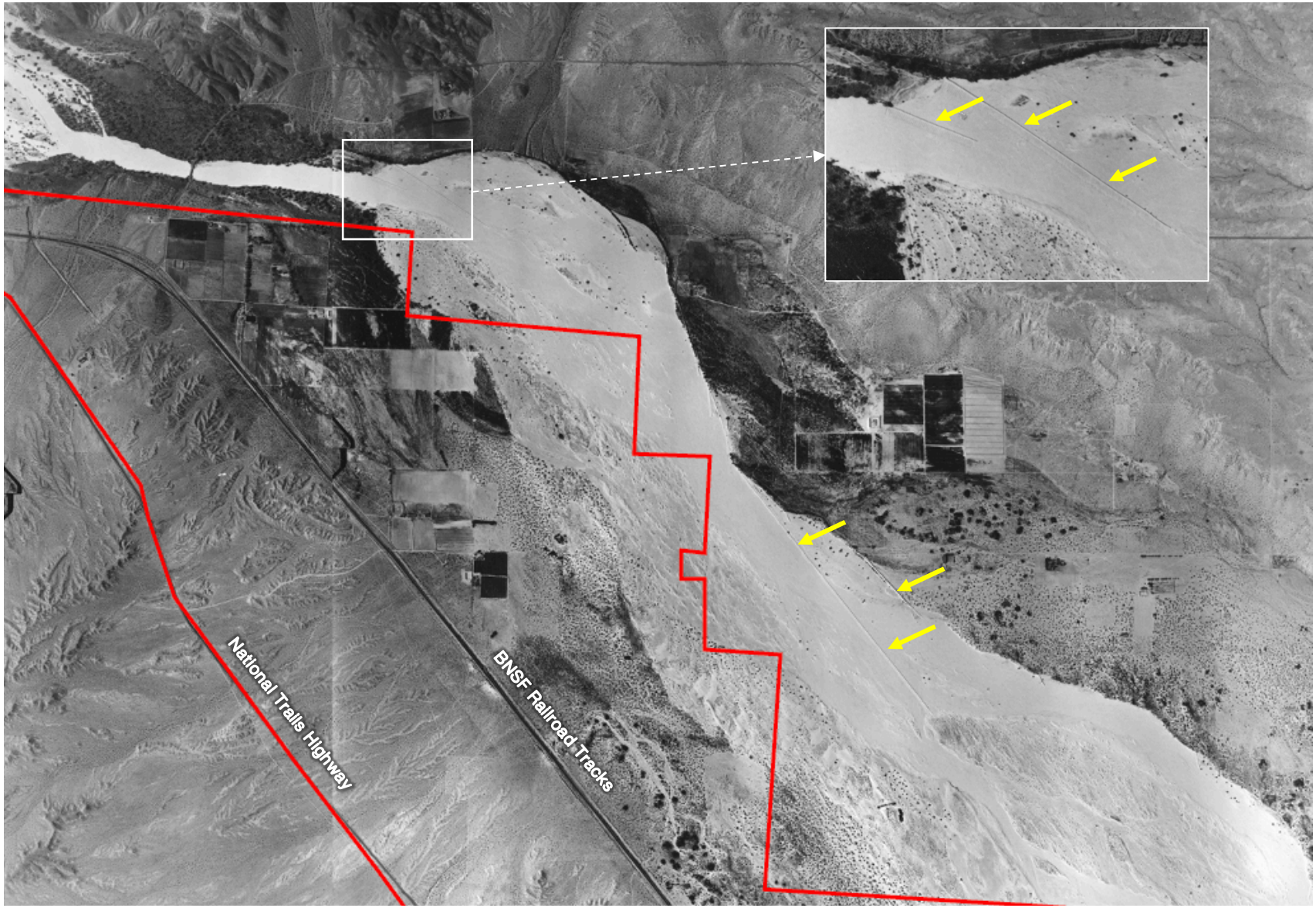
Source: Google Earth Pro, University of California – Santa Barbara, & NetrOnline



October 1929 – Very little development occurs within and surrounding the review area in the October 1929 aerial. The railroad tracks and National Trails Highway are visible in their present-day locations; small areas of agricultural/ranch land are present on site. Basin (B-) 1 and B-2 are not present/visible in the October 1929 aerial.



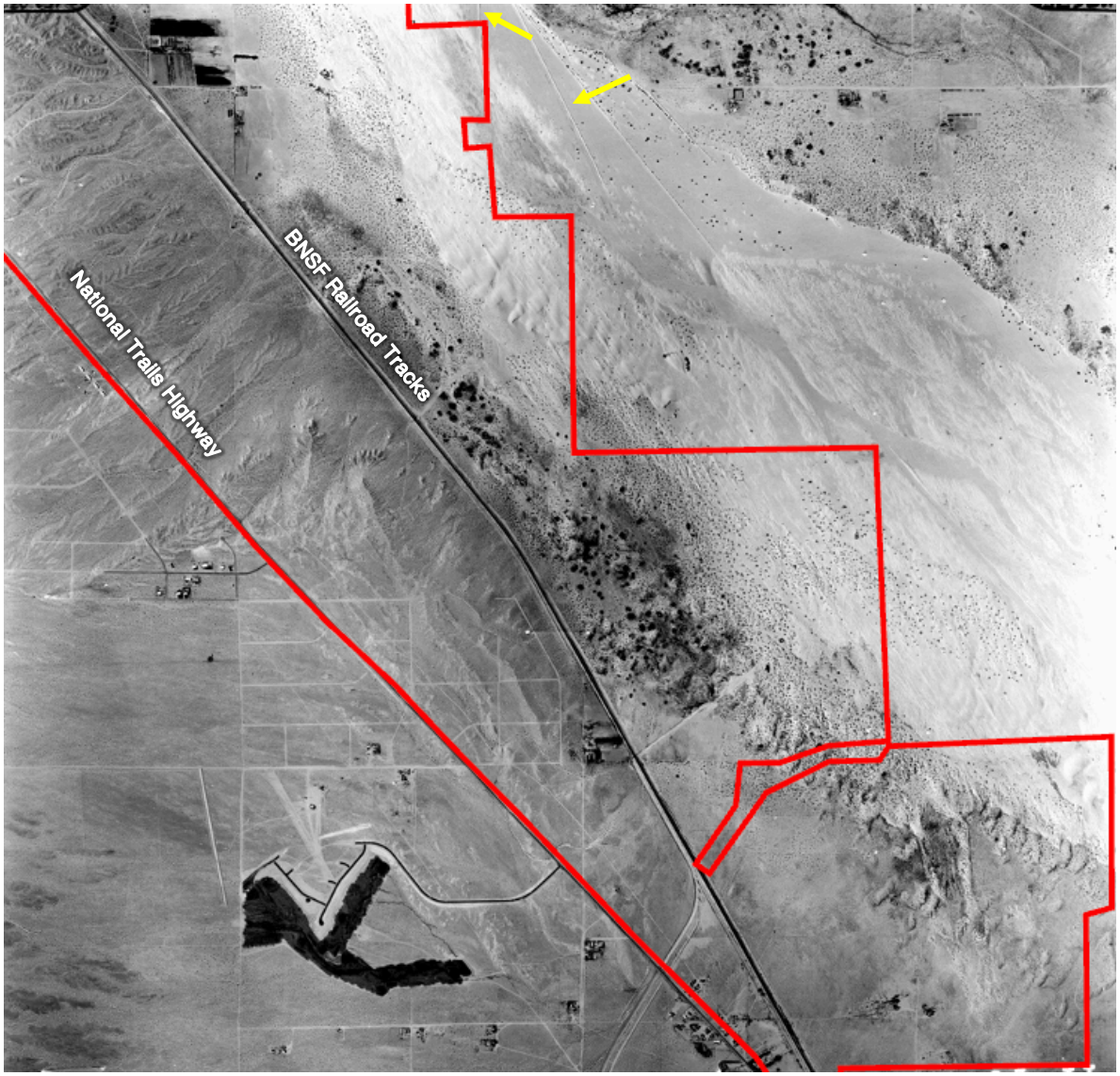
May 1952 – Agricultural development expanded north and south of the Mojave River between October 1929 and May 1952. The May 1952 aerial displays the active flooding of the Mojave River and its intersection with the review area at multiple points.



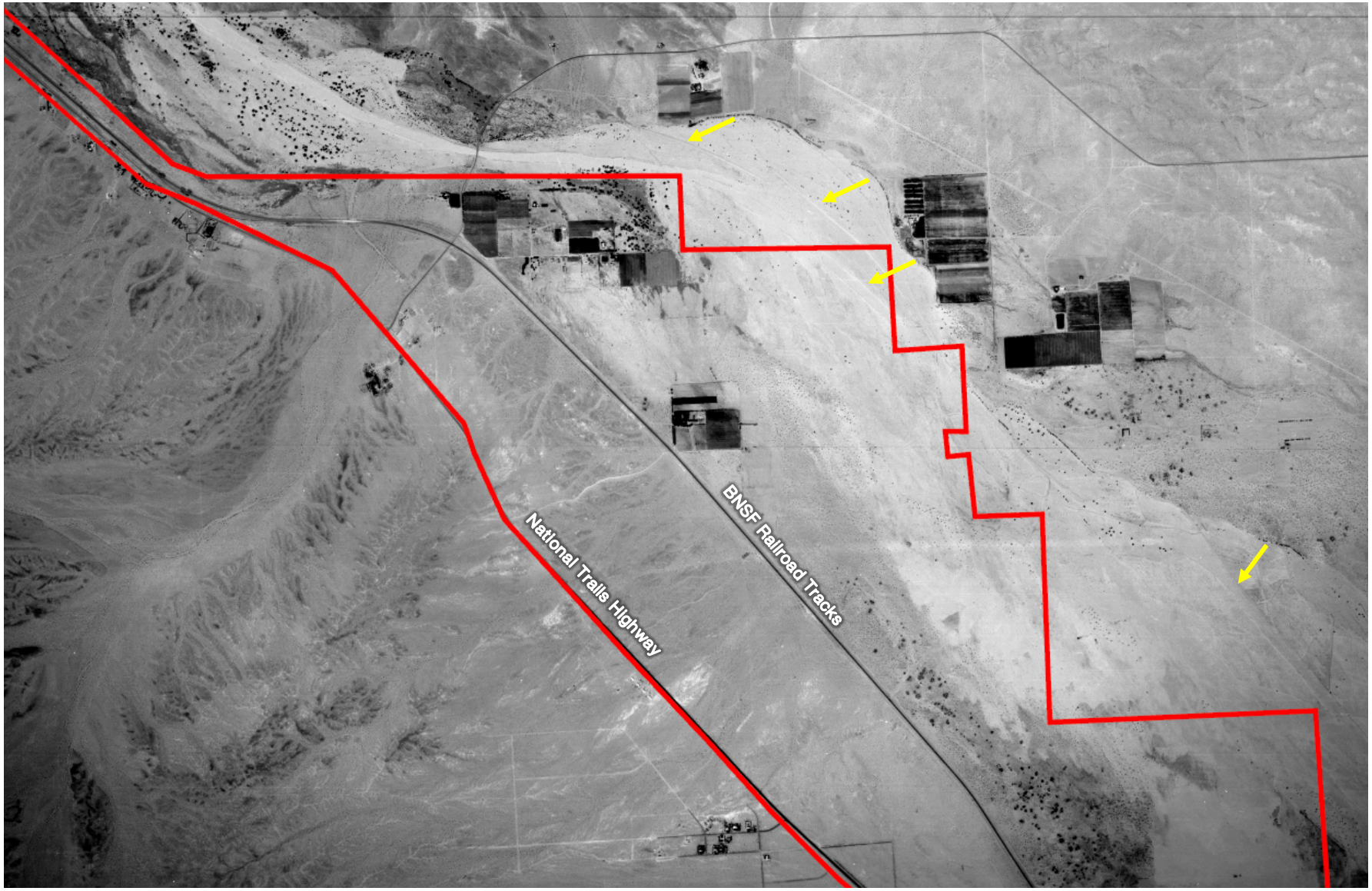
January 1953 – Berms were installed within portions of the Mojave River (yellow arrows) between May 1952 and January 1953, redirecting and constricting the river's natural flow path. Development of ranchland and/or residential uses within and surrounding the review area increased slightly between May 1952 and January 1953.



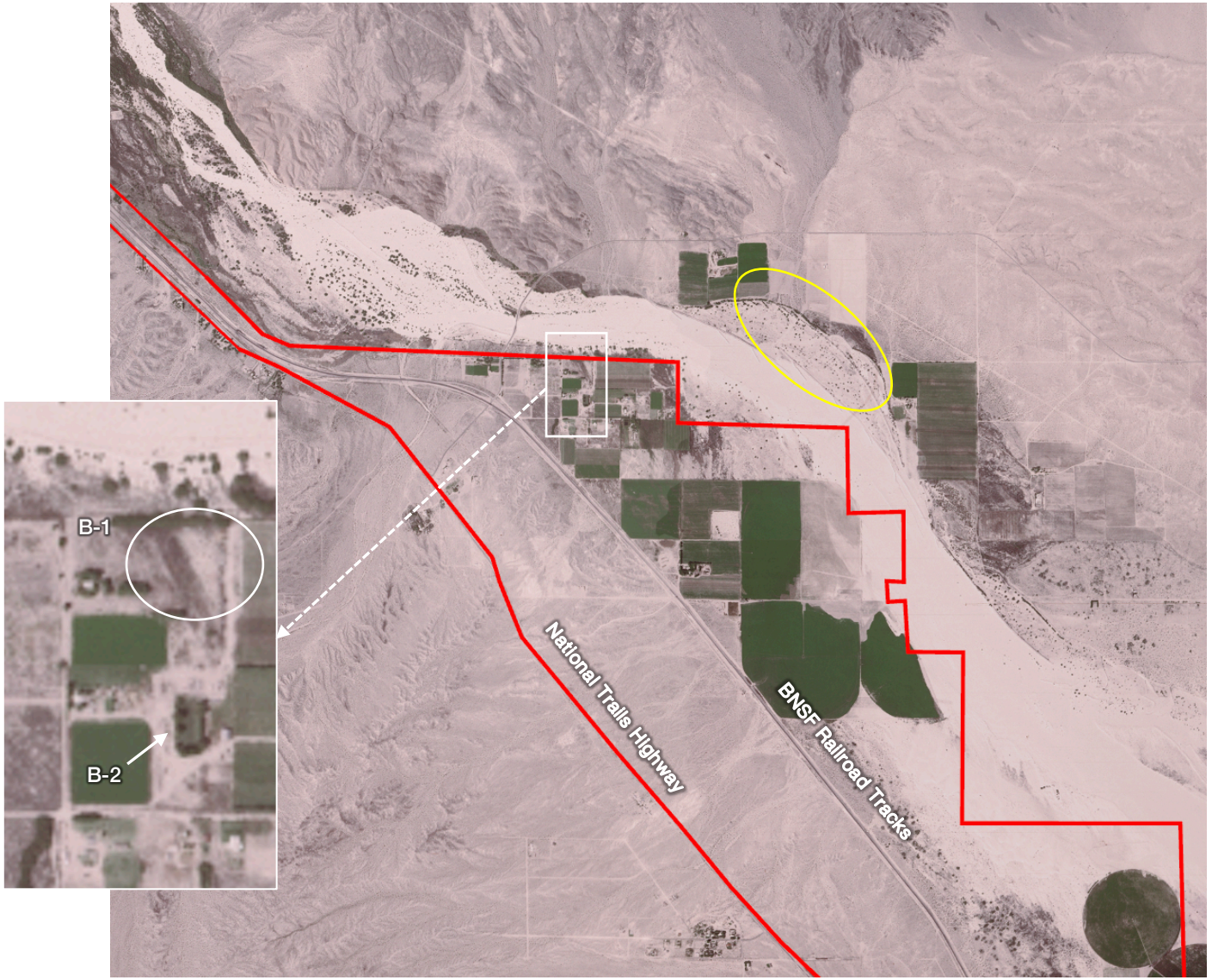
June 1959 – Minor changes in development or land use within and surrounding the review area occurred between January 1953 and June 1959. The berms within the Mojave River (yellow arrows) appear consistent from January 1953 to June 1959.



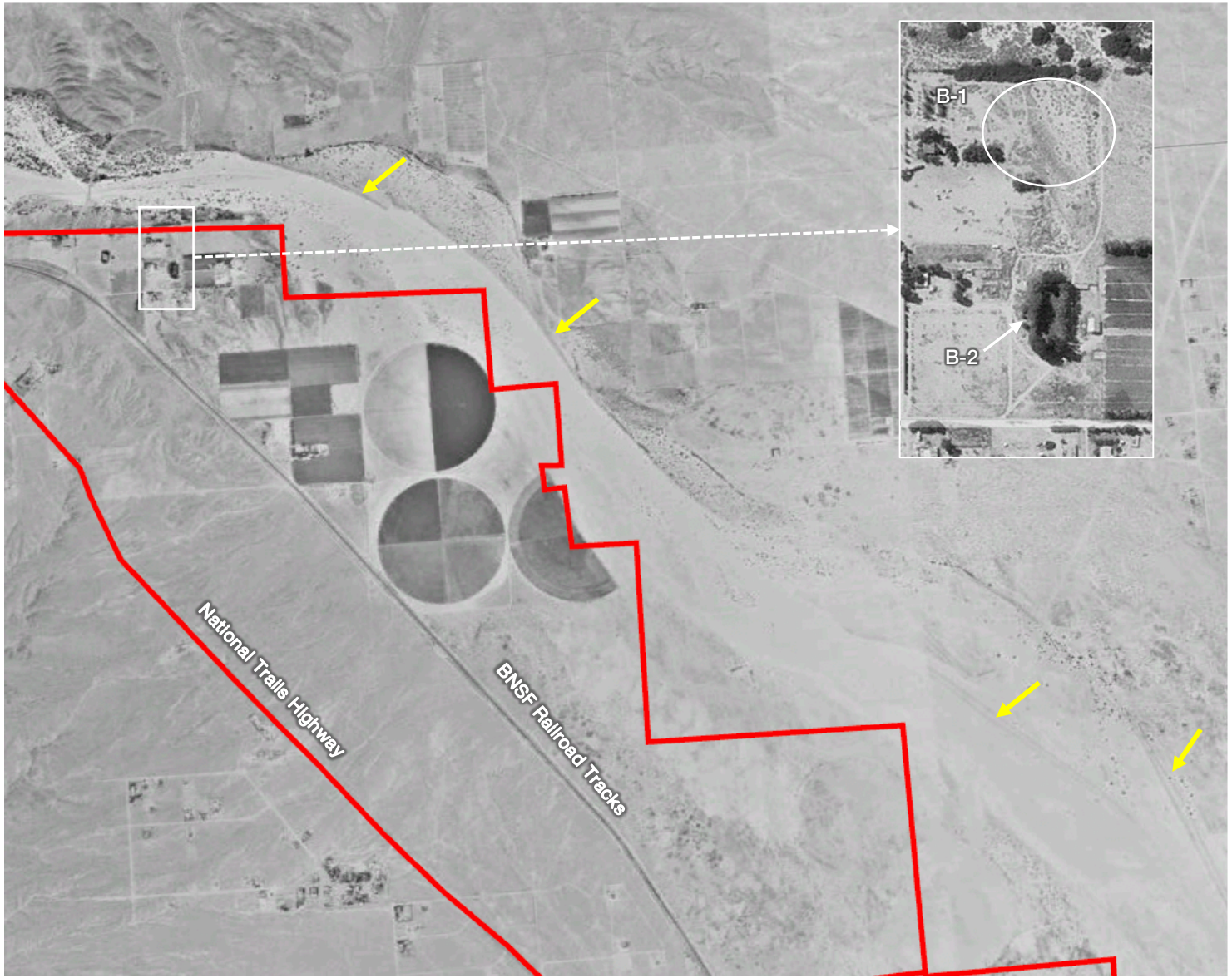
November 1963 – Additional berms within/along the Mojave River (yellow arrows) appear between June 1959 and November 1963. Manipulation in the form of the removal and installation of berms to manage/direct flow within the Mojave River continues throughout this time period.



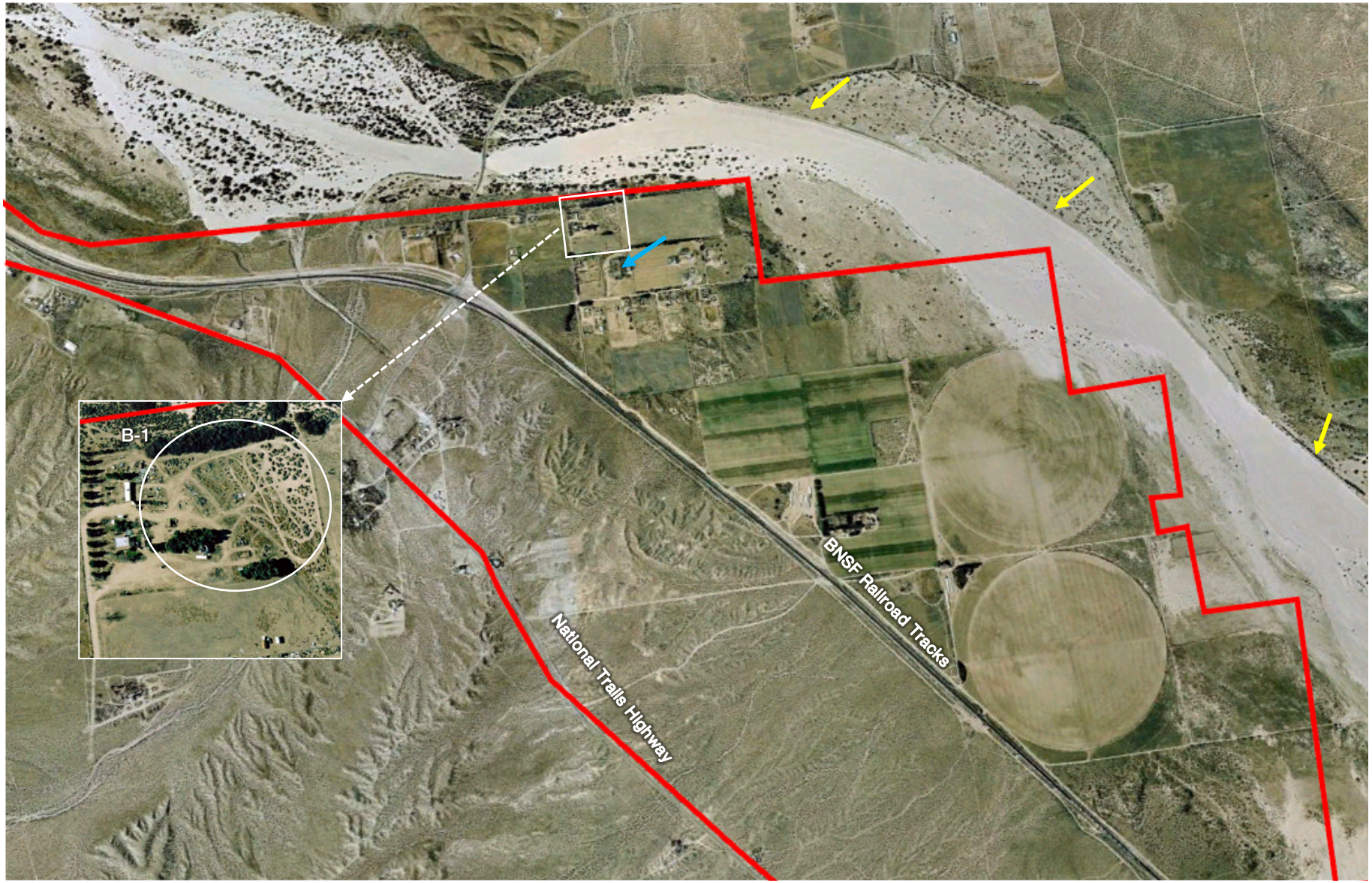
July 1973 – Minor changes in development or land use occurred within and surrounding the review area between November 1963 and July 1973; agricultural/ranch land use continued, expanding slightly northwest of the Mojave River. Between November 1963 and July 1973, additional berms were installed within the Mojave River (yellow arrows), further redirecting flow.



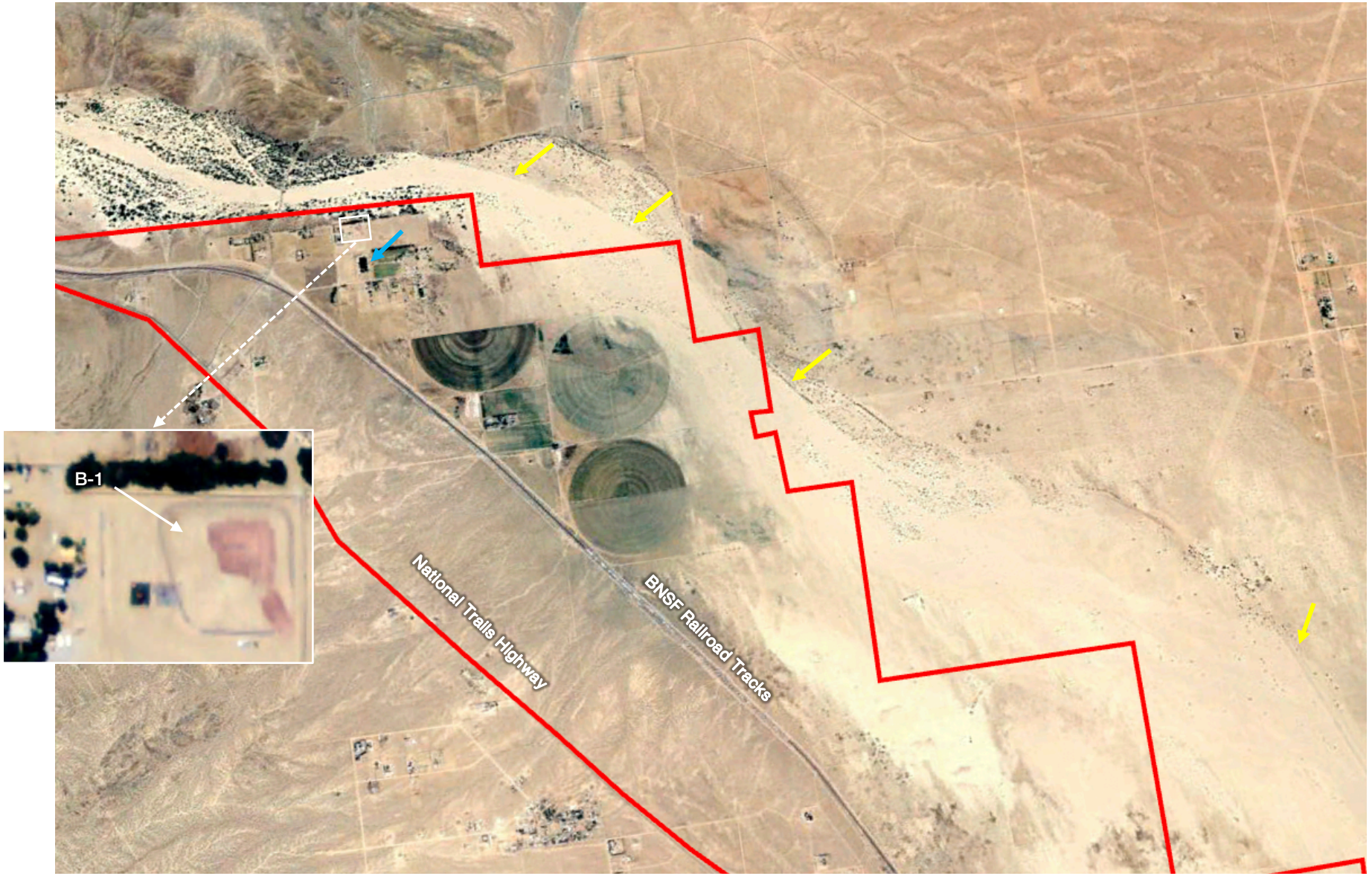
December 1984 – A large agricultural (row crop) operation was established within/around the northwestern portion of the review area (southwest of the Mojave River) between July 1973 and December 1984. The area northwest of the Mojave River berms (yellow circle) has become more vegetated since July 1973. B-2 was constructed between July 1973 and December 1984; however, B-1 is not yet present/visible in the December 1984 aerial.



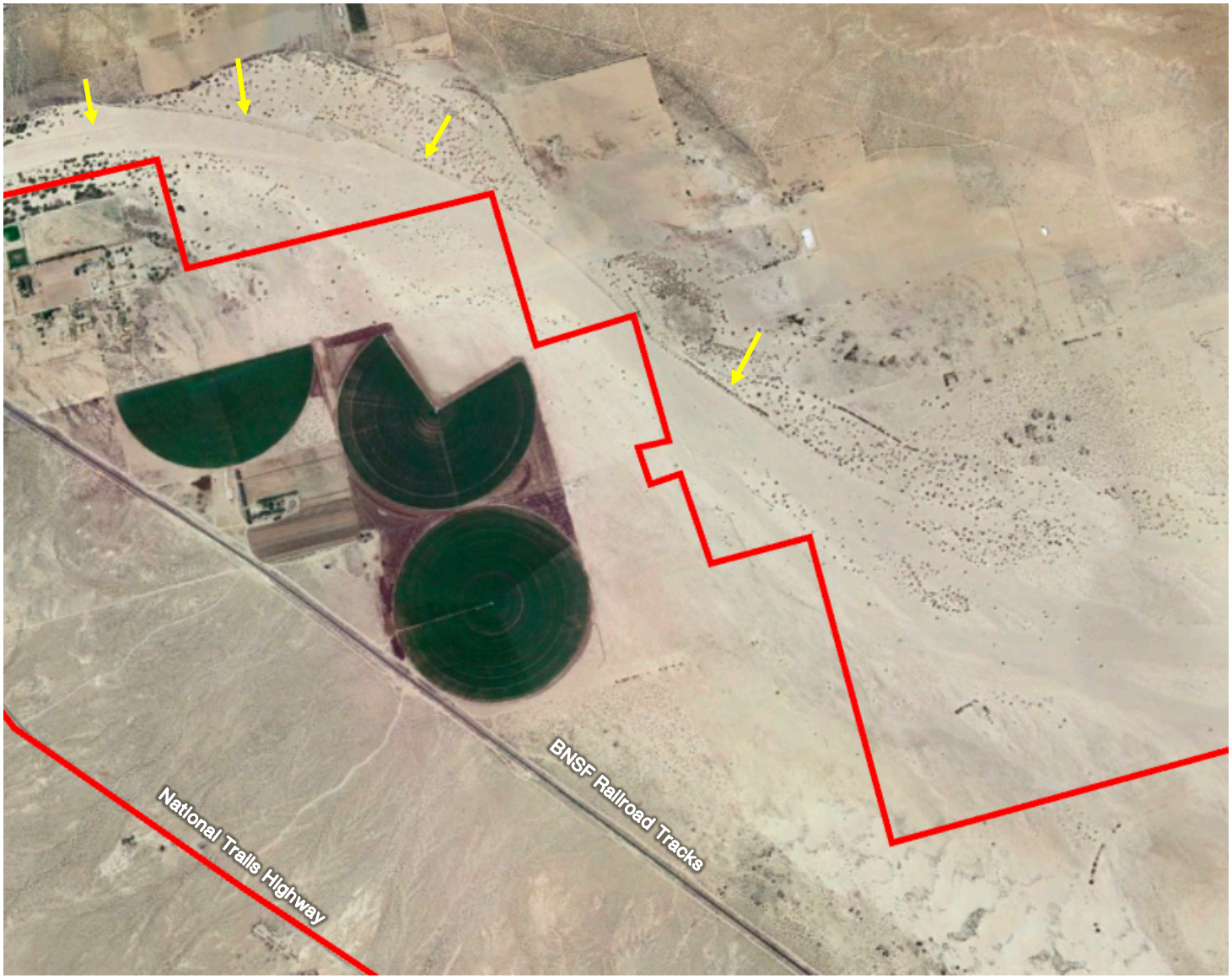
October 1995 – Little has changed within and surrounding the review area between December 1984 and October 1995. The berms within/along the Mojave River (yellow arrows) appear to remain consistent between December 1984 and October 1995. B-2 is visible in the October 1995 aerial; however, B-1 is not yet present/visible.



December 2005 – Agricultural practices continue within the review area. B-2 is still visible (blue arrow) in the December 2005 aerial; however, B-1 is not yet present/visible. The berms within/along the Mojave River (yellow arrows) appear to remain consistent between October 1994 and December 2005.



May 2009 – Agricultural practices continue within the review area. B-2 is still visible (blue arrow) within the May 2009 aerial, while construction of B-1 began between December 2005 and May 2009. The berms within/along the Mojave River (yellow arrows) remain consistent from December 2005 to May 2009.



September 2015 – The large agricultural (row crop) operation remains active in the northwestern portion of the review area. B-1 and B-2 are visible on the September 2015 aerial. The berms within/along the Mojave River (yellow arrows) remain consistent from October 1994 to September 2015.

APPENDIX E

ARID WEST WETLAND DETERMINATION DATA FORMS AND EPHEMERAL AND INTERMITTENT STREAMS OHWM DATASHEETS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 04/13/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 1

Investigator(s): Ryan Layden, Emily Trevino, Kelsey Woldt Section, Township, Range: S08, T09N, R02W

Landform (hillslope, terrace, etc.): Within drainage Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR): LRR D - Interior Deserts Lat: 34.87856910 Long: -117.108756418 Datum: WGS 84

Soil Map Unit Name: Cajon sand, 2 to 9 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Representative sample point taken within vegetated drainage which receives flows from road. Most water ponds adjacent to road before culvert under railroad. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Originally delineated on 12/10/2018; conditions reassessed on 04/13/2022.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarix ramosissima	30%	Yes	FAC
2.			
3.			
4.			
	30% = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Cynodon dactylon	69%	Yes	FACU
2. Solanum elaeagnifolium	25%	Yes	NL/UPL
3. Bromus tectorum	4%	No	NL/UPL
4. Hordeum murinum	2%	No	FACU
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as tamarisk thickets. Five-foot radius for tree stratum used to only account for vegetation within area growing under same soil and hydrologic conditions. Tamarix ramosissima is synonymous with Tamarix chinensis (FAC) per NWPL. Ulmus pumila located further upstream (UPL). Hydric soil and wetland hydrology parameters not met; thus, prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	7.5 YR 4/4	100%	N/A	N/A	N/A	N/A	Sandy loam	No evidence of redox observed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral test not met. Drift deposits observed as trash and dried Cynodon dactylon; however, no other primary or secondary wetland hydrology indicators were met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 04/13/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 2

Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden Section, Township, Range: S18, T09N, R02W

Landform (hillslope, terrace, etc.): Within Channel Local relief (concave, convex, none): Slighty concave Slope (%): 0-1

Subregion (LRR): LRR D - Interior Deserts Lat: 34.873737305 Long: -117.117380668 Datum: WGS 84

Soil Map Unit Name: Cajon sand, 0 to 2 percent slopes (soil rated as hydric per the NRCS) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology ✔ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Flows received from a culvert/storm drain structure at the intersection of Lenwood Rd & National Trails Hwy; area constructed after 2014 based on aerials. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Originally delineated on 12/10/2018; conditions reassessed on 04/13/2022.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Atriplex polycarpa	4%	Yes	FACU
2. Tribulus terrestris	2%	Yes	NL/UPL
3.			
4.			
5.			
	6% = Total Cover		
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 90% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as disturbed habitat. Hydric soil parameter not met; thus, prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10 YR 4/6	100%	N/A	N/A	N/A	N/A	Sandy loam	No evidence of redox observed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Some surface soil cracks observed; drift deposits present as trash. FAC-Neutral test not met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 04/13/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 3

Investigator(s): Emily Trevino, Ryan Layden, Kelsey Woldt Section, Township, Range: S18, T09N, R02W

Landform (hillslope, terrace, etc.): Within channel Local relief (concave, convex, none): None Slope (%): 1-2

Subregion (LRR): LRR D - Interior Deserts Lat: 34.864014091 Long: -117.131613178 Datum: WGS 84

Soil Map Unit Name: Norob-Halloran complex, 0 to 5 percent slopes (soils rated as hydric per the NRCS) NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ✔, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Vegetation and soils considered significantly disturbed as wash appears to be heavily used by off-road vehicles; other similar washes in area were also unvegetated without signs of road use. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Originally delineated 12/10/2018; conditions reassessed 04/13/2022.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A	= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A	= Total Cover	
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A	= Total Cover	

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken in unvegetated sandy wash within area mapped as allscale scrub habitat.

SOIL

Sampling Point: WDP 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10 YR 5/4	100%	N/A	N/A	N/A	N/A	Loamy sanc	No evidence of redox observed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal - compacted soils

Depth (inches): 7 inches

Hydric Soil Present? Yes ____ No ✔

Remarks:

Pit only dug to 7 inches due to hard compacted soils. Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Netural test not met (no vegetation). Drift deposits observed as dead plant material; however, no other primary or secondary wetland hydrology indicators were met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 04/12/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 4

Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden Section, Township, Range: S34, T09N, R03W

Landform (hillslope, terrace, etc.): Within Channel Local relief (concave, convex, none): Concave Slope (%): 2-5

Subregion (LRR): LRR D - Interior Deserts Lat: 34.834144855 Long: -117.182577641 Datum: WGS 84

Soil Map Unit Name: Nebona-Cuddeback complex, 2 to 9 percent slopes (soil rated as hydric per the NRCS) NWI classification: Riverine

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology ✔ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Representative sample point taken within unvegetated sandy wash. Hydrology considered significantly disturbed as wash is located adjacent to dirt road. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Originally delineated 12/11/2018; conditions reassessed 04/12/2022.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A	= Total Cover	
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A	= Total Cover	
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A	= Total Cover	

% Bare Ground in Herb Stratum 100% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken in unvegetated sandy wash within area mapped as allscale scrub habitat.

SOIL

Sampling Point: WDP 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 4/6	100%	N/A	N/A	N/A	N/A	Loamy sanc	No evidence of redox observed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✔ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Drift deposits observed as trash; sediment deposits observed on plants.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 12/11/2018

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 5

Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden Section, Township, Range: S23, T09N, R03W

Landform (hillslope, terrace, etc.): Adjacent channel Local relief (concave, convex, none): None Slope (%): 0-1

Subregion (LRR): LRR D - Interior Deserts Lat: 34.858104785 Long: -117.153040231 Datum: WGS 84

Soil Map Unit Name: Cajon sand, 2 to 9 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Representative sample point taken within area mapped as tamarisk thickets adjacent to railroad tracks. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Originally delineated on 12/11/2018; conditions reassessed on 04/13/2022.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarix ramosissima	40%	Yes	FAC
2.			
3.			
4.			
	40% = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Atriplex polycarpa	5%	Yes	FACU
2. Larrea tridentata	5%	Yes	NL/UPL
3.			
4.			
5.			
	10% = Total Cover		
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 50% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as tamarisk thickets. Ten-foot radius for tree stratum used to only account for vegetation within area growing under same soil and hydrologic conditions. Tamarix ramosissima is synonymous with Tamarix chinensis (FAC) per NWPL. Hydric soil and wetland hydrology parameters not met; thus, prevalence index worksheet not required/needed

SOIL

Sampling Point: WDP 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10 YR 4/4	100%	N/A	N/A	N/A	N/A	Loamy sanc	No evidence of redox observed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No ✔

Remarks:

Top 14 inches of soil very dry; soils moistened with spray bottle to record soil color. Bottom 6 inches of soil profile slightly moist. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): N/A

Water Table Present? Yes _____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral test not met. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 04/13/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 6

Investigator(s): Kelsey Woldt, Emily Trevino, Ryan Layden Section, Township, Range: S34, T09N, R03W

Landform (hillslope, terrace, etc.): Between concrete walls Local relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR): LRR D - Interior Deserts Lat: 34.823367355 Long: -117.187893481 Datum: WGS 84

Soil Map Unit Name: Victorville sandy loam (soil rated as hydric per the NRCS) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✔, or Hydrology ✔ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Very sparsely vegetated wash within area of NRCS mapped hydric soils. Soil considered disturbed due to presence of rocks/fill at 15 inches. Hydrology considered disturbed due to concrete structures & channelization of flows further south. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Originally delineated on 12/12/2018; conditions reassessed on 04/13/2022.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A = Total Cover		
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 98% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✔

Remarks:

Sample point taken within area mapped as disturbed allscale scrub. Less than 5% herbaceous cover (approximately 2%), therefore, per Arid West Manual no herb stratum.

SOIL

Sampling Point: WDP 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-15	10 YR 3/3	100%	N/A	N/A	N/A	N/A	Sandy clay loan	No evidence of redox observed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal - rocks/fill and compacted soils

Depth (inches): 15 inches

Hydric Soil Present? Yes ____ No ✔

Remarks:

Sample pit only dug to 15 inches due to rocks and compact soils. Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral test not met (no vegetation). Flows may have historically occurred here; however, no wetland hydrology indicators were observed during field visit.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 04/13/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 7

Investigator(s): Emily Trevino, Ryan Layden, Kelsey Woldt Section, Township, Range: S04, T08N, R03W

Landform (hillslope, terrace, etc.): Within roadside ditch Local relief (concave, convex, none): slightly concave Slope (%): 0-1

Subregion (LRR): LRR D - Interior Deserts Lat: 34.814749092 Long: -117.195136063 Datum: WGS 84

Soil Map Unit Name: Cajon-Wasco, cool complex, 2 to 9 percent slopes (soil rated as hydric per the NCRS) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology ✔ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Hydrology considered disturbed due to proximity to National Trails Hwy; area appears to primarily collect water adjacent to roadways. Soil cracks and Tamarix ramosissima present in slightly concave area. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Originally delineated on 12/12/2018; conditions reassessed on 04/13/2022.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarix ramosissima	40%	Yes	FAC
2.			
3.			
4.			
	40% = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Atriplex polycarpa	35%	Yes	FACU
2.			
3.			
4.			
5.			
	35% = Total Cover		
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 20% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Sample point taken within area mapped as tamarisk thickets. Ten-foot radius for tree stratum used to only account for vegetation within area growing under same soil and hydrologic conditions. Tamarix ramosissima is synonymous with Tamarix chinensis (FAC) per NWPL. Hydric soil parameter not met; thus, prevalence index worksheet not required/needed

SOIL

Sampling Point: WDP 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10 YR 3/3	100%	N/A	N/A	N/A	N/A	Silty clay loam	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Surface soil cracks present. FAC-Neutral test not met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 04/13/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 8

Investigator(s): Kelsey Woldt, Emily Trevino, Ryan Layden Section, Township, Range: S08, T08N, R03W

Landform (hillslope, terrace, etc.): mid-slope terrace Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): LRR D - Interior Deserts Lat: 34.802059 Long: -117.215235 Datum: WGS 84

Soil Map Unit Name: Cajon Sand, 2 to 9 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ____	No ✔	

Remarks:

Wetland sample point taken based on presence of Tamarix ramosissima. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic). Originally delineated on 08/20/2019, conditions reassessed on 04/13/2022.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarix ramosissima	70%	Yes	FAC
2.			
3.			
4.			
	70% = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A = Total Cover		
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 30% % Cover of Biotic Crust N/A

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Sample point taken within area mapped as tamarisk thickets. Fifteen-foot radius for tree stratum used to only account for vegetation within area growing under same soil and hydrologic conditions. Tamarix ramosissima is synonymous with Tamarix chinensis (FAC) per NWPL. Bare ground covered with vegetative litter.

SOIL

Sampling Point: WDP 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10 YR 4/3	100	N/A	N/A	N/A	N/A	Silty loam	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): N/A

Water Table Present? Yes _____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral test not met. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 4/12/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 9

Investigator(s): Sarah Krejca, Emily Trevino Section, Township, Range: S27, T09N, R03W

Landform (hillslope, terrace, etc.): Slight depression Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR): LRR D - Interior Deserts Lat: 34.837732 Long: 1177.184099 Datum: WGS 84

Soil Map Unit Name: Victorville sandy loam (soil rated as hydric per the NCRS) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Representative sample point taken with area mapped as tamarisk thickets habitat. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10-foot radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Tamarix ramosissima	85%	Yes	FAC
2.			
3.			
4.			
	85% = Total Cover		
Sapling/Shrub Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
	N/A = Total Cover		
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 15% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Sample point taken within area mapped as tamarisk thickets. Ten-foot radius for tree stratum used to only account for vegetation within area growing under same soil and hydrologic conditions. Tamarix ramosissima is synonymous with Tamarix chinensis (FAC) per NWPL.

SOIL

Sampling Point: WDP 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 3/4	100%	N/A	N/A	N/A	N/A	Sandy loam	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal - compacted soils

Depth (inches): @ 14 inches

Hydric Soil Present? Yes _____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): N/A

Water Table Present? Yes _____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

FAC-Neutral test not met. No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 3/24/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 10

Investigator(s): Ryan Layden, Kelsey Woldt Section, Township, Range: S27, T09N, R03W

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): LRR D - Interior Deserts Lat: 34.840370 Long: -117.179805 Datum: WGS 84

Soil Map Unit Name: Cajon sand, 2 to 9 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ____, Soil ✔, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✔	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:

Representative sample point taken within area displaying surface soil cracks just north of dirt road and culvert. Soil considered significantly disturbed due to presence of rocks/rock bed at 10 inches. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A = Total Cover		
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Suaeda nigra	12%	Yes	OBL
2. Atriplex polycarpa	2%	No	FACU
3.			
4.			
5.			
	14% = Total Cover		
Herb Stratum (Plot size: 5-foot radius)			
1. Schismus barbatus	5%	Yes	NL/UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5% = Total Cover		
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A = Total Cover		

% Bare Ground in Herb Stratum 80% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

Sample point taken within an area mapped as creosote bush scrub in a dry floodplain north of railroad culvert. Hydric soil parameter not met; thus, prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 4/4	100%	N/A	N/A	N/A	N/A	Sand	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal - rocks/rock bed

Depth (inches): @10 inches

Hydric Soil Present? Yes ____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ✔ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Drift deposits present as dead plant material; surface soil cracks prominent throughout sample area. FAC-Netural test not met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Big Barstow City/County: Barstow/San Bernardino Sampling Date: 6/20/2022

Applicant/Owner: BNSF Railway State: CA Sampling Point: WDP 11

Investigator(s): Ryan Layden, Kelsey Woldt Section, Township, Range: S09, T09N, R02W

Landform (hillslope, terrace, etc.): Depressional area Local relief (concave, convex, none): concave Slope (%): 1-3

Subregion (LRR): LRR D - Interior Deserts Lat: 34.883818 Long: -117.094404 Datum: WGS 84

Soil Map Unit Name: Cajon sand, 2 to 9 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✔	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:

Representative sample point taken within concave area where ponding is visible on aerials, near the railway and Pettit Road. Drought conditions per APT (i.e., atypical hydrologic conditions/naturally problematic).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: N/A)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	N/A	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5-foot radius)			
1. Salsola tragus	5%	Yes	FACU
2. Atriplex polycarpa	2%	Yes	FACU
3.			
4.			
5.			
	7%	= Total Cover	
Herb Stratum (Plot size: N/A)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	N/A	= Total Cover	
Woody Vine Stratum (Plot size: N/A)			
1.			
2.			
	N/A	= Total Cover	

% Bare Ground in Herb Stratum 93% % Cover of Biotic Crust 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

Sample point taken within area mapped as allscale scrub. Hydric soil and wetland parameters not met; thus, prevalence index worksheet not required/needed.

SOIL

Sampling Point: WDP 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 5/4	100%	N/A	N/A	N/A	N/A	Sand	No evidence of redox observed.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Shovel refusal - compact soils

Depth (inches): @8 inches

Hydric Soil Present? Yes ____ No ✔

Remarks:

Dry soils; soils moistened with spray bottle to record soil color. Uniform soils throughout. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): N/A

Water Table Present? Yes ____ No ✔ Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): N/A

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Surface soil cracks prominent throughout sample area. FAC-Neutral test not met.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 1
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/22 **Time:** 1010
Town: Barstow **State:** CA
Photo begin file#: 1 **Photo end file#:** 1

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.879643,-117.105536

Potential anthropogenic influences on the channel system:
Runoff from adjacent commercial lots, National Trails Hwy, and active railroad tracks.

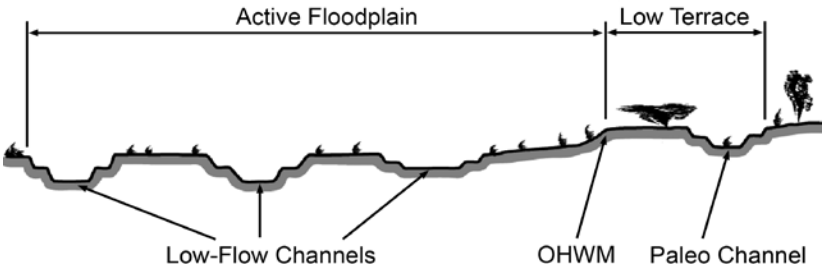
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

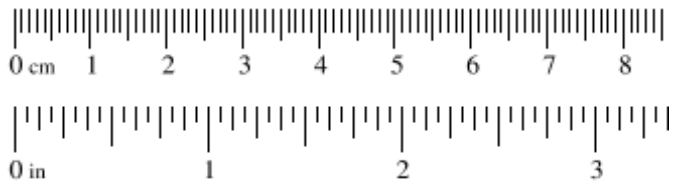


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

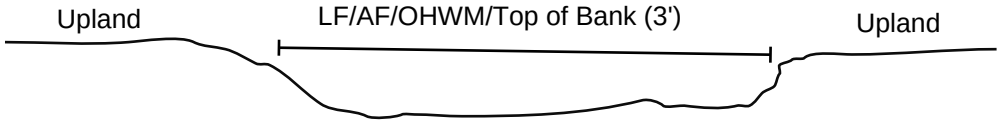
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 1 **Date:** 04/13/22 **Time:** 1010

Cross section drawing:



OHWM

GPS point: 34.879643,-117.105536

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide OHWM defined by a clear break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography. Small unvegetated channel which flows into culvert under railroad tracks; two small channels input into this main sandy feature.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 1 **Date:** 04/13/22 **Time:** 1010

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide AF with clear break in bank slope. Drift/debris present as trash. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: very fine sand

Total veg cover: 50 % Tree: 0 % Shrub: 35 % Herb: 15 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Cynodon dactylon and Salsola sp. Very fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 2
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 0951
Town: Barstow **State:** CA
Photo begin file#: 3 **Photo end file#:** 3

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.87744646, -117.11103257

Potential anthropogenic influences on the channel system:
Upstream input from culvert crossing at National Trails Highway; runoff from adjacent residential lots.

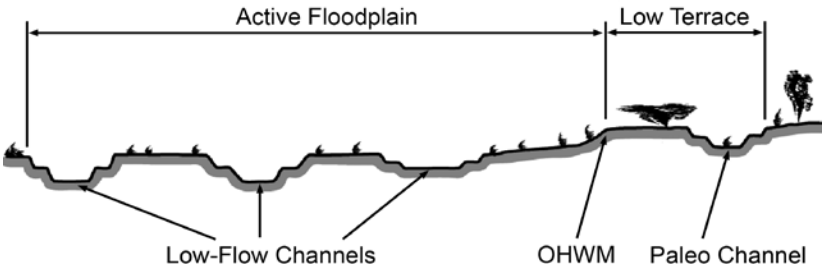
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

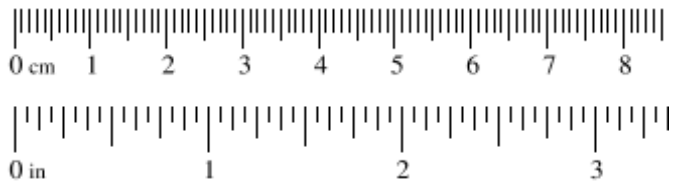


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

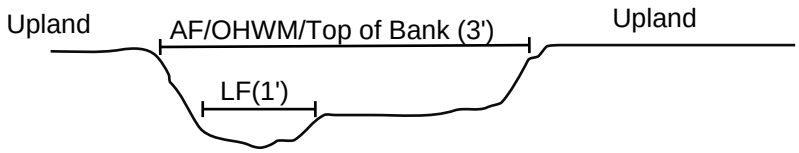
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 2 **Date:** 04/13/2022 **Time:** 0951

Cross section drawing:



OHWM

GPS point: 34.87744646, -117.11103257

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography. Feature dwindles out at road, field staff did not observe a connection downstream.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: coarser sediment texture
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide low-flow channel (LF) characterized by a break in bank slope. Granule sediment texture throughout.

Project ID: Big Barstow **Cross section ID:** ODP 2 **Date:** 04/13/2022 **Time:** 0951

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 5 % Tree: 0 % Shrub: 0 % Herb: 5 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide active floodplain (AF) with visible bed and bank. Vegetation dominated by sparse upland grasses and herbs. Drift/debris present as trash. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Pebble

Total veg cover: 20 % Tree: 0 % Shrub: 15 % Herb: 5 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Atriplex polycarpa and creosote dominant vegetation with annual non-native grasses on upland slopes directly adjacent to channel. Pebble sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 3
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1025
Town: Barstow **State:** CA
Photo begin file#: 4 **Photo end file#:** 4

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.87408624, -117.11735678

Potential anthropogenic influences on the channel system:
Concrete storm drain feature diverts flows into delineated area creating channel; surrounded by road/intersection, active railroad, and housing.

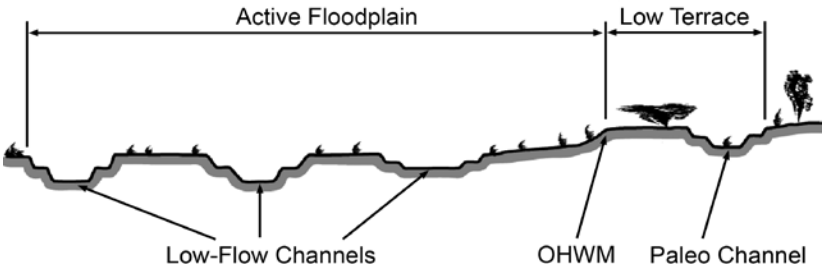
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

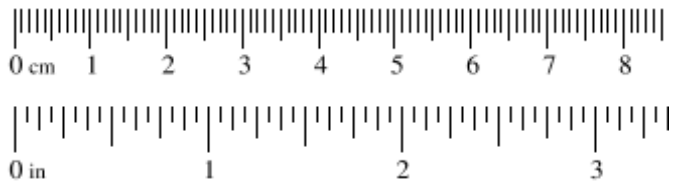


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

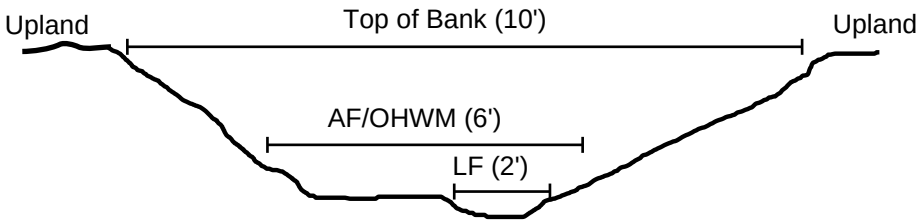
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 3 **Date:** 04/13/2022 **Time:** 1025

Cross section drawing:



OHWM

GPS point: 34.87408624, -117.11735678

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide OHWM; width noted from portion of the feature that is not a part of the storm drain structure (concrete 4' channel). OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☑ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: coarser sediment texture
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide low-flow channel (LF) exhibiting small areas with mudcracks. Granule sediment texture throughout.

Project ID: Big Barstow **Cross section ID:** ODP 3 **Date:** 04/13/2022 **Time:** 1025

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very fine sand

Total veg cover: 5 % Tree: 0 % Shrub: 5 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide active floodplain (AF) with visible bed and bank. Vegetation dominated by Atriplex polycarpa. Drift/debris present as trash. Very fine sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse silt

Total veg cover: 20 % Tree: 0 % Shrub: 20 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace; continues from AF to upland. Vegetation dominated by Atriplex polycarpa and Sphaeralcea sp. on upland adjacent to channel; gravel on western slope within landscaped area, eastern slope/bank not landscaped. Coarse silt sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 4
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 0757
Town: Barstow **State:** CA
Photo begin file#: 6 **Photo end file#:** 6

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.86896511, -117.12867725

Potential anthropogenic influences on the channel system:
Highly manipulated/disturbed (off-road vehicle use) trapezoidal channel flowing under railroad tracks.

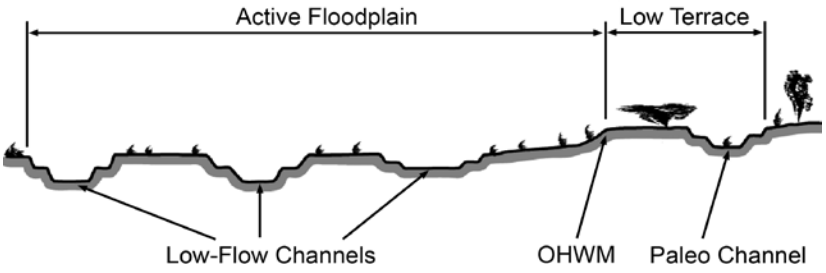
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

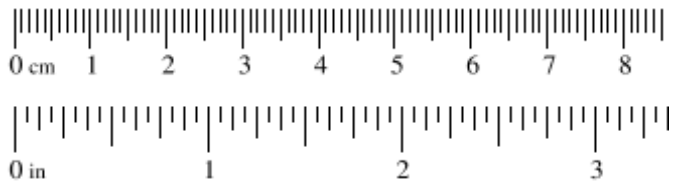


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

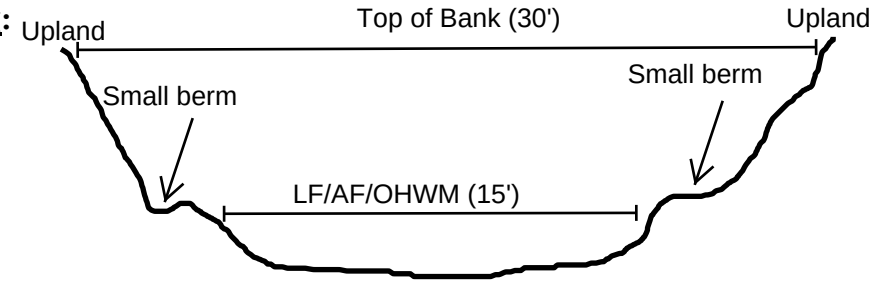
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 4 **Date:** 04/13/2022 **Time:** 0757

Cross section drawing:



OHWM

GPS point: 34.86896511, -117.12867725

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 15-foot wide OHWM; wider upstream with larger sediment/pebbles in channel. OHWM defined by a break in bank slope and change in average sediment texture. Highly manipulated trapezoidal channel; evidence of off-road vehicle use throughout. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 4 **Date:** 04/13/2022 **Time:** 0757

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: very fine sand

Total veg cover: 5 % Tree: 0 % Shrub: 5 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Mid (herbaceous, shrubs, saplings)
- ☑ Early (herbaceous & seedlings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☑ Mudcracks
- ☐ Soil development
- ☐ Ripples
- ☐ Surface relief
- ☑ Drift and/or debris
- ☐ Other: _____
- ☑ Presence of bed and bank
- ☐ Other: _____
- ☐ Benches
- ☐ Other: _____

Comments:

Approximately 15-foot wide AF; soils may have been recently compacted by off-road vehicle use or other disturbance. Vegetation dominated by Salsola sp. Drift/debris present as dead plant material. Very fine sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Early (herbaceous & seedlings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Soil development
- ☐ Ripples
- ☑ Surface relief
- ☐ Drift and/or debris
- ☐ Other: _____
- ☐ Presence of bed and bank
- ☐ Other: _____
- ☐ Benches
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Manipulated/channelized features--upland slopes highly disturbed. Surface relief defines uplands. Granule sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 5
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 0804
Town: Barstow **State:** CA
Photo begin file#: 8 **Photo end file#:** 8

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.86403251, -117.13160838

Potential anthropogenic influences on the channel system:
Wash appears to be regularly driven and manipulated by off-road vehicles, and is bisected by other dirt roads.

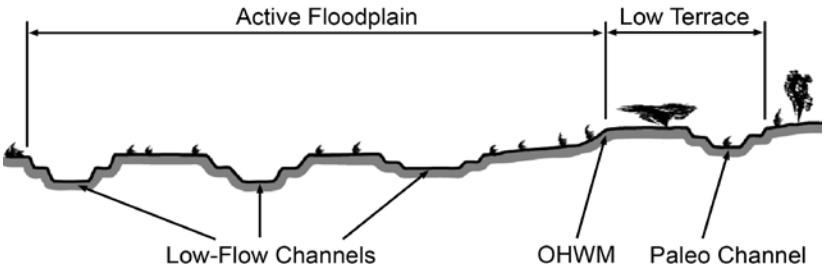
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

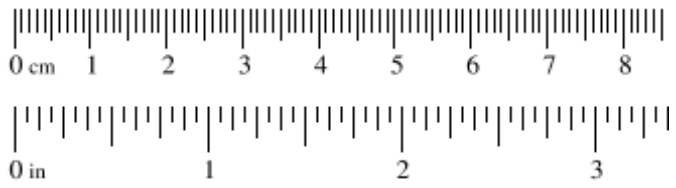


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

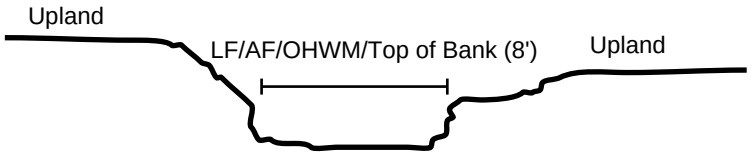
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 5 **Date:** 04/13/2022 **Time:** 0804

Cross section drawing:



OHWM

GPS point: 34.86403251, -117.13160838

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 8-foot wide OHWM defined by change in average sediment texture, change in vegetation cover, and change in average sediment texture. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 5 **Date:** 04/13/2022 **Time:** 0804

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 8-foot wide AF with sandy wash characteristics. Drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: very fine sand

Total veg cover: 2 % Tree: 0 % Shrub: 2 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Ephedra sp. and Atriplex polycarpa. Very fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 6
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 0810
Town: Barstow **State:** CA
Photo begin file#: 9 **Photo end file#:** 9

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.865122044,-117.13308065

Potential anthropogenic influences on the channel system:
Upstream runoff from adjacent dirt road leading from National Trails Highway.

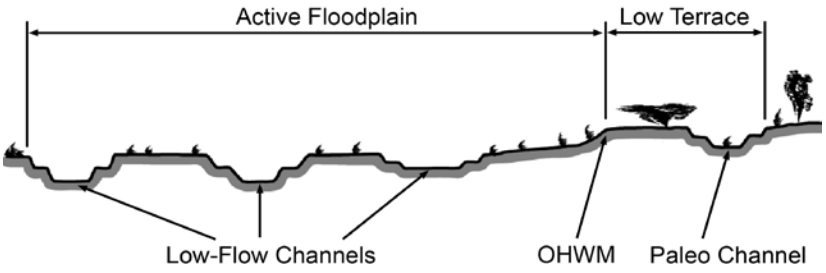
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

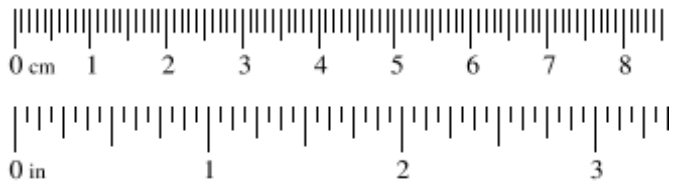


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

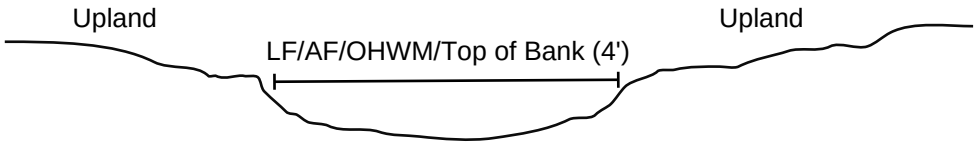
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 6 **Date:** 04/13/2022 **Time:** 0810

Cross section drawing:



OHWM

GPS point: 34.865122044,-117.13308065

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide OHWM defined by change in vegetation cover and change in average sediment texture. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 6 **Date:** 04/13/2022 **Time:** 0810

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: very coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide AF. Drift present as dead plant material deposited on Atriplex scrub adjacent to channel. Very coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: fine sand

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Atriplex sp. Fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 7
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 0823
Town: Barstow **State:** CA
Photo begin file#: 10 **Photo end file#:** 10

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.86456294, -117.13547279

Potential anthropogenic influences on the channel system:
Off-road vehicle use and potential influence by adjacent homes. Upstream log obstruction likely placed by adjacent residents.

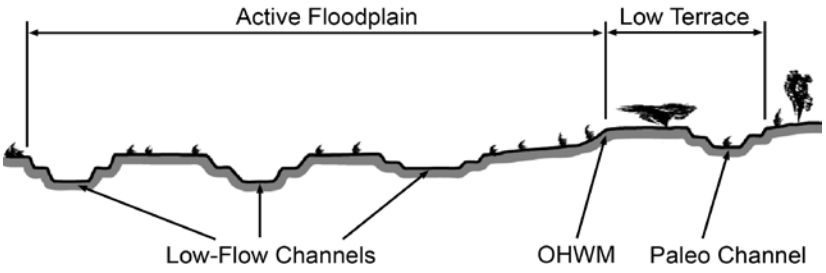
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

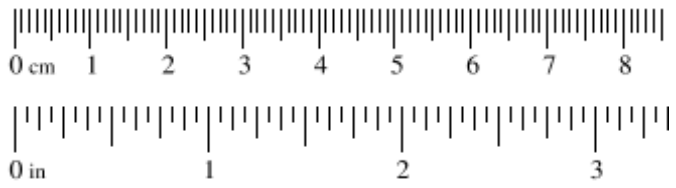


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

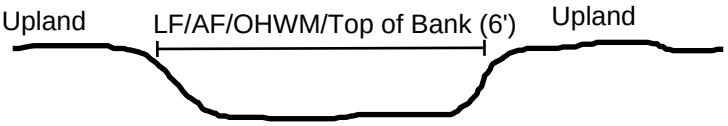
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 7 **Date:** 04/13/2022 **Time:** 0823

Cross section drawing:



OHWM

GPS point: 34.86456294, -117.13547279

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 7 **Date:** 04/13/2022 **Time:** 0823

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide AF with clear break in slope; Drift/debris present as dead plant material. Very coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 17 % Tree: 0 % Shrub: 15 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by creosote bush/Atriplex scrub. Fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 8
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1326
Town: Barstow **State:** CA
Photo begin file#: 11 **Photo end file#:** 11

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.86171543, -117.14261952

Potential anthropogenic influences on the channel system:
Residential dirt roads and housing may be contributing to localized flows that do not appear to connect downstream.

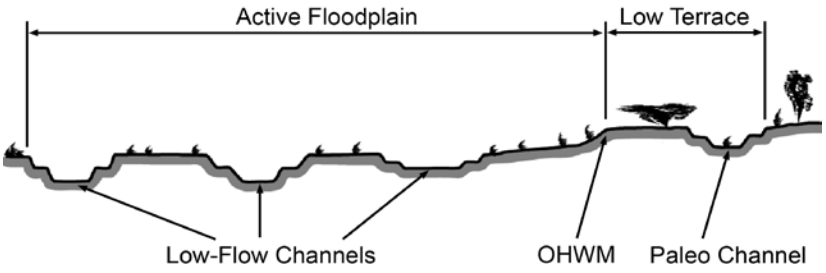
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/10/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

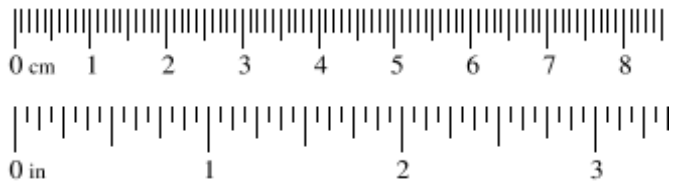


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

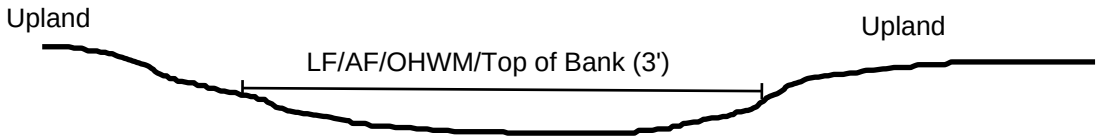
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: BNSF Big Barstow **Cross section ID:** ODP 8 **Date:** 04/13/2022 **Time:** 1326

Cross section drawing:



OHWM

GPS point: 34.86171543, -117.14261952

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide OHWM defined by a very shallow and gradual break in slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 8 **Date:** 04/13/2022 **Time:** 1326

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide AF with very shallow and gradual break in slope. Drift/debris present as dead plant. Very coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Ambrosia dumosa and Larrea tridentata. Coarse sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 9
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1331
Town: Barstow **State:** CA
Photo begin file#: 12 **Photo end file#:** 12

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.86304344,-117.140500865

Potential anthropogenic influences on the channel system:
Area received runoff from adjacent residential homes and dirt roads.

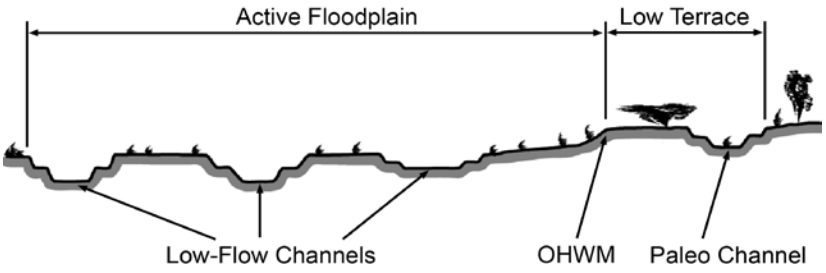
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

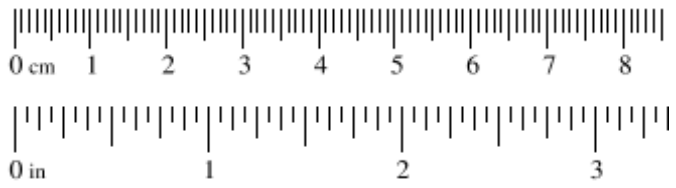


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

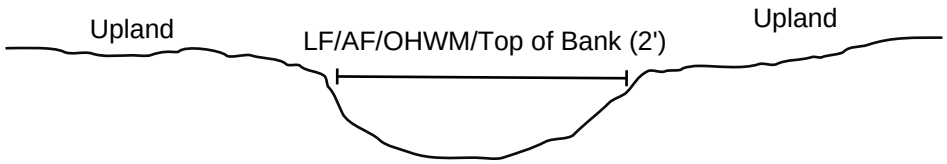
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 9 **Date:** 04/13/2022 **Time:** 1331

Cross section drawing:



OHWM

GPS point: 34.86304344,-117.140500865

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 9 **Date:** 04/13/2022 **Time:** 1331

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide AF. Drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 10 % Tree: 0 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Ambrosia dumosa and Larrea tridentata. Find sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 10
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1315
Town: Barstow **State:** CA
Photo begin file#: 13 **Photo end file#:** 13

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.85849318,-117.148919321

Potential anthropogenic influences on the channel system:
Area shows evidence of heavy off-road vehicle use and yard trash dumped in wash and throughout area.

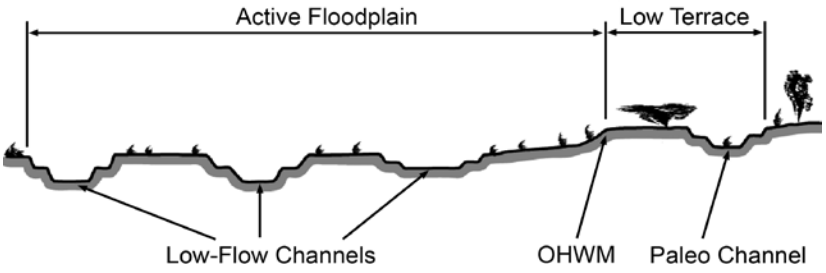
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

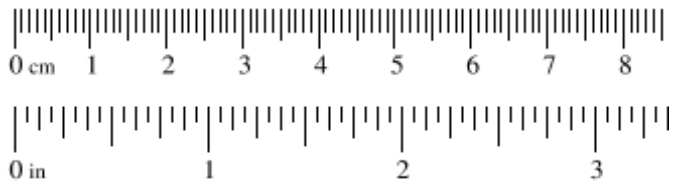


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

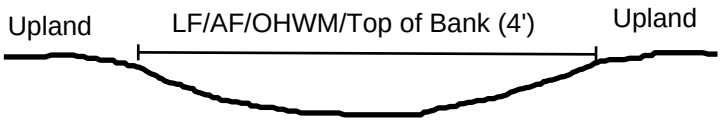
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 10 **Date:** 04/13/2022 **Time:** 1315

Cross section drawing:



OHWM

GPS point: 34.85849318,-117.148919321

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide OHWM defined by a shallow/gradual break in slope, change in vegetation cover, and change in average sediment texture. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 10 **Date:** 04/13/2022 **Time:** 1315

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide AF with slight break in slope. Drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: fine sand

Total veg cover: 10 % Tree: 0 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Ambrosia dumosa and Larrea tridentata scrub. Fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: BNSF Big Barstow
Project Number: N/A
Stream: ODP 11
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/22 **Time:** 1309
Town: Barstow **State:** CA
Photo begin file#: 14 **Photo end file#:** 14

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.857778251,-117.15123949

Potential anthropogenic influences on the channel system:
Heavy off-road vehicle use, dirt roads, and trash/debris throughout the entire area.

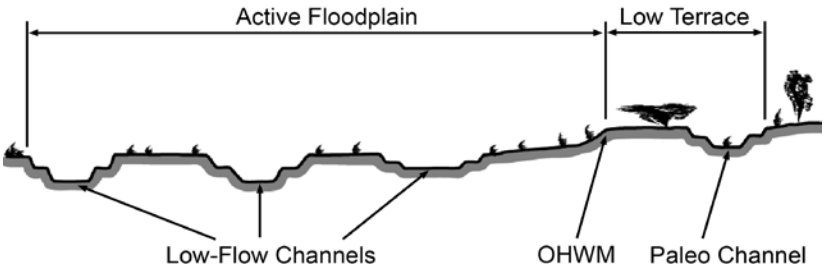
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

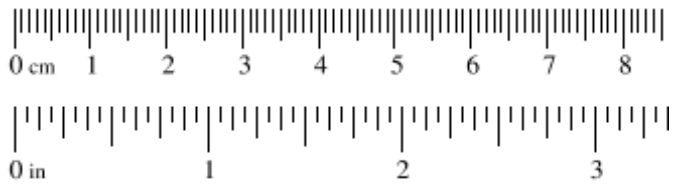


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

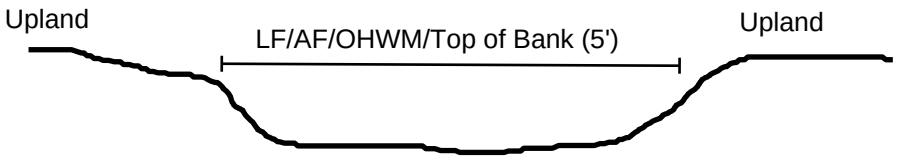
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 11 **Date:** 04/13/2022 **Time:** 1309

Cross section drawing:



OHWM

GPS point: 34.857778251,-117.15123949

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 5-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Feature has decreased definition in upstream and downstream portions and remains defined in the mid section. Feature appears erosional adjacent to road. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 11 **Date:** 04/13/22 **Time:** 1309

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 5-foot wide AF. Drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: fine sand

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Ambrosia dumosa and Larrea tridentata scrub. Fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 12
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1452
Town: Barstow **State:** CA
Photo begin file#: 16 **Photo end file#:** 16

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.857778251,-117.15123949

Potential anthropogenic influences on the channel system:
Area receives runoff from adjacent dirt road and railroad tracks.

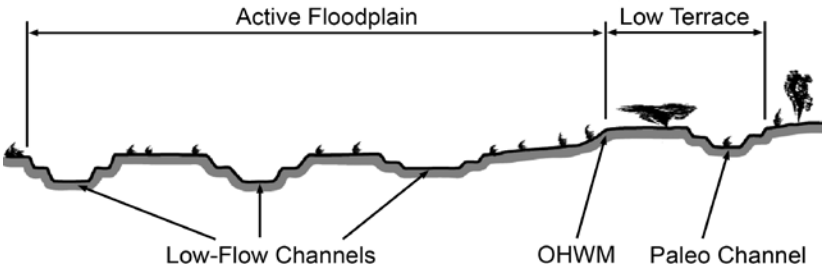
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

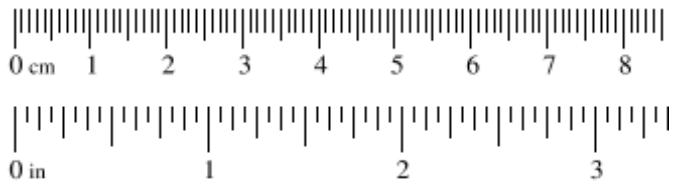


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

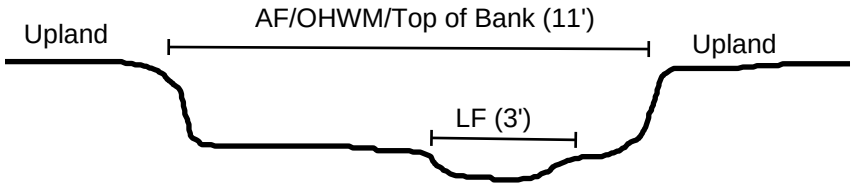
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 12 **Date:** 04/12/2022 **Time:** 1452

Cross section drawing:



OHWM

GPS point: 34.85631287,-117.15451914

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 11-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide low-flow channel (LF); very shallow and faint in some portions of the feature. Visible bed and bank. Granule sediment texture throughout.

Project ID: Big Barstow **Cross section ID:** ODP 12 **Date:** 04/12/2022 **Time:** 1452

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 2 % Tree: 0 % Shrub: 0 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Mid (herbaceous, shrubs, saplings)
- ☑ Early (herbaceous & seedlings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 11-foot wide AF, incised with an abrupt shift from upland to AF. Drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Early (herbaceous & seedlings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Atriplex canescens/Atriplex polycarpa scrub. Coarse sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 13
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1440
Town: Barstow **State:** CA
Photo begin file#: 17 **Photo end file#:** 17

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.853941018,-117.15730066

Potential anthropogenic influences on the channel system:
Area subject to heavy upstream off-road vehicle use and receives runoff from adjacent residential neighborhood.

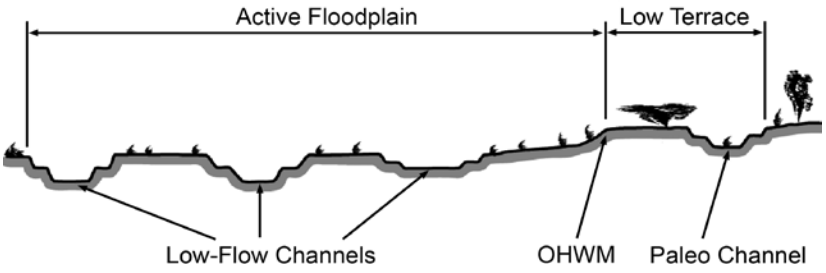
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

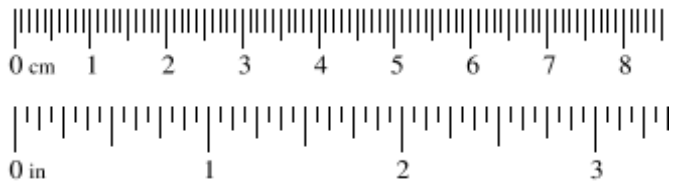


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

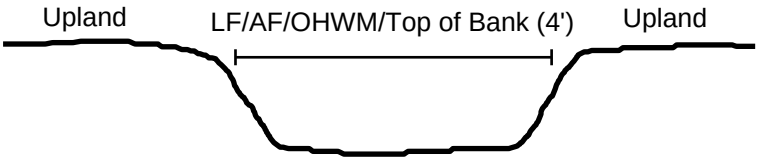
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 13 **Date:** 04/12/2022 **Time:** 1440

Cross section drawing:



OHWM

GPS point: 34.853941018,-117.15730066

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide OHWM defined by a break in bank slope, change in vegetation cover, and change in average sediment texture. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 13 **Date:** 4/12/2022 **Time:** 1440

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide AF. Shallow channel with drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: very fine sand

Total veg cover: 10 % Tree: 0 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Atriplex polycarpa and Ambrosia dumosa scrub. Very fine sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 14
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1418
Town: Barstow **State:** CA
Photo begin file#: 18 **Photo end file#:** 18

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.84826389,-117.165801470

Potential anthropogenic influences on the channel system:
Area receives runoff from upstream residential neighborhood and associated dirt roads.

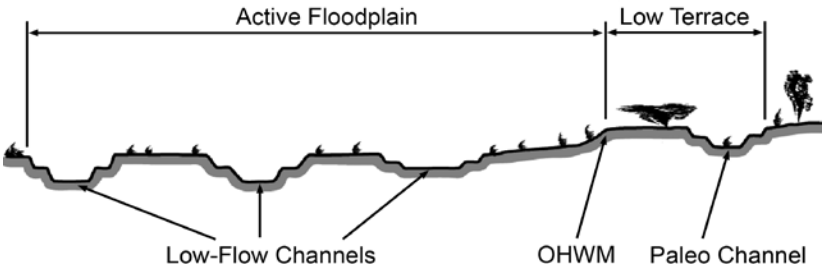
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

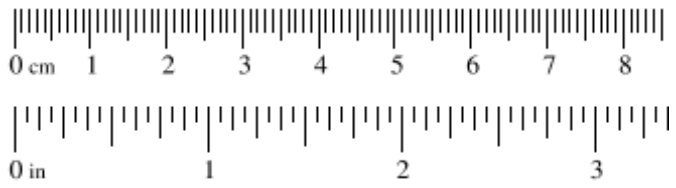


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

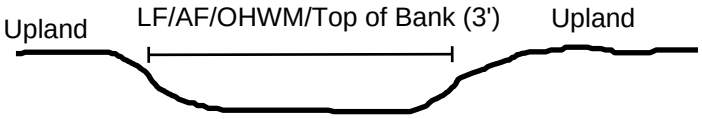
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	Gravel
2.56	64	Cobble	Gravel
0.157	4	Pebble	Gravel
0.079	2.00	Granule	Gravel
0.039	1.00	Very coarse sand	Sand
0.020	0.50	Coarse sand	Sand
1/2 0.0098	0.25	Medium sand	Sand
1/4 0.005	0.125	Fine sand	Sand
1/8 0.0025	0.0625	Very fine sand	Sand
1/16 0.0012	0.031	Coarse silt	Silt
1/32 0.00061	0.0156	Medium silt	Silt
1/64 0.00031	0.0078	Fine silt	Silt
1/128 0.00015	0.0039	Very fine silt	Silt
		Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 14 **Date:** 04/12/2022 **Time:** 1418

Cross section drawing:



OHWM

GPS point: 34.84826389,-117.165801470

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide OHWM defined by a break in bank slope, change in vegetation cover, and change in average sediment texture. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 14 **Date:** 04/12/2022 **Time:** 1418

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 3-foot wide AF. Shallow channel with drift/debris present as dead plant material. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: very fine sand

Total veg cover: 5 % Tree: 0 % Shrub: 5 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Larrea tridentata and Ambrosia dumosa scrub. Very fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 15
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1304
Town: Barstow **State:** CA
Photo begin file#: 19 **Photo end file#:** 19

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.84366014,-117.167787774

Potential anthropogenic influences on the channel system:
Area receives runoff from upstream residential neighborhood and associated dirt roads.

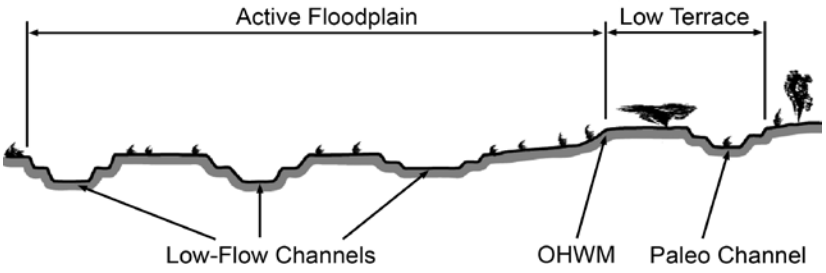
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

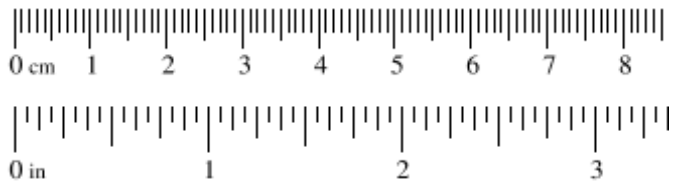


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

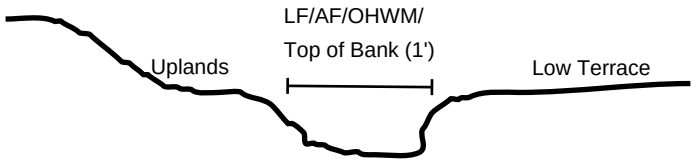
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 15 **Date:** 04/12/2022 **Time:** 1304

Cross section drawing:



OHWM

GPS point: 34.84366014,-117.167787774

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 15 **Date:** 04/12/2022 **Time:** 1304

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☑ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide AF exhibiting ripples. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 10 % Tree: 0 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Uplands present at west bank; low terrace present at east bank. Vegetation dominated by Larrea tridentata scrub. Multiple, vegetated low terrace areas exist between the seven OHWMs within the low topographic area. Granule sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 16
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1021
Town: Barstow **State:** CA
Photo begin file#: 20 **Photo end file#:** 20

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.83413979,-117.182567893

Potential anthropogenic influences on the channel system:
Residential irrigation appears to be contributing to flow. Additionally, trash and debris is present within and along banks of the feature.

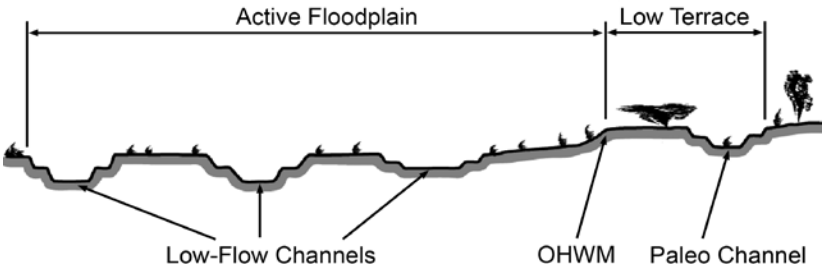
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

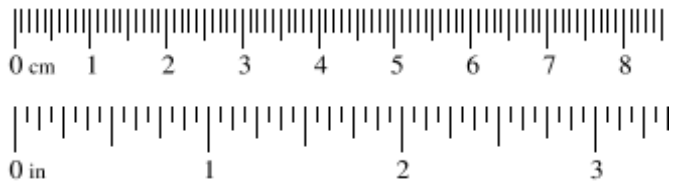


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

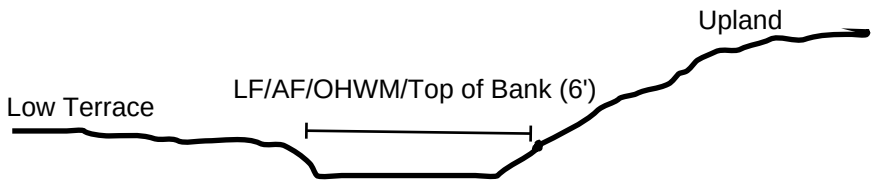
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 16 **Date:** 04/12/2022 **Time:** 1021

Cross section drawing:



OHWM

GPS point: 34.83413979,-117.182567893

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 16 **Date:** 04/12/2022 **Time:** 1021

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide AF. Drift/debris present as dead plant material. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 10 % Tree: 0 % Shrub: 10 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Uplands present at west bank; low terrace present at east bank. Vegetation dominated by Larrea tridentata, Atriplex polycarpa, and Ambrosia dumosa. Granule sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 17
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1138
Town: Barstow **State:** CA
Photo begin file#: 21 **Photo end file#:** 21

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.82964338,-117.183496811

Potential anthropogenic influences on the channel system:
Wash appears to be utilized as a road for off-road vehicles. Flows are diverted into large culvert under railroad tracks.

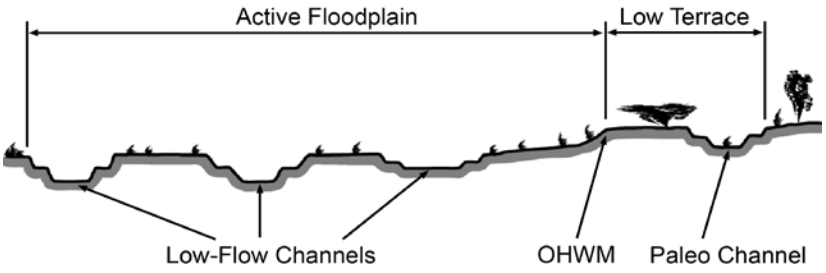
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

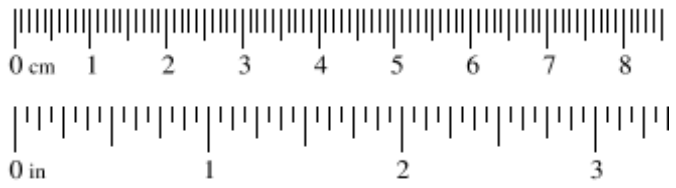


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

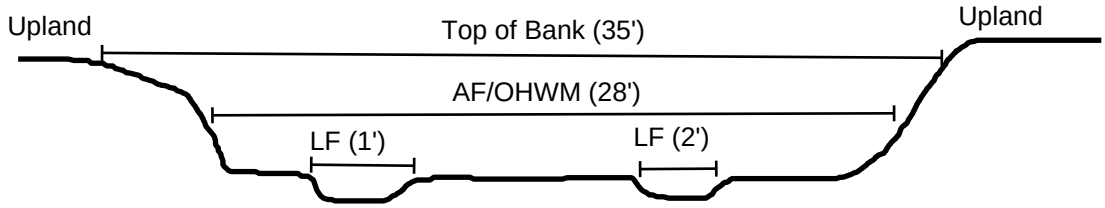
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 17 **Date:** 04/13/2022 **Time:** 1138

Cross section drawing:



OHWM

GPS point: 34.82964338,-117.183496811

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Large wash/road with approximately 28-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☑ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: finer sediment texture
- ☐ Other: _____
- ☐ Other: _____

Comments:

Two low-flow channels (LF) measuring approximately 1 foot and 2 feet wide; exhibiting ripples. Coarse sand sediment texture throughout.

Project ID: Big Barstow **Cross section ID:** ODP 17 **Date:** 04/13/2022 **Time:** 1138

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 4 % Tree: 0 % Shrub: 0 % Herb: 4 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☑ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 28-foot wide active floodplain (AF) that appears to function as a road. Drift/debris present as dead plant material. Vegetation dominated by Schismus sp. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: pebble

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Larrea tridentata, Atriplex polycarpa, and Senna armata. Pebble sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 18
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1057
Town: Barstow **State:** CA
Photo begin file#: 23 **Photo end file#:** 23

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.808776842,-117.201606214

Potential anthropogenic influences on the channel system:
Dirt road and small dirt berm are severing potential downstream connection.

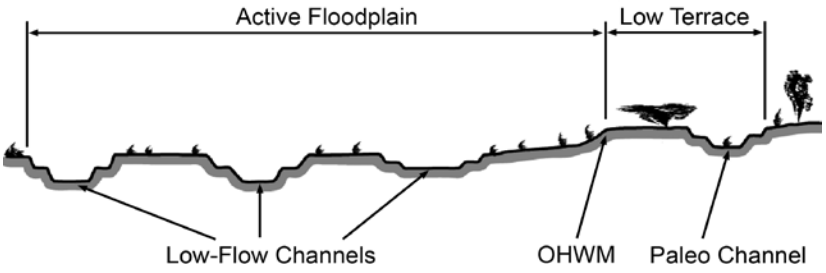
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Area receives flows from higher desert ground. Originally delineated on 12/12/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

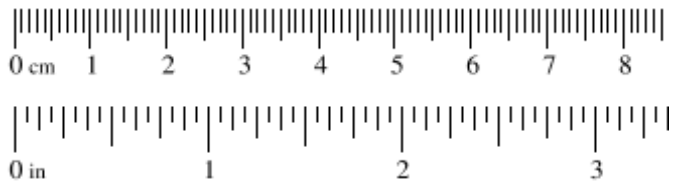


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

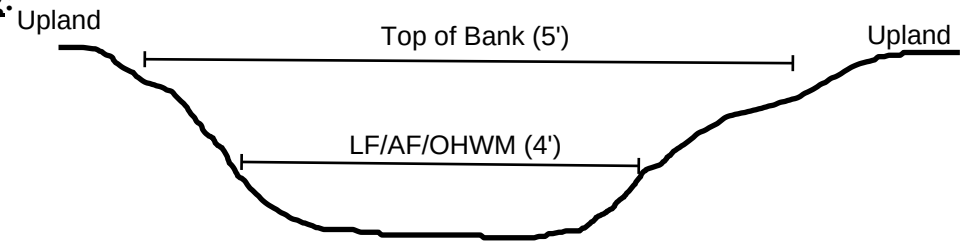
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 18 **Date:** 04/13/2022 **Time:** 1057

Cross section drawing:



OHWM

GPS point: 34.808776842,-117.201606214

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 18 **Date:** 04/13/2022 **Time:** 1057

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☑ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 4-foot wide OHWM. Granule sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: pebble

Total veg cover: 20 % Tree: 0 % Shrub: 20 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by Atriplex polycarpa scrub. Pebble sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 19
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/12/2022 **Time:** 1257
Town: Barstow **State:** CA
Photo begin file#: 24 **Photo end file#:** 24

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.84361111, -117.16861111

Potential anthropogenic influences on the channel system:
Area receives runoff from upstream residential neighborhood and associated dirt roads.

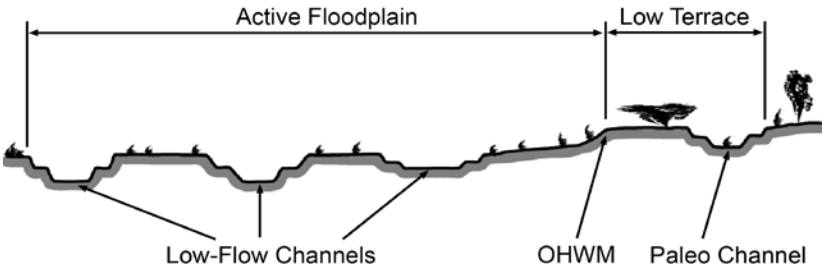
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 12/11/2018, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

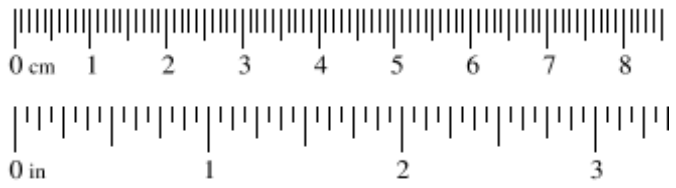


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

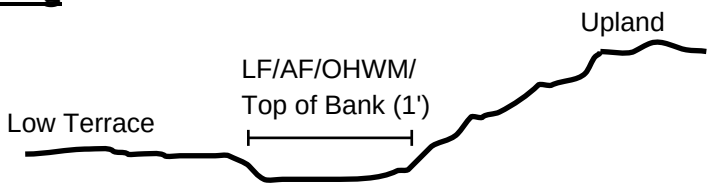
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 19 **Date:** 04/12/2022 **Time:** 1257

Cross section drawing:



OHWM

GPS point: 34.84361111, -117.16861111

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide OHWM defined by a change in average sediment texture, change in vegetation cover, and a break in bank slope. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 19 **Date:** 04/12/2022 **Time:** 1257

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☑ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide AF exhibiting sandy wash characteristics and ripples. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: pebble

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Uplands present at south bank; low terrace present at southeast bank. Vegetation dominated by Larrea tridentata scrub. Multiple, vegetated low terrace areas exist between the seven OHWMs within the low topographic area. Pebble sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 20
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 04/13/2022 **Time:** 1123
Town: Barstow **State:** CA
Photo begin file#: 25 **Photo end file#:** 25

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.81944638, -117.18971987

Potential anthropogenic influences on the channel system:
Area receives runoff from dirt road and railroad; trash/debris present.

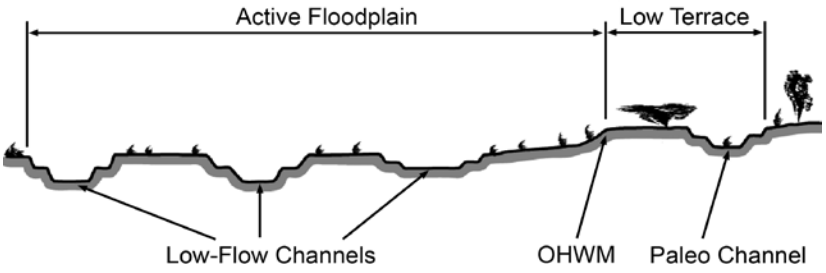
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Swale-like feature between dirt road and railroad. Originally delineated on 12/12/2018, conditions reassessed on 04/13/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
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   a) Record the floodplain unit and GPS position.
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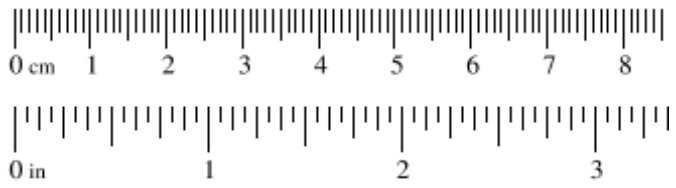
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

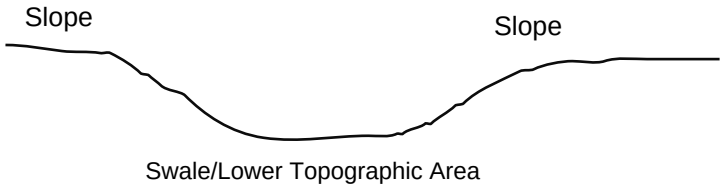
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 20 **Date:** 04/13/2022 **Time:** 1123

Cross section drawing:



OHWM

GPS point: 34.81944638, -117.18971987

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☐ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Lower topographic area (i.e., swale-like feature) that does not appear to sustain sufficient drainage flows to create the presence of a bed and bank and/or break in bank slope. Average sediment texture and vegetation species did not appear to differ from lower topographic area to adjacent slopes. A change in vegetation cover was observed between the lower topographic area and adjacent slopes (lower topographic area is generally unvegetated); however, no other OHWM indicators were present.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: Big Barstow **Cross section ID:** ODP 20 **Date:** 04/13/2022 **Time:** 1123

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 21
Investigator(s): Emily Trevino, Kelsey Woldt, Ryan Layden

Date: 4/12/2022
Town: Barstow
Photo begin file#: 27

Time: 1335
State: CA
Photo end file#: 27

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.840211, -117.169904

Potential anthropogenic influences on the channel system:
Area receives runoff form adjacent dirt road and National Trails Highway.

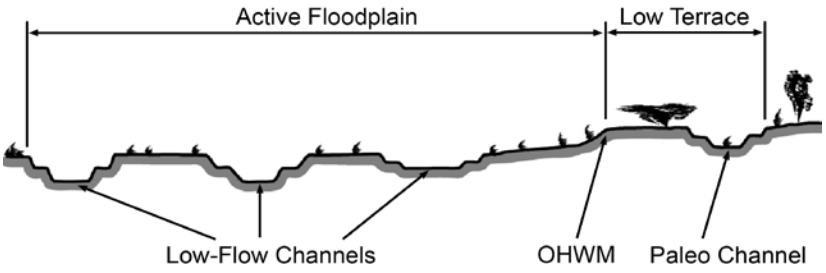
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Originally delineated on 8/20/2019, conditions reassessed on 04/12/2022.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
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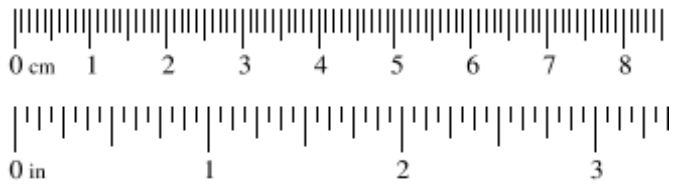
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

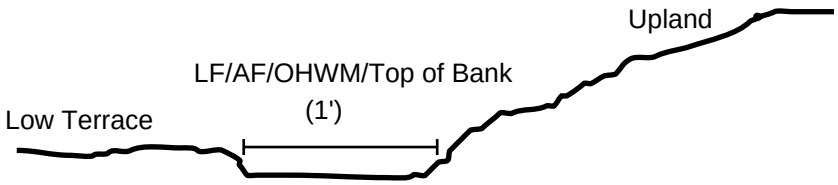
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 21 **Date:** 04/12/2022 **Time:** 1335

Cross section drawing:



OHWM

GPS point: 34.840211, -117.169904

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide OHWM adjacent to two similar features in an area of low topography. OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 21 **Date:** 04/12/2022 **Time:** 1335

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide AF with a 1-inch break in slope. Coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above OHWM

Characteristics of the floodplain unit:

Average sediment texture: granule

Total veg cover: 15 % Tree: 0 % Shrub: 8 % Herb: 7 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Upland present at west bank; low terrace present at east bank. Upland vegetation dominated by Ambrosia dumosa, Larrea tridenta, Ephedra sp., Schismus barbatus, and Atriplex canescens. Low terrace vegetation consists of the above species as well as Erodium sp. Granule sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 22
Investigator(s): Sarah Krejca, Natasha Foti

Date: 12/01/2021 **Time:** 1115
Town: Barstow **State:** CA
Photo begin file#: 28 **Photo end file#:** 28

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.847611, -117.152992

Potential anthropogenic influences on the channel system:
Wash appears to be utilized as a road for off-road vehicles. Area also receives runoff from National Trails Highway to the south/southeast.

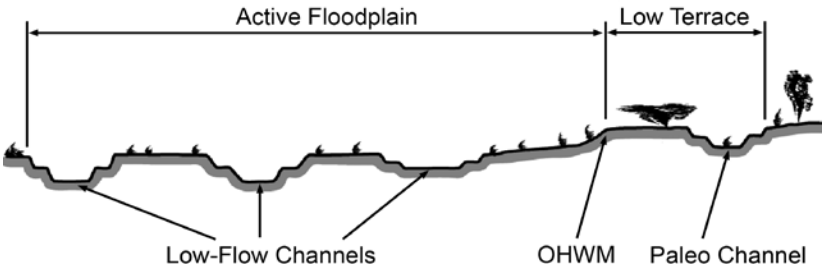
Brief site description:
Immediate surrounding area generally undeveloped except for National Trails Highway directly southeast.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



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		Cobble	Gravel
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0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
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1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
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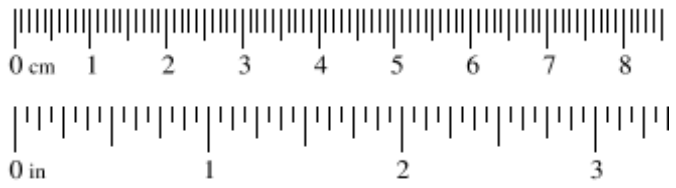
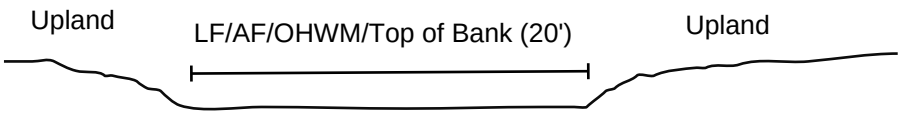
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 22 **Date:** 12/01/2021 **Time:** 1115

Cross section drawing:



OHWM

GPS point: 34.847611, -117.152992

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 20-foot wide OHWM defined by an approximately 1-inch break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 22 **Date:** 12/01/2021 **Time:** 1115

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 20-foot wide AF with an approximately 1-inch break in bank slope. Very coarse sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 20 % Tree: 0 % Shrub: 17 % Herb: 3 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by creosote bush (Larrea tridentata), ephedra (Ephedra sp.), and unknown dried/dead grass. Granule sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 23
Investigator(s): Sarah Krejca, Natasha Foti

Date: 12/01/2021
Town: Barstow
Photo begin file#: 29

Time: 1215
State: CA
Photo end file#: 29

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.858029, -117.140586

Potential anthropogenic influences on the channel system:
Wash receives runoff from dirt road at upstream extent.

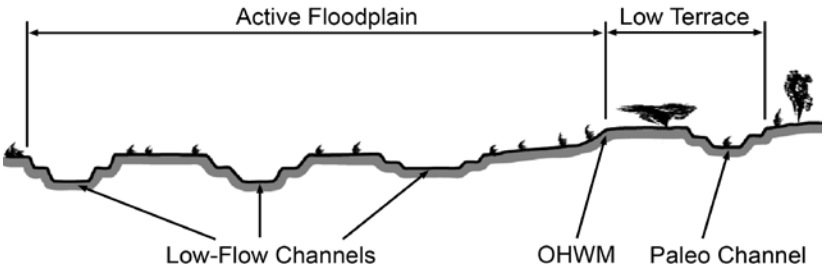
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Immediate surrounding area generally flat and undeveloped except for dirt roads at upstream extent and just downstream.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

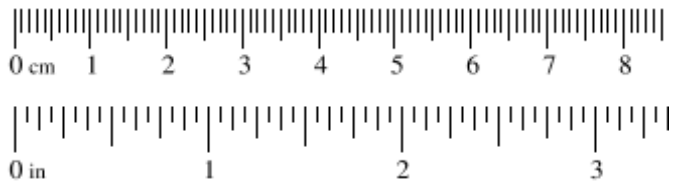


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

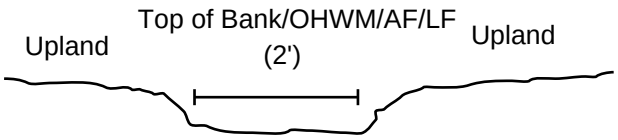
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 23 **Date:** 12/01/2021 **Time:** 1215

Cross section drawing:



OHWM

GPS point: 34.858029, -117.140586

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide OHWM defined by an approximately 2-inch break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 23 **Date:** 12/01/2021 **Time:** 1215

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1-foot wide AF with an approximately 2-inch break in bank slope. Medium sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very fine sand

Total veg cover: 15 % Tree: 0 % Shrub: 10 % Herb: 5 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by creosote bush (Larrea tridentata), allscale (Atriplex sp.), and unknown dried/dead grass. Very fine sand sediment texture with pebbles throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 24
Investigator(s): Sarah Krejca, Kelsey Woldt, Alec Goodman

Date: 03/16/2022
Town: Barstow
Photo begin file#: 30

Time: 1210
State: CA
Photo end file#: 30

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.852444, -117.182596

Potential anthropogenic influences on the channel system:
Area receives upstream road runoff from dirt roads and National Trails Highway.

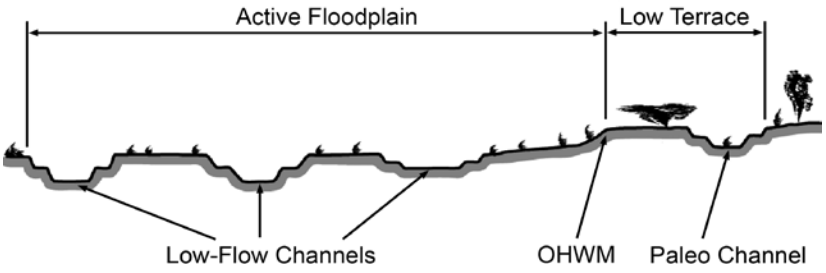
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Immediate surrounding area generally undeveloped except for dirt roads

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

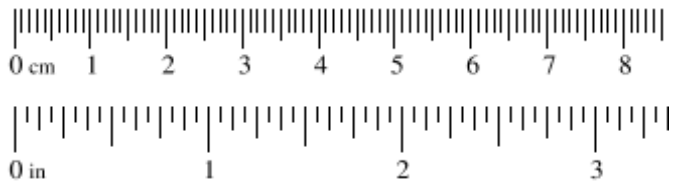


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

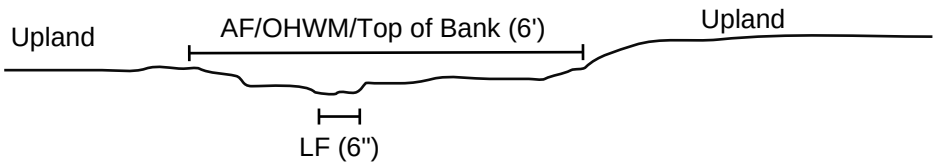
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 24 **Date:** 03/16/2022 **Time:** 1210

Cross section drawing:



OHWM

GPS point: 34.852444, -117.182596

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide OHWM defined by an approximate 1-inch break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: Just below AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: finer sediment
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-inch wide low-flow channel (LF) defined by a slight break in bank slope and change in average sediment texture from LF to active floodplain (AF). LF is more pronounced/visible in certain areas. Coarse sand sediment texture throughout.

Project ID: Big Barstow **Cross section ID:** ODP 24 **Date:** 03/16/2022 **Time:** 1210

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: very coarse sand

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 6-foot wide AF with an approximately 1-inch break in bank slope. Drift deposits present as dead plant material. Very coarse sand sediment texture with some granules.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 15 % Tree: 0 % Shrub: 13 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation dominated by creosote bush (Larrea tridentata), ephedra (Ephedra sp.), desert senna (Senna armata), and white bursage (Ambrosia dumosa). Fine sand sediment texture with some pebbles and granules.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 25
Investigator(s): Ryan Layden

Date: 03/16/2022
Town: Barstow
Photo begin file#: 32

Time: 1250
State: CA
Photo end file#: 32

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.862508, -117.131741

Potential anthropogenic influences on the channel system:
Area receives road runoff from dirt roads; off-road vehicle use is apparent in the surrounding area.

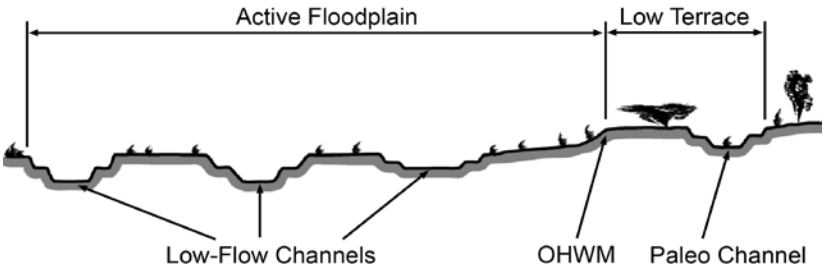
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Immediate surrounding area is generally undeveloped.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

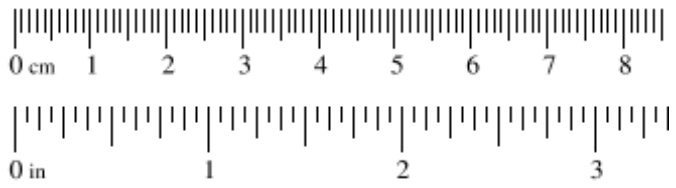


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

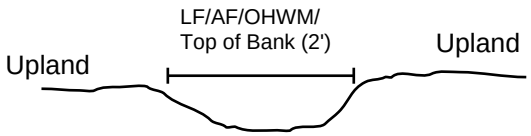
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 25 **Date:** 03/16/2022 **Time:** 1250

Cross section drawing:



OHWM

GPS point: 34.862508, -117.131741

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide OHWM defined by a visible break in slope, change in sediment texture, and change in vegetation cover. Narrow channel that receives road runoff upstream and supplies a larger feature downstream. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF).

Project ID: Big Barstow **Cross section ID:** ODP 25 **Date:** 03/16/2022 **Time:** 1250

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 2 % Tree: 0 % Shrub: 0 % Herb: 2 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 2-foot wide AF with a clear break in bank slope. Vegetation composed of allscale scrub. Medium sand sediment texture throughout.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 17 % Tree: 0 % Shrub: 15 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☑ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Vegetation composed of allscale scrub. Coarse sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 26
Investigator(s): Kelsey Woldt, Ryan Layden

Date: 03/24/2022 **Time:** 0800
Town: Barstow **State:** CA
Photo begin file#: 33 **Photo end file#:** 33

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.874111, -117.153853

Potential anthropogenic influences on the channel system:
Area receives possible upstream runoff/flows from surrounding development. Bermed area/road occurs along portions of northern extent of the river. Evidence of off-road vehicular use (tire tracks).

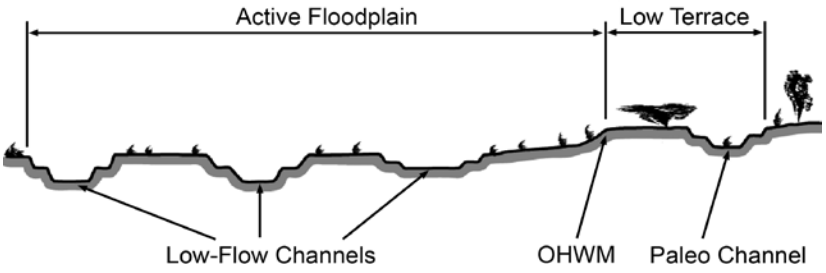
Brief site description:
Within Mojave River adjacent to active desert dune habitat; immediate surrounding area generally undeveloped.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

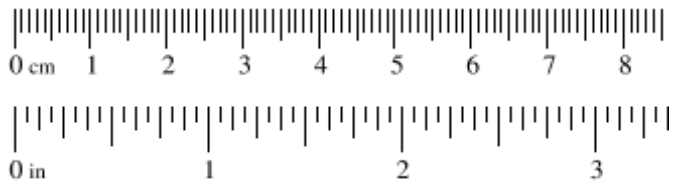


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

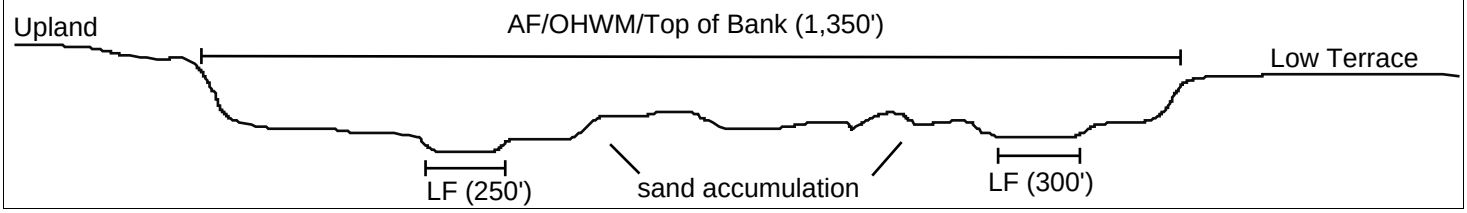
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 26 **Date:** 03/24/2022 **Time:** 0800

Cross section drawing:



OHWM

GPS point: 34.874111, -117.153853

Indicators:

- ☐ Change in average sediment texture
- ☑ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1,350-foot wide OHWM defined by a gradual break in slope and change in vegetation species. OHWM indicators along this extent of the Mojave River were sporadic/irregular, as such, the OHWM was determined using field data, a review of historic aerial imagery, and 10-year floodplain mapping. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography. Note that the entire delineated extent of the OHWM does not occur within the review area.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: 34.875578, -117.157011

Characteristics of the floodplain unit:

Average sediment texture: Very coarse sand

Total veg cover: 10 % Tree: 0 % Shrub: 8 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Two low-flow channels (LF) measuring approximately 250 feet and 300 feet wide. Vegetation dominated by California broomsage (Lepidospartum squamatum). Rock patterns indicative of flow and drift/debris present as woody tree fragments. Very coarse sand sediment texture with pebbles and granules, some finer sand at 1-inch deep.

Project ID: Big Barstow **Cross section ID:** ODP 26 **Date:** 03/24/2022 **Time:** 0800

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 12 % Tree: 0 % Shrub: 2 % Herb: 10 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1,350-foot wide active floodplain (AF). Vegetation dominated by California broomsage (Lepidospartum squamatum) and desert panicgrass (Panicum urvilleanum). Drift/debris present as large tree branches and trunks not located at the base of and/or associated with California broomsage. Coarse sand sediment texture throughout with multiple areas of higher elevation throughout AF with changes in sediment (finer sand in higher topographic zones) caused by accumulation of wind-blown sands. Indicators along this extent of the Mojave River were sporadic/irregular, as such, the extent of the AF was determined using field data, a review of historic aerial imagery, and 10-year floodplain mapping.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: 34.874042, -117.153691

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 12 % Tree: 0 % Shrub: 2 % Herb: 10 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low terrace present at eastern bank (within review area); no true low terrace (i.e., uplands) present at western bank (outside of review area). Vegetation dominated by tumbleweed (Salsola australis), honey mesquite (Prosopis glandulosa), and desert panicgrass (Panicum urvilleanum). Coarse sand sediment texture with few pebbles throughout low terrace. Slight change in elevation from AF to low terrace; bank defined by large linear dunes.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 27
Investigator(s): Kelsey Woldt, Ryan Layden

Date: 03/24/2022 **Time:** 1207
Town: Barstow **State:** CA
Photo begin file#: 35 **Photo end file#:** 35

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.840347, -117.179832

Potential anthropogenic influences on the channel system:
Area receives runoff/sheet flow from adjacent dirt road and large 12-foot cement culvert approximately 100-feet to the south that directs flows under the railroad tracks.

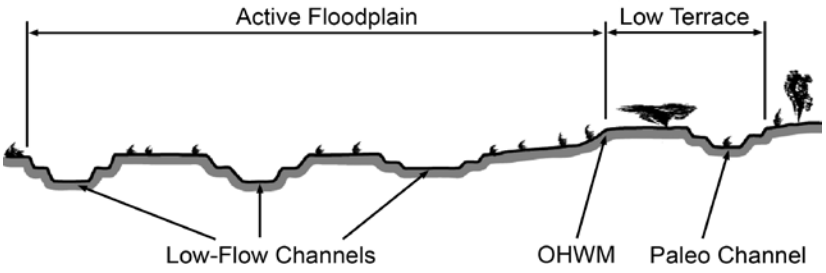
Brief site description:
Site occurs along existing railroad line; disturbed conditions prevalent. Immediate surrounding area includes railroad tracks, dirt road, undeveloped land, and residential.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

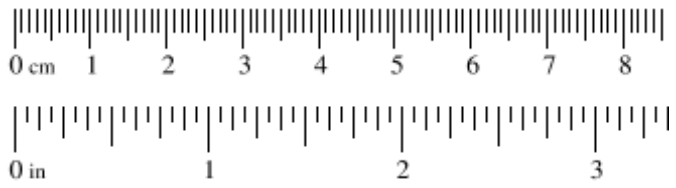


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

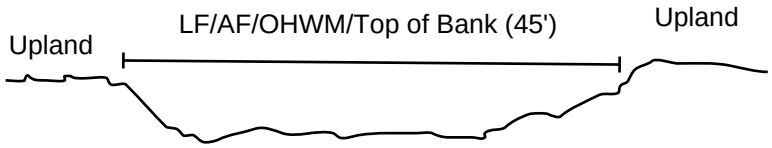
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 27 **Date:** 03/24/2022 **Time:** 1207

Cross section drawing:



OHWM

GPS point: 34.840347, -117.179832

Indicators:

- ☐ Change in average sediment texture
- ☑ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 45-foot wide OHWM defined by a break in bank slope, change in vegetation species, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF)

Project ID: Big Barstow **Cross section ID:** ODP 27 **Date:** 03/24/2022 **Time:** 1207

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very fine sand

Total veg cover: 8 % Tree: 0 % Shrub: 6 % Herb: 2 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☑ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 45-foot wide AF supplied by upstream sheet flow from railroad culvert. Drift/debris present as detritus. Mudcracks and drift patterns (i.e., grasses lying northwest in direction of flow) present. Vegetation dominated by Atriplex polycarpa and Schismus barbatus. Very fine sand sediment texture with few granules.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Very fine sand

Total veg cover: 35 % Tree: 0 % Shrub: 20 % Herb: 15 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No true low terrace present; continues from AF to upland. Drift/debris present as dead plant material. Vegetation dominated by Suaeda nigra, Atriplex polycarpa, and Schismus barbatus. Very fine sand sediment texture with few granules.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 28
Investigator(s): Sarah Krejca, Shanti Santulli

Date: 10/20/2021 **Time:** 1325
Town: Barstow **State:** CA
Photo begin file#: 37 **Photo end file#:** 38

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review Area

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.852444, -117.182596

Potential anthropogenic influences on the channel system:
Area receives possible upstream runoff/flows from surrounding development. Bermed area/road occurs along northern extent of the river.

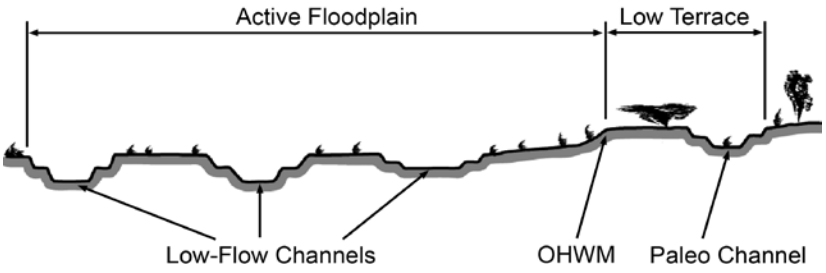
Brief site description:
Within Mojave River adjacent to active desert dune habitat; immediate surrounding area generally undeveloped.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

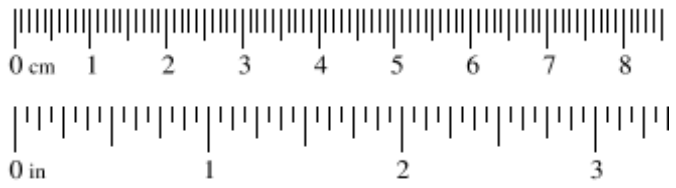


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

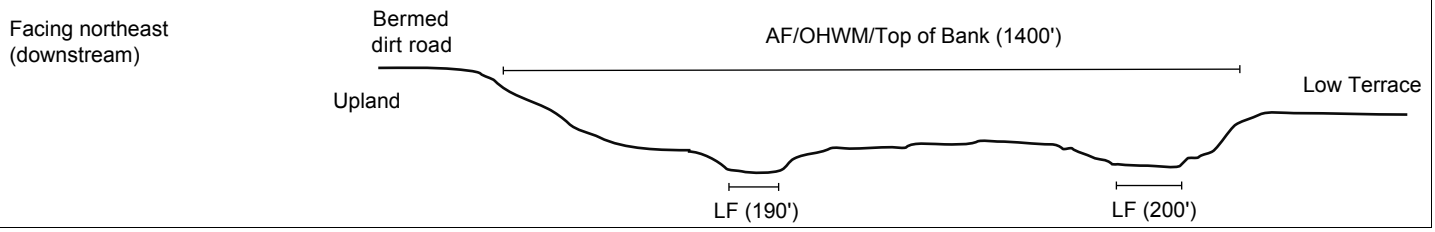
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 28 **Date:** 10/20/2021 **Time:** 1325

Cross section drawing:



OHWM

GPS point: 34.852444, -117.182596

Indicators:

- ☑ Change in average sediment texture
- ☑ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1,400-foot wide OHWM defined by a break in bank slope, change in average sediment texture, change in vegetation species, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography. Note that the entire delineated extent of the OHWM does not occur within the review area.

Floodplain unit: ☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: 34.852637, -117.182880

Characteristics of the floodplain unit:

Average sediment texture: Medium sand

Total veg cover: 5 % Tree: 0 % Shrub: 5 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☑ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☑ Other: Finer sediment
- ☐ Other: _____
- ☐ Other: _____

Comments:

Two low-flow (LF) channels measuring approximately 190 feet and 200 feet wide. Vegetation dominated by cheesebush (Ambrosia salsola). Some areas of ripples likely attributed to past flows rather than wind. Medium sand sediment texture throughout.

Project ID: Big Barstow **Cross section ID:** ODP 28 **Date:** 10/20/2021 **Time:** 1325

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Coarse sand

Total veg cover: 15 % Tree: 0 % Shrub: 15 % Herb: 0 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☑ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 1,400-foot wide active floodplain (AF). Vegetation dominated by cheesebush (Ambrosia salsola) and honey mesquite (Prosopis glandulosa). Drift/debris present as dead branches not located at the base of and/or not associated with cheesebush or honey mesquite. Coarse sand sediment texture with pebbles.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: 34.852257, -117.182333

Characteristics of the floodplain unit:

Average sediment texture: Fine sand

Total veg cover: 40 % Tree: 0 % Shrub: 10 % Herb: 30 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low terrace present at southeast bank (within review area); no true low terrace (i.e., uplands) present at northwest bank (outside of review area). More uniform sediment texture throughout layers within low terrace. Vegetation dominated by desert panicgrass (Panicum urvilleanum), cheesebush (Ambrosia salsola), and honey mesquite (Prosopis glandulosa). Surface relief defines uplands/low terrace. Fine sand sediment texture throughout.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Big Barstow
Project Number: N/A
Stream: ODP 29
Investigator(s): Kelsey Woldt, Ryan Layden

Date: 06/20/2022 **Time:** 1200
Town: Barstow **State:** CA
Photo begin file#: 39 **Photo end file#:** 39

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details:
Big Barstow Aquatic Resources Delineation Report Review

Projection: NAD 83 **Datum:** WGS 84
Coordinates: 34.791535, -117.240448

Potential anthropogenic influences on the channel system:
Cement bank on northwest side of feature; channel used as road based on presence of tire tracks.

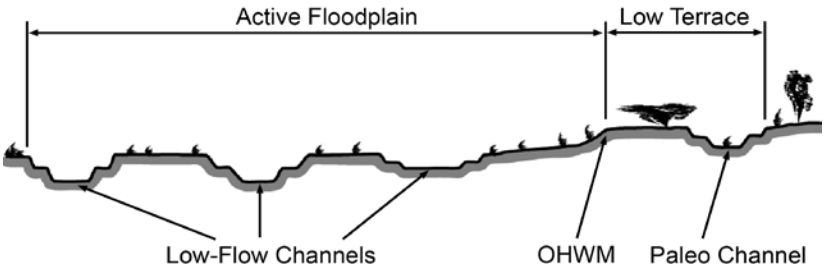
Brief site description:
Within Wild Wash, which also serves as a road.S ite occurs along existing railroad line; disturbed conditions prevalent.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☑ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

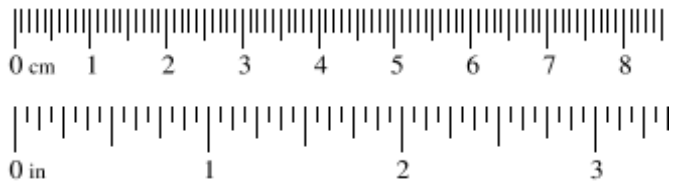


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☑ Mapping on aerial photograph
   - ☑ Digitized on computer
   - ☑ GPS
   - ☐ Other:

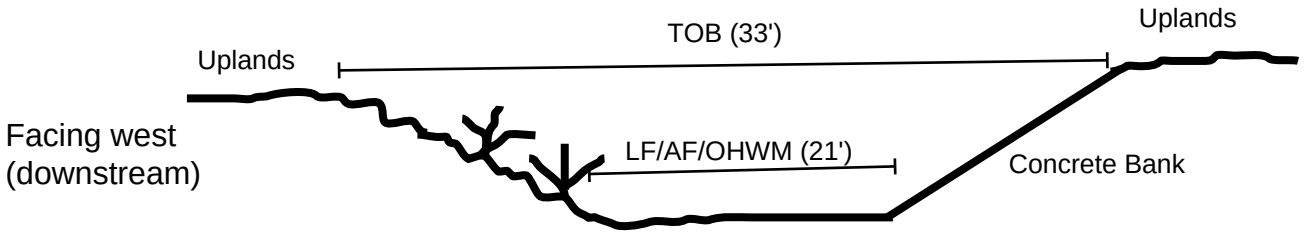
Wentworth Size Classes

Inches (in)	Millimeters (mm)	Wentworth size class	
10.08	256	Boulder	
		Cobble	Gravel
2.56	64	Pebble	
0.157	4	Granule	
0.079	2.00	Very coarse sand	
0.039	1.00	Coarse sand	
0.020	0.50	Medium sand	Sand
1/2 0.0098	0.25	Fine sand	
1/4 0.005	0.125	Very fine sand	
1/8 0.0025	0.0625	Coarse silt	
1/16 0.0012	0.031	Medium silt	
1/32 0.00061	0.0156	Fine silt	Silt
1/64 0.00031	0.0078	Very fine silt	
1/128 0.00015	0.0039	Clay	Mud



Project ID: Big Barstow **Cross section ID:** ODP 29 **Date:** 06/20/2022 **Time:** 1200

Cross section drawing:



OHWM

GPS point: 34.791535, -117.240448

Indicators:

- ☑ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 21-foot wide OHWM defined by a break in bank slope, change in average sediment texture, and change in vegetation cover. Data was collected during a drought year; however, indicators still observed and consistent with anticipated extent of OHWM based on site conditions/topography.

Floodplain unit:

☑ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace/Upland

GPS point: N/A

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Low-flow channel (LF) is indistinguishable/cannot be determined from active floodplain (AF)

Project ID: Big Barstow **Cross section ID:** ODP 29 **Date:** 06/20/2022 **Time:** 1200

Floodplain unit: ☐ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace/Upland

GPS point: Same as OHWM

Characteristics of the floodplain unit:

Average sediment texture: Granule

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☑ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Approximately 21-foot wide AF with a defined break in bank slope. Granule sediment texture with some pebbles.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☑ Low Terrace/Upland

GPS point: Just above AF/OHWM

Characteristics of the floodplain unit:

Average sediment texture: Fine silt

Total veg cover: 34 % Tree: 0 % Shrub: 30 % Herb: 4 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☑ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

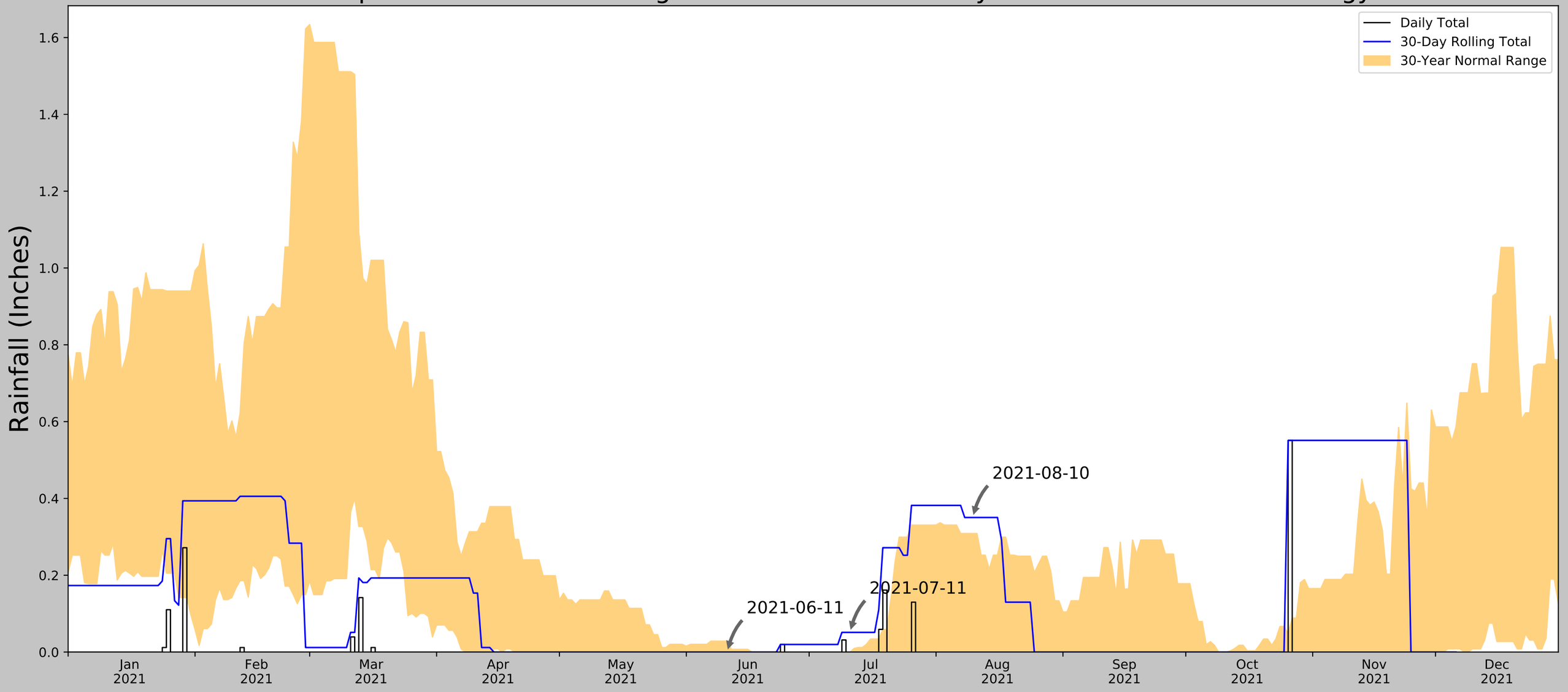
Comments:

No true low terrace present; continues from AF to upland. Northern bank/upland is composed of concrete; southern bank/upland is vegetated and dominated by Atriplex polycarpa and Larrea tridentata. Surface relief defines uplands on southern bank. Fine silt sediment texture with some granules.

APPENDIX F

ANTECEDENT PRECIPITATION TOOL OUTPUT

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.845561, -117.162790
Observation Date	2021-08-10
Elevation (ft)	2297.43
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

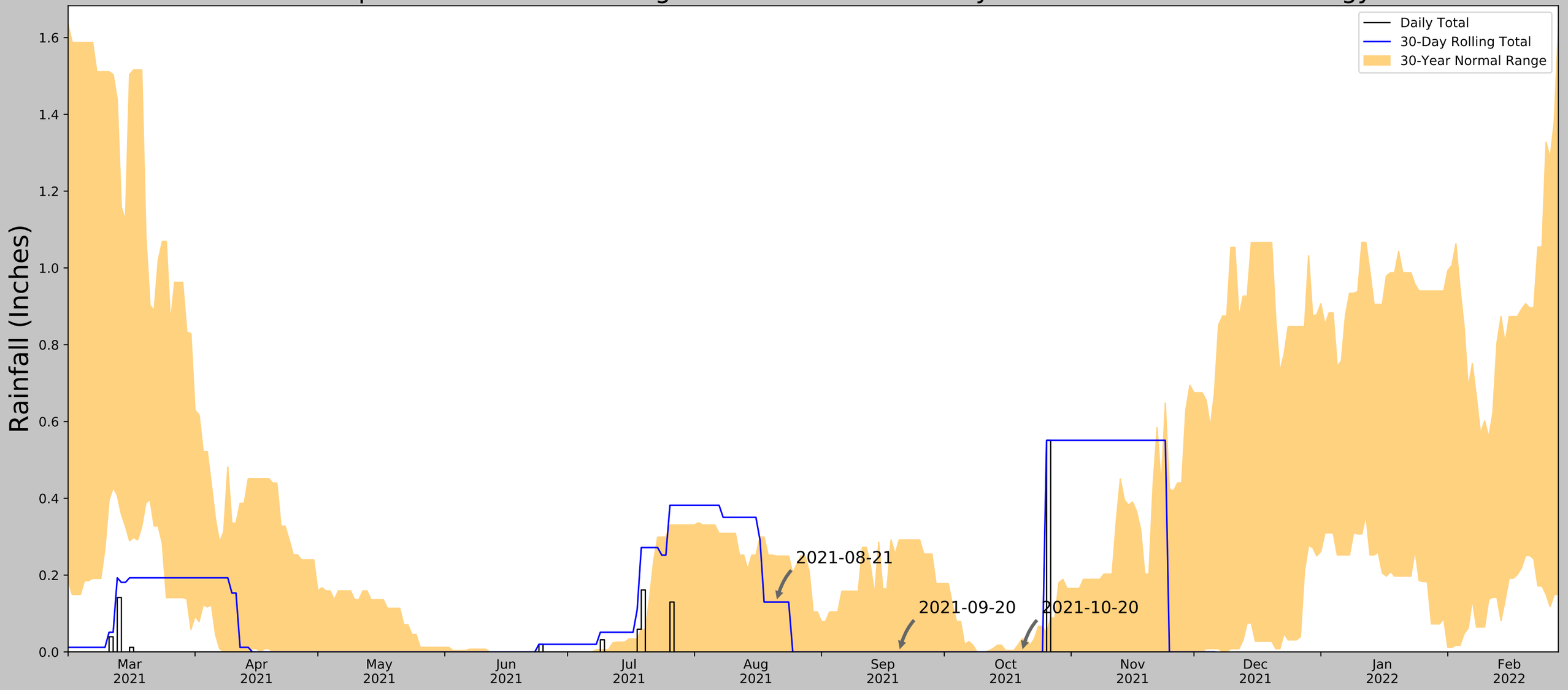
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-08-10	0.0	0.308661	0.350394	Wet	3	3	9
2021-07-11	0.0	0.0	0.051181	Wet	3	2	6
2021-06-11	0.0	0.028346	0.0	Normal	2	1	2
Result							Wetter than Normal - 17

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	8.628	77.286	4.549	11044	90
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	2	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	306	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.845561, -117.162790
Observation Date	2021-10-20
Elevation (ft)	2297.43
Drought Index (PDSI)	Severe drought
WebWIMP H_2O Balance	Dry Season

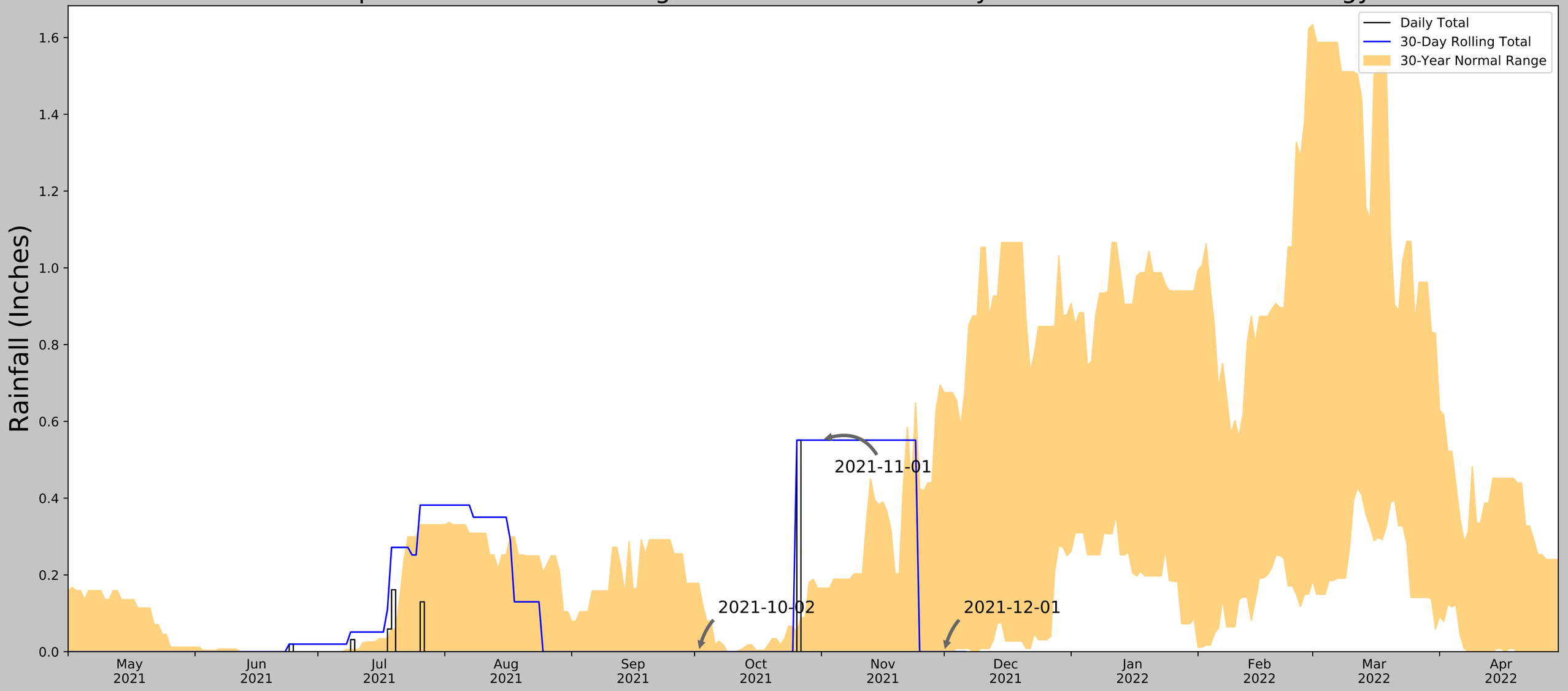
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-10-20	0.0	0.033858	0.0	Normal	2	3	6
2021-09-20	0.0	0.291732	0.0	Normal	2	2	4
2021-08-21	0.0	0.249606	0.129921	Normal	2	1	2
Result							Normal Conditions - 12

Figure and tables made by the **Antecedent Precipitation Tool** Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	8.628	77.286	4.549	11098	90
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	247	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.845561, -117.162790
Observation Date	2021-12-01
Elevation (ft)	2297.43
Drought Index (PDSI)	Severe drought (2021-11)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2021-12-01	0.0	0.675197	0.0	Normal	2	3	6
2021-11-01	0.0	0.165354	0.551181	Wet	3	2	6
2021-10-02	0.0	0.177953	0.0	Normal	2	1	2
Result							Normal Conditions - 14

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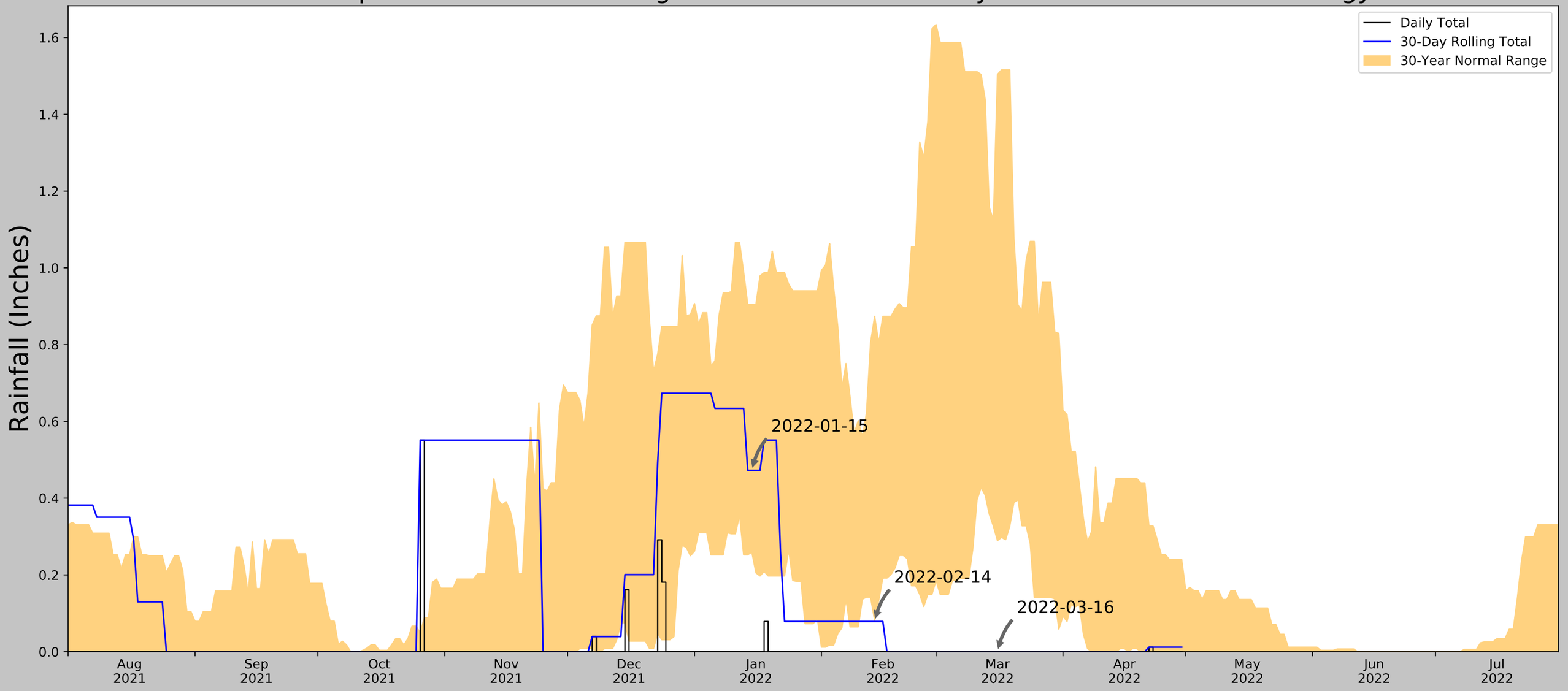
Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	8.628	77.286	4.549	11098	90
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	247	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-03-16
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

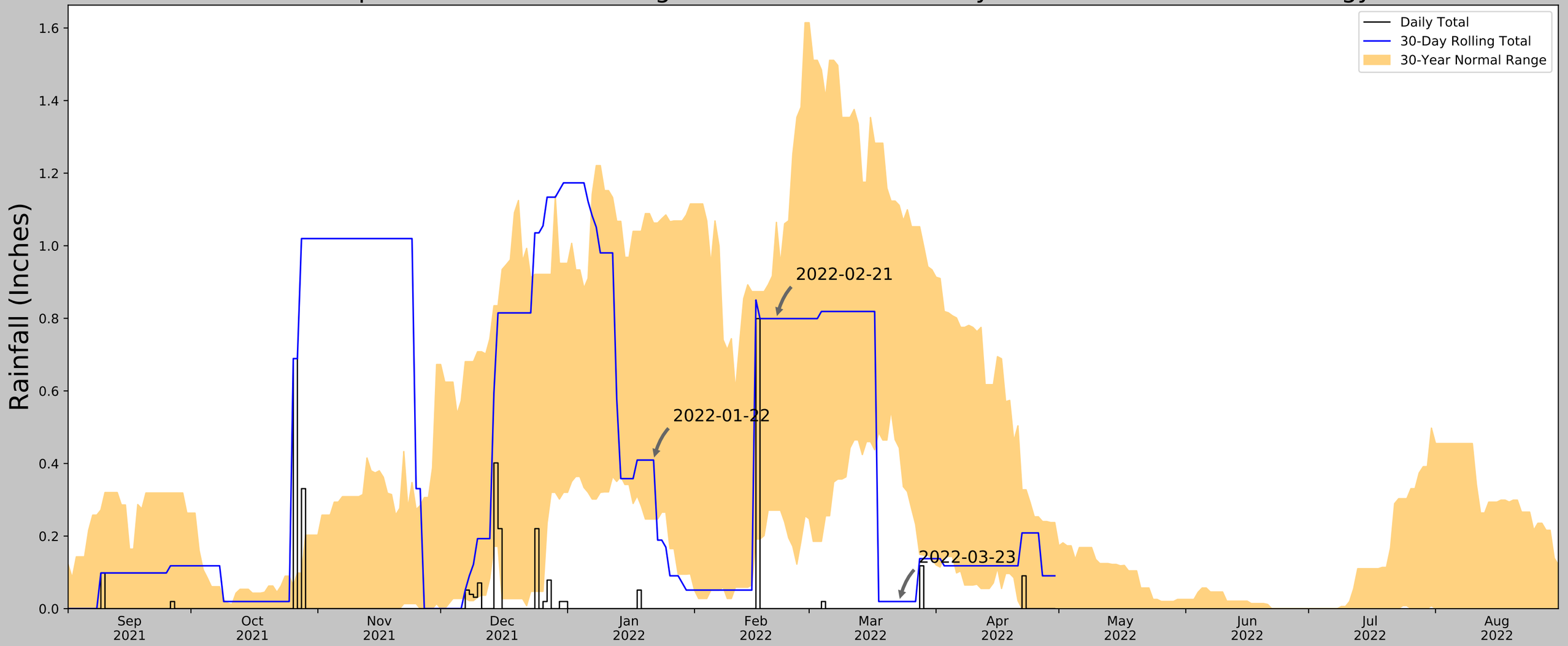
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-03-16	0.28937	1.503937	0.0	Dry	1	3	3
2022-02-14	0.081496	0.873622	0.07874	Dry	1	2	2
2022-01-15	0.259449	0.905118	0.472441	Normal	2	1	2
Result							Drier than Normal - 7

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	11098	89
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	247	1

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-03-23
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-03-23	0.443307	1.111417	0.019685	Dry	1	3	3
2022-02-21	0.27126	1.064567	0.799213	Normal	2	2	4
2022-01-22	0.24685	1.062598	0.409449	Normal	2	1	2
Result							Drier than Normal - 9

Figure and tables made by the
Antecedent Precipitation Tool
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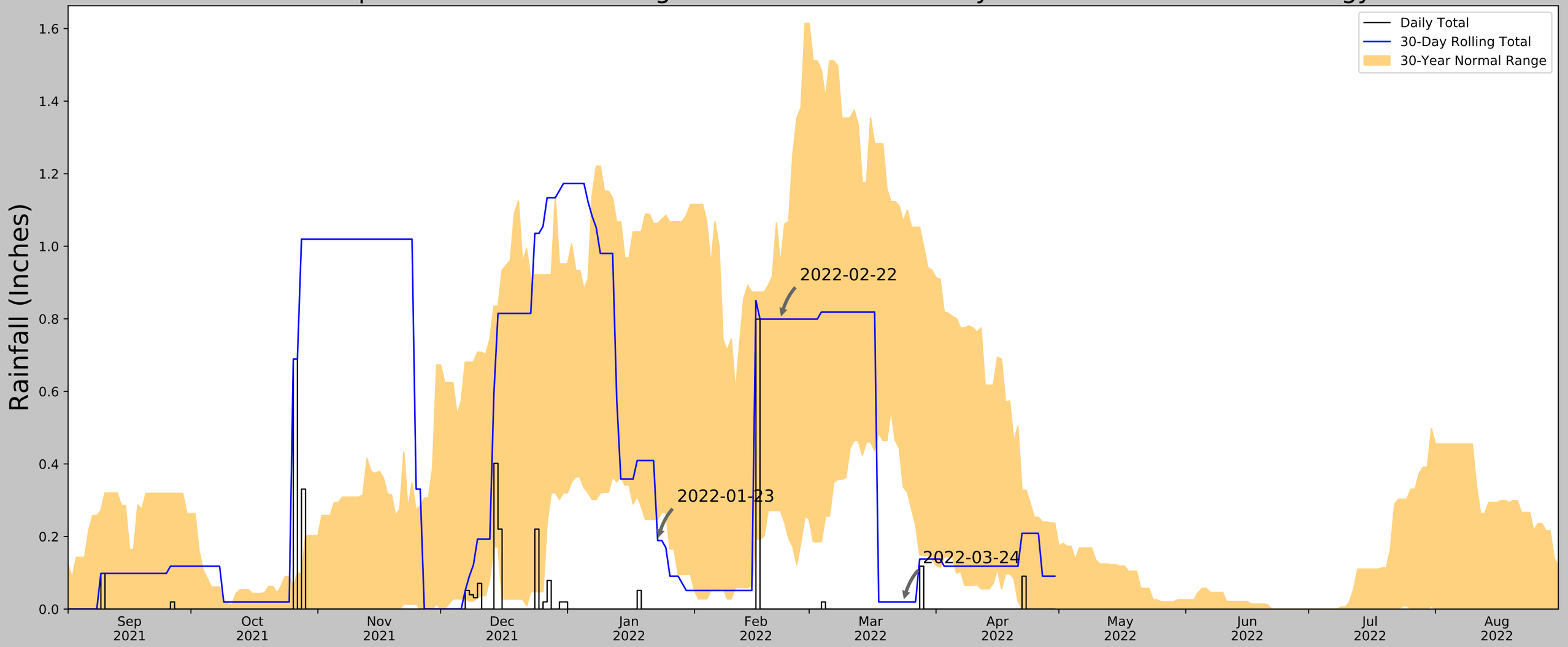
Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
APPLE VALLEY 2.6 SSW	34.4957, -117.2353	2880.906	25.685	649.916	28.251	1447	0
BARSTOW 0.8 SSE	34.8667, -117.0592	2608.924	5.124	377.934	4.242	155	4
ADELANTO 3.1 S	34.5253, -117.4331	3084.974	28.229	853.984	36.81	79	1
BARSTOW 3.0 W	34.88, -117.118	2229.003	2.22	1.987	1.003	2	0
APPLE VALLEY 2.6 SE	34.5043, -117.1808	2940.945	24.687	709.955	28.636	1301	3
APPLE VALLEY 1.9 N	34.556, -117.2111	2935.039	21.341	704.049	24.629	34	0
VICTORVILLE 2.6 SSW	34.4901, -117.3518	3110.892	28.07	879.902	37.33	401	0
APPLE VALLEY 4.1 ENE	34.5588, -117.1516	3119.095	20.857	888.105	27.909	273	50
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	8.636	61.042	4.413	90	9
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	7333	23
VICTORVILLE	34.5292, -117.2928	2879.921	24.31	648.931	26.715	238	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-03-24
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-03-24	0.33622	1.068898	0.019685	Dry	1	3	3
2022-02-22	0.27126	0.950394	0.799213	Normal	2	2	4
2022-01-23	0.24685	1.062598	0.188976	Dry	1	1	1
Result							Drier than Normal - 8

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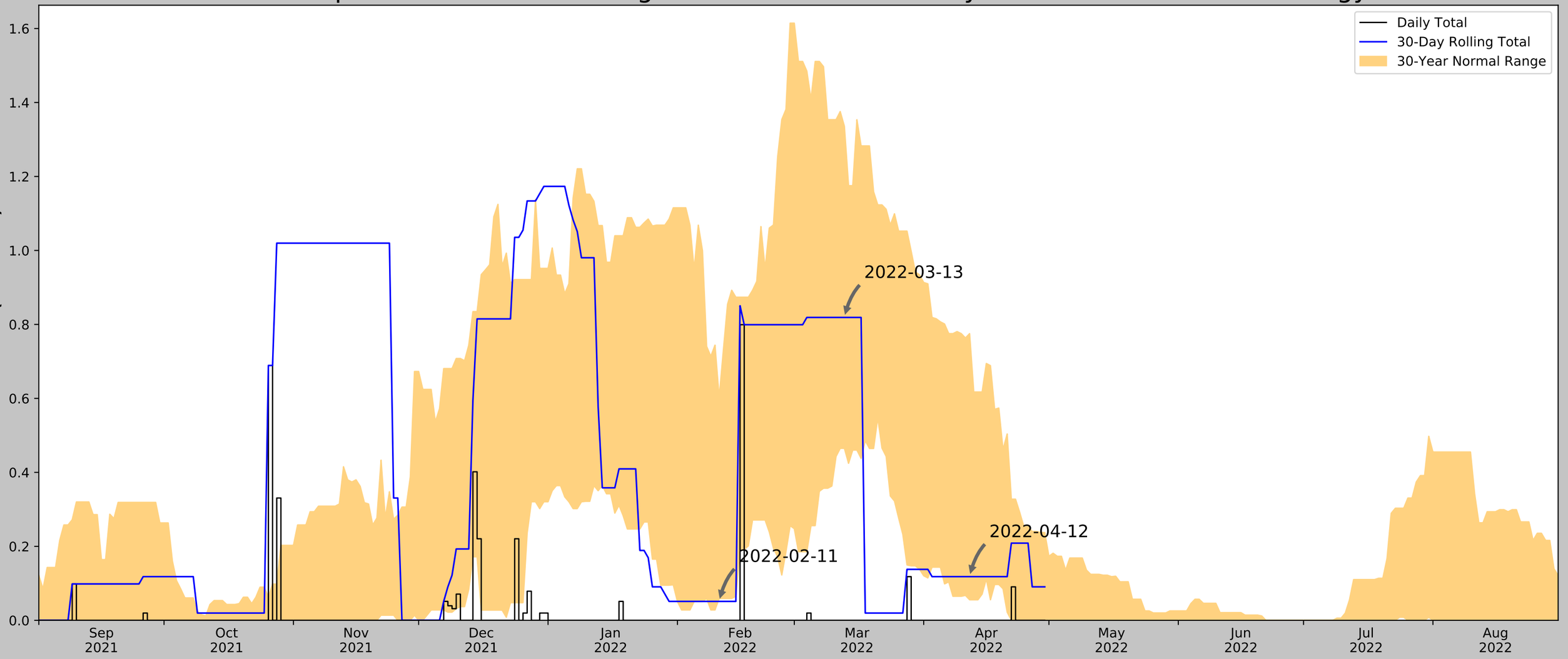
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
APPLE VALLEY 2.6 SSW	34.4957, -117.2353	2880.906	25.685	649.916	28.251	1447	0
BARSTOW 0.8 SSE	34.8667, -117.0592	2608.924	5.124	377.934	4.242	155	3
ADELANTO 3.1 S	34.5253, -117.4331	3084.974	28.229	853.984	36.81	79	1
BARSTOW 3.0 W	34.88, -117.118	2229.003	2.22	1.987	1.003	2	0
APPLE VALLEY 2.6 SE	34.5043, -117.1808	2940.945	24.687	709.955	28.636	1301	3
APPLE VALLEY 1.9 N	34.556, -117.2111	2935.039	21.341	704.049	24.629	34	0
VICTORVILLE 2.6 SSW	34.4901, -117.3518	3110.892	28.07	879.902	37.33	401	0
APPLE VALLEY 4.1 ENE	34.5588, -117.1516	3119.095	20.857	888.105	27.909	273	51
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	8.636	61.042	4.413	90	9
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	7333	23
VICTORVILLE	34.5292, -117.2928	2879.921	24.31	648.931	26.715	238	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-04-12
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought (2022-03)
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-04-12	0.055512	0.775197	0.11811	Normal	2	3	6
2022-03-13	0.464961	1.335827	0.818898	Normal	2	2	4
2022-02-11	0.059055	0.601969	0.051181	Dry	1	1	1
Result							Normal Conditions - 11

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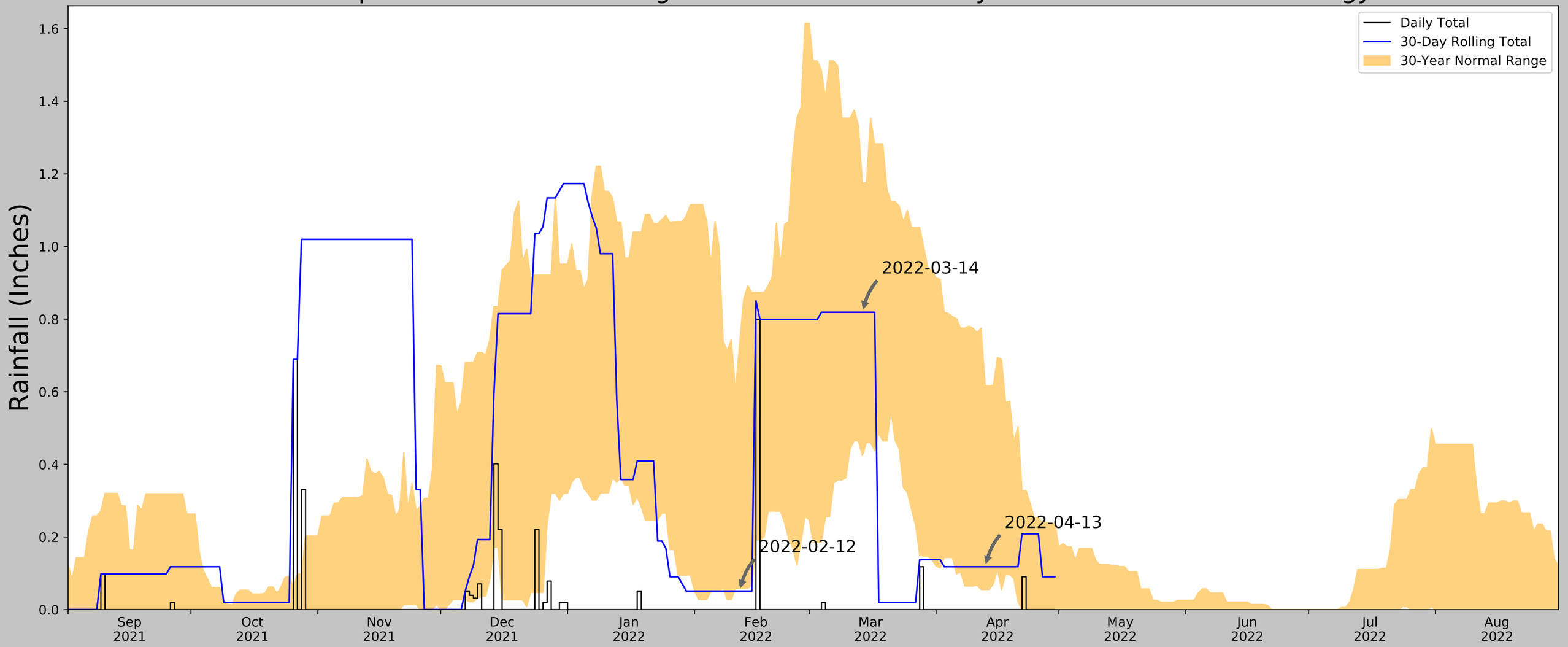
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
APPLE VALLEY 2.6 SSW	34.4957, -117.2353	2880.906	25.685	649.916	28.251	1447	0
BARSTOW 0.8 SSE	34.8667, -117.0592	2608.924	5.124	377.934	4.242	155	1
ADELANTO 3.1 S	34.5253, -117.4331	3084.974	28.229	853.984	36.81	79	1
BARSTOW 3.0 W	34.88, -117.118	2229.003	2.22	1.987	1.003	2	0
APPLE VALLEY 2.6 SE	34.5043, -117.1808	2940.945	24.687	709.955	28.636	1301	3
APPLE VALLEY 1.9 N	34.556, -117.2111	2935.039	21.341	704.049	24.629	34	0
VICTORVILLE 2.6 SSW	34.4901, -117.3518	3110.892	28.07	879.902	37.33	401	0
APPLE VALLEY 4.1 ENE	34.5588, -117.1516	3119.095	20.857	888.105	27.909	273	58
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	8.636	61.042	4.413	90	7
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	7333	20
VICTORVILLE	34.5292, -117.2928	2879.921	24.31	648.931	26.715	238	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-04-13
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought (2022-03)
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-04-13	0.055512	0.617323	0.11811	Normal	2	3	6
2022-03-14	0.424409	1.175197	0.818898	Normal	2	2	4
2022-02-12	0.059055	0.729921	0.051181	Dry	1	1	1
Result							Normal Conditions - 11

Figure and tables made by the
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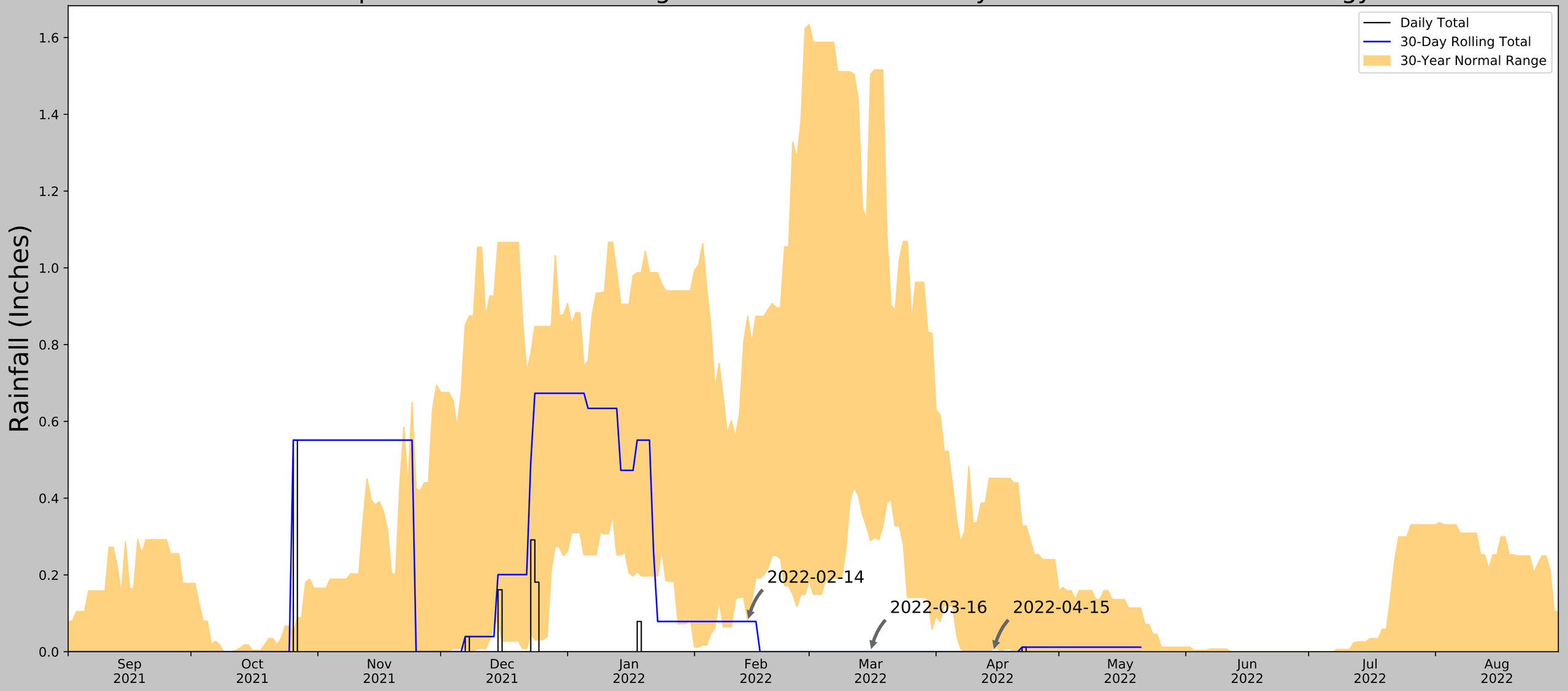
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
APPLE VALLEY 2.6 SSW	34.4957, -117.2353	2880.906	25.685	649.916	28.251	1447	0
BARSTOW 0.8 SSE	34.8667, -117.0592	2608.924	5.124	377.934	4.242	155	1
ADELANTO 3.1 S	34.5253, -117.4331	3084.974	28.229	853.984	36.81	79	1
BARSTOW 3.0 W	34.88, -117.118	2229.003	2.22	1.987	1.003	2	0
APPLE VALLEY 2.6 SE	34.5043, -117.1808	2940.945	24.687	709.955	28.636	1301	3
APPLE VALLEY 1.9 N	34.556, -117.2111	2935.039	21.341	704.049	24.629	34	0
VICTORVILLE 2.6 SSW	34.4901, -117.3518	3110.892	28.07	879.902	37.33	401	0
APPLE VALLEY 4.1 ENE	34.5588, -117.1516	3119.095	20.857	888.105	27.909	273	59
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	8.636	61.042	4.413	90	7
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	7333	19
VICTORVILLE	34.5292, -117.2928	2879.921	24.31	648.931	26.715	238	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-04-15
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought
WebWIMP H_2O Balance	Dry Season

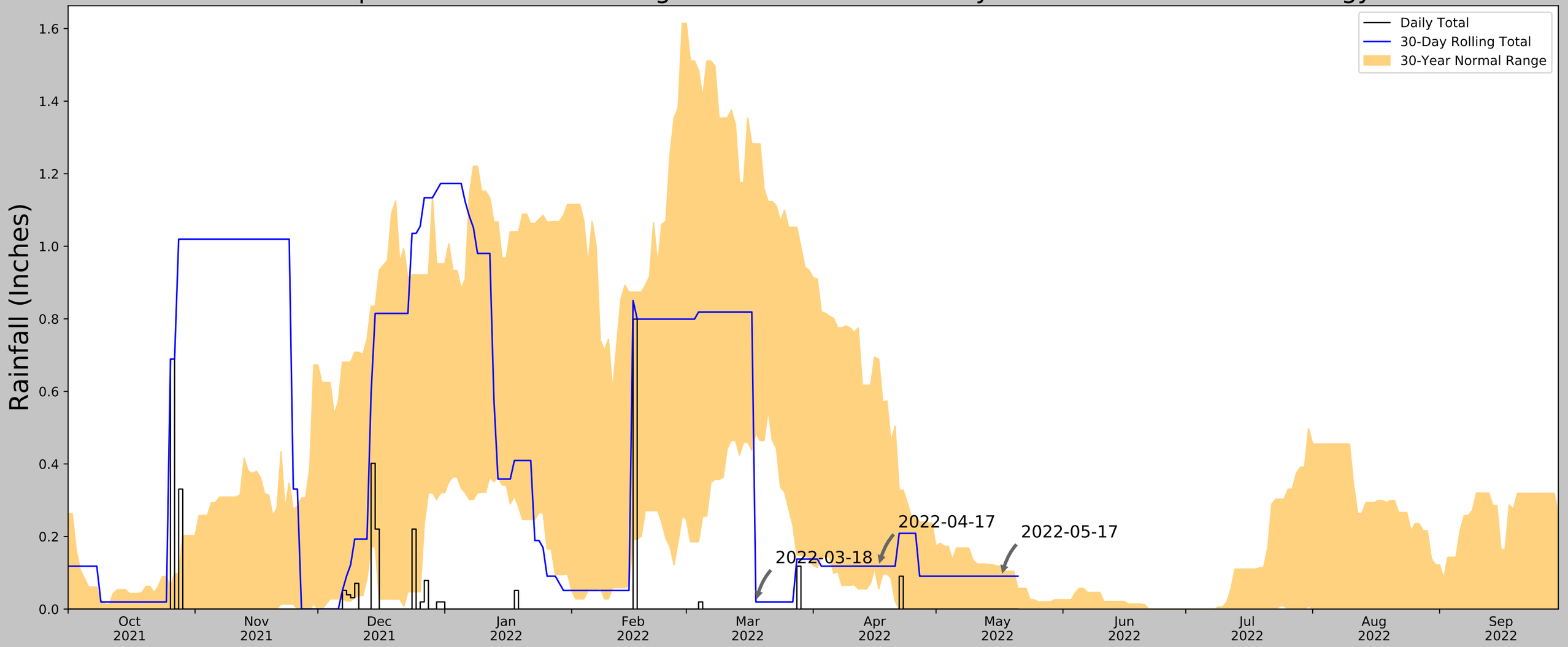
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-04-15	0.008268	0.451575	0.0	Dry	1	3	3
2022-03-16	0.28937	1.503937	0.0	Dry	1	2	2
2022-02-14	0.081496	0.873622	0.07874	Dry	1	1	1
Result							Drier than Normal - 6

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	11098	89
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	247	1

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-05-17
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought (2022-04)
WebWIMP H_2O Balance	Dry Season

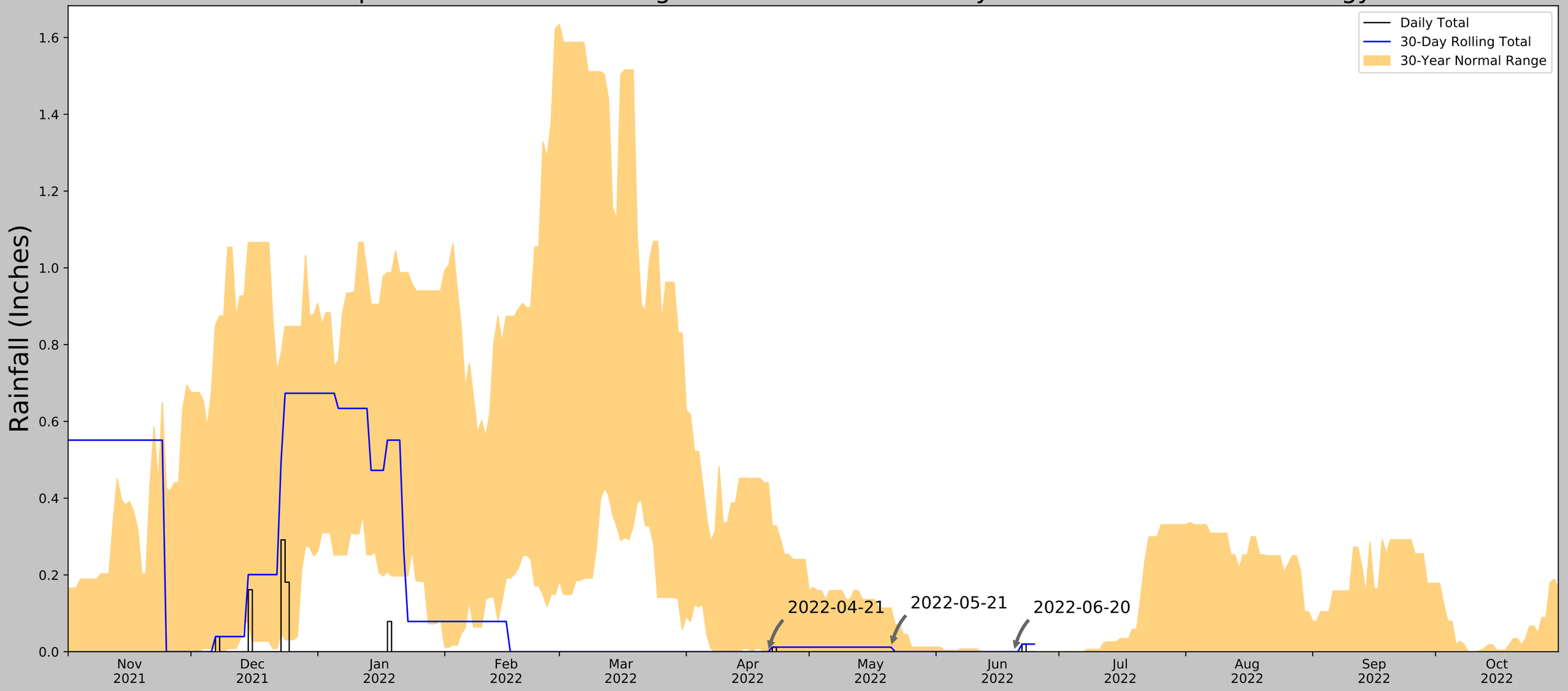
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-05-17	0.0	0.119291	0.090551	Normal	2	3	6
2022-04-17	0.055512	0.688583	0.11811	Normal	2	2	4
2022-03-18	0.485827	1.282677	0.019685	Dry	1	1	1
Result							Normal Conditions - 11

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
APPLE VALLEY 2.6 SSW	34.4957, -117.2353	2880.906	25.685	649.916	28.251	1447	0
BARSTOW 0.8 SSE	34.8667, -117.0592	2608.924	5.124	377.934	4.242	155	1
ADELANTO 3.1 S	34.5253, -117.4331	3084.974	28.229	853.984	36.81	79	1
BARSTOW 3.0 W	34.88, -117.118	2229.003	2.22	1.987	1.003	2	0
APPLE VALLEY 2.6 SE	34.5043, -117.1808	2940.945	24.687	709.955	28.636	1301	2
VICTORVILLE 2.6 SSW	34.4901, -117.3518	3110.892	28.07	879.902	37.33	401	0
APPLE VALLEY 1.9 N	34.556, -117.2111	2935.039	21.341	704.049	24.629	34	0
APPLE VALLEY 4.1 ENE	34.5588, -117.1516	3119.095	20.857	888.105	27.909	273	55
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	8.636	61.042	4.413	90	6
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	7333	25
VICTORVILLE	34.5292, -117.2928	2879.921	24.31	648.931	26.715	238	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	34.860658, -117.149281
Observation Date	2022-06-20
Elevation (ft)	2230.99
Drought Index (PDSI)	Extreme drought (2022-05)
WebWIMP H_2O Balance	Dry Season

Figure and tables made by the **Antecedent Precipitation Tool** Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-06-20	0.0	0.0	0.0	Normal	2	3	6
2022-05-21	0.0	0.11378	0.011811	Normal	2	2	4
2022-04-21	0.0	0.439764	0.0	Normal	2	1	2
Result							Normal Conditions - 12

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BARSTOW	34.8928, -117.0219	2220.144	7.554	10.846	3.481	11098	90
BARSTOW 4.2 NE	34.9237, -117.0177	2169.948	2.148	50.196	1.074	7	0
BARSTOW 3.0 W	34.88, -117.118	2229.003	5.518	8.859	2.532	1	0
BARSTOW DAGGETT AP	34.8536, -116.7858	1916.995	13.655	303.149	10.284	247	0

APPENDIX G

SITE PHOTOGRAPHS

Appendix G

Site Photographs[1]

Big Barstow Aquatic Resources Delineation – August 10, 2021; October 20, 2021; December 1, 2021; March 16, 23, 24, 2022; April 12, 13, 15, 2022; May 17, 2022; June 20, 2022



Photo 1. Downstream view of Ordinary High Water Mark (OHWM) Datasheet Point (ODP) 1 within Non-Wetland Waters (NWW-) 97, facing north, within disturbed habitat. ODP 1 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.879568, -117.105532). April 13, 2022.



Photo 2. View of Wetland Data Form Point (WDP) 1 (white arrow) within NWW-96, facing south, within tamarisk thickets. WDP 1 did not meet any of the three wetland parameters (34.878453, -117.108756). April 13, 2022.



Photo 3. Upstream view of ODP 2 within NWW-95, facing south, within disturbed habitat. ODP 2 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.877416, -117.111049). April 13, 2022.



Photo 4. Downstream view of ODP 3 within NWW-94, facing north, within disturbed habitat. ODP 3 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.873981, -117.117320). April 13, 2022.

[1] See corresponding Figure 5 series for photo point locations. See Aquatic Resources Delineation Report Sections 6 through 8 for a discussion of each feature. Photos of culvert crossings within the review area are available upon request.



Photo 5. View of WDP 2 (white arrow) within NWW-94, facing south, within disturbed habitat. WDP 2 met the wetland hydrology parameter; however, WDP 2 did not meet the hydrophytic vegetation or hydric soil parameters (34.873798, -117.117380). April 13, 2022.



Photo 6. Downstream view of ODP 4 within NWW-92, facing northwest, within unvegetated channel. ODP 4 exhibited a break in bank slope and change in average sediment texture (34.868920, -117.128573). April 13, 2022.



Photo 7. View of WDP 3 (white arrow) within NWW-89, facing north, within allscale scrub. WDP 3 did not meet any of the three wetland parameters (34.863976, -117.131649). April 13, 2022.



Photo 8. View of ODP 5 within NWW-89, facing south, within allscale scrub. ODP 5 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.864056, -117.131616). April 13, 2022.



Photo 9. Upstream view of ODP 6 within NWW-89, facing east, within allscale scrub. ODP 6 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.865275, -117.133289). April 13, 2022.



Photo 10. Upstream view of ODP 7 within NWW-89, facing south, within allscale scrub. ODP 7 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.864610, -117.135505). April 13, 2022.



Photo 11. Upstream view of ODP 8 within NWW-90, facing east, within allscale scrub. ODP 8 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.861717, -117.142712). April 13, 2022.



Photo 12. Downstream view of ODP 9 within NWW-91, facing northwest, within allscale scrub. ODP 9 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.862985, -117.140461). April 13, 2022.



Photo 13. Downstream view of ODP 10 within NWW-87, facing west, within allscale scrub. ODP 10 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.858535, -117.148911). April 13, 2022.



Photo 14. Downstream view of ODP 11 within NWW-85, facing west, within allscale scrub. ODP 11 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.85783, -117.151636). April 13, 2022.



Photo 15. View of WDP 5 (white arrow), facing west, within tamarisk thickets. WDP 5 did not meet any of the three wetland parameters (34.858121, -117.152981). April 13, 2022.



Photo 16. Downstream view of ODP 12 within NWW-82, facing northeast, within disturbed allscale scrub. ODP 12 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.856230, -117.154700). April 12, 2022.



Photo 17. Downstream view of ODP 13 within NWW-80, facing north, within allscale scrub. ODP 13 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.853895, -117.157272). April 12, 2022.



Photo 18. Downstream view of ODP 14 within NWW-73, facing north, within allscale scrub. ODP 14 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.848316, -117.165825). April 12, 2022.



Photo 19. Upstream view of ODP 15 within NWW-70, facing south, within allscale scrub. ODP 15 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.843796, -117.167803). April 12, 2022.



Photo 20. Upstream view of ODP 16 near WDP 4 within NWW-45, facing east, within allscale scrub. ODP 16 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover. WDP 4 met the wetland hydrology parameter; however, WDP 4 did not meet the hydrophytic vegetation or hydric soil parameters (34.834131, -117.182665). April 12, 2022.



Photo 21. Downstream view of ODP 17 within NWW-44, facing northwest, within unvegetated channel. ODP 17 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.829592, -117.183445). April 13, 2022.



Photo 22. View of WDP 6 (white arrow), facing west, within disturbed allscale scrub. WDP 6 did not meet any of the three wetland parameters (34.823361, -117.187915). April 13, 2022.



Photo 23. Upstream view of ODP 18 within NWW-36, facing southeast, within allscale scrub. ODP 18 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.808714, -117.201562). April 13, 2022.



Photo 24. Upstream view of ODP 19 within NWW-69, facing south, within allscale scrub. ODP 19 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.843462, -117.168631). April 12, 2022.



Photo 25. View of ODP 20 within Swale (S-) 1, facing south, within disturbed habitat. ODP 20 exhibited a change in vegetation cover; however, no other OHWM indicators were observed (34.819464, -117.189726). April 13, 2022.



Photo 26. View of WDP 7 (white arrow), facing east, within tamarisk thickets. WDP 7 met the wetland hydrology parameter; however, WDP 7 did not meet the hydrophytic vegetation or hydric soil parameters (34.814805, -117.195132). April 13, 2022.



Photo 27. Downstream view of ODP 21 within NWW-68, facing west, within creosote bush scrub. ODP 21 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.840159, -117.169936). April 12, 2022.



Photo 28. Upstream view of ODP 22 within NWW-80, facing east, within creosote bush scrub. ODP 22 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.847573, -117.153050). December 1, 2021.



Photo 29. Upstream view of ODP 23 within NWW-89, facing west, within creosote bush scrub. ODP 23 exhibited a break in slope, change in average sediment texture, and change in vegetation cover (34.858002, -117.140602). December 1, 2021.



Photo 30. Upstream view of ODP 24 within NWW-76, facing south, within creosote bush scrub. ODP 24 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.848365, -117.159487). March 16, 2022.



Photo 31. View of WDP 8 (white arrow), facing south, within tamarisk thickets. WDP 8 met the hydrophytic vegetation parameter; however, WDP 8 did not meet the wetland hydrology or hydric soil parameters (34.802127, -117.215285). April 13, 2022.



Photo 32. Downstream view of ODP 25 within NWW-89, facing north, within allscale scrub. ODP 25 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.862511, -117.131726). March 16, 2022.



Photo 33. Downstream view of ODP 26 within NWW-109 (Mojave River), facing north, within active desert dunes. ODP 26 exhibited a break in bank slope and change in vegetation species (34.875604, -117.156870). March 24, 2022.



Photo 34. View of WDP 9, facing north, within tamarisk thickets. WDP 9 met the hydrophytic vegetation parameter; however, it did not meet the wetland hydrology or hydric soil parameters (34.837722, -117.184100). April 12, 2022.



Photo 35. Upstream view of ODP 27 within NWW-60, facing west, within creosote bush scrub. ODP 27 exhibited a break in bank slope and change in vegetation species and cover (34.840443, -117.179781). March 24, 2022.



Photo 36. View of WDP 10 within NWW-60, facing north, within creosote bush scrub. WDP 10 met the wetland hydrology parameter; however, WDP 10 did not meet the hydrophytic vegetation or hydric soil parameters (34.840073, -117.179764). March 24, 2022.



Photo 37. Upstream view of ODP 28 within NWW-109 (Mojave River), facing southwest, within active desert dunes. ODP 28 exhibited a break in bank slope, change in average sediment texture, and change in vegetation species and cover (34.852795, -117.183066). October 20, 2021.



Photo 38. Downstream view of ODP 28, facing northeast, within NWW-109 (Mojave River) (34.852790, -117.183067). October 20, 2021.



Photo 39. Upstream view of ODP 29 within NWW-20, facing east, within disturbed habitat. ODP 29 exhibited a break in bank slope, change in average sediment texture, and change in vegetation cover (34.791510, -117.240752). June 20, 2022.



Photo 40. View of WDP 11, facing north, within allscale scrub. WDP 11 met the wetland hydrology parameter; however, WDP 11 did not meet the hydrophytic vegetation or hydric soil parameters (34.883779, -117.094422). June 20, 2022.



Photo 41. View of watercouse associated with NWW-49, facing north, within allscale scrub (34.837243, -117.181167). April 12, 2022



Photo 42. View of watercouse associated with NWW-59, facing west, within allscale scrub (34.839333, -117.178218). April 13, 2022



Photo 43. View of secondary channel (white dashed line), facing west, within active desert dunes habitat. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; however, this area qualified as CDFW streambed associated with the Mojave River (34.870457, -117.152712). March 24, 2022



Photo 44. View of evidence of ponding (mud cracks), facing north, within active desert dunes habitat. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; however, this area qualified as CDFW streambed associated with the Mojave River (34.860885, -117.158040). October 20, 2021



Photo 45. View of active desert dunes habitat north of the agriculture fields, facing west. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; however, this area qualified as CDFW streambed associated with the Mojave River (34.858790, -117.171585). October 20, 2021



Photo 46. View of active desert dunes habitat, facing north. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; this area also did not qualify as CDFW streambed associated with the Mojave River (34.858790, -117.171585). October 20, 2021



Photo 47. View of active desert dunes habitat, facing north. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; this area also did not qualify as CDFW streambed associated with the Mojave River (34.878000, -117.130945). August 10, 2021



Photo 48. View of active desert dunes habitat, facing north. Based on the lack of OHWM indicators, this area did not qualify as jurisdictional per the Corps/RWQCB; this area also did not qualify as CDFW streambed associated with the Mojave River (34.878558, -117.133787). August 10, 2021

APPENDIX H

AQUATIC RESOURCE SUMMARY TABLES

Table H-1. Aquatic Resource Summary: Corps/RWQCB

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-1	R6	4 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.772787, -117.284653	0.02	123
NWW-2	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.772847, -117.284610	0.01	121
NWW-3	R6	6 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773221, -117.283817	0.02	132
NWW-4	R6	3 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773653, -117.283036	0.01	113
NWW-5	R6	3 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773734, -117.282869	0.01	109
NWW-6	R6	3 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.774652, -117.281701	0.01	126
NWW-7	R6	3 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.776674, -117.278786	0.01	119
NWW-8	R6	3 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.776786, -117.278705	0.01	96
NWW-9	R6	10 – 10	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as road runoff from dirt road north of and parallel to railroad tracks.	34.778794, -117.277384	0.03	107
NWW-10	R6	1 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.778399, -117.276743	<0.01	52
NWW-11	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub; originates south of review area.	34.778377, -117.276478	0.02	223

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-12	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778670, -117.276121	0.01	127
NWW-13	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778712, -117.276024	0.01	113
NWW-14	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778886, -117.275827	0.01	133
NWW-15	R6	3 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub; originates south of review area.	34.778978, -117.275585	0.01	184
NWW-16	R6	14 – 24	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.784276, -117.262668	0.07	214
NWW-17	R6	24 – 24	CAST, CVC, BBS[4]	WH[5]	Yes/No	Disturbed Habitat[6]	Primarily unvegetated, single-thread feature within allscale scrub.	34.784361, -117.262104	0.05	81
NWW-18	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.786948, -117.252605	0.01	104
NWW-19	R6	3 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.787318, -117.251761	0.01	114
NWW-20	R6	21 – 48	CAST, CVC, BBS; See ODP 29	WH[5]	Yes/No	Disturbed Habitat[6]	Primarily unvegetated, single-thread feature within disturbed habitat; originates south of review area. (See Photo 39 on Figures 5A – 5B and Appendix G.)	34.791189, -117.241868	0.65	852
NWW-21	R6	3 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub that originates as runoff from National Trails Hwy/Main St.	34.795810, -117.228450	0.03	428
NWW-22	R6	2 – 7	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates downstream of NWW-21.	34.796559, -117.227801	0.02	176

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-23	R6	3 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.795776, -117.228162	0.02	221
NWW-24	R6	3 – 12	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.797160, -117.227759	0.11	801
NWW-25	R6	3 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.796981, -117.225815	0.07	727
NWW-26	R6	3 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.797595, -117.225008	0.07	522
NWW-27	R6	2 – 13	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, partially braided feature within allscale scrub; originates as runoff from National Trails Hwy/Main St and/or features south of National Trails Hwy (NWW-103 and NWW-104).	34.798258, -117.223204	0.18	1,155
NWW-28	R6	3 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub south of National Trails Hwy.	34.797819, -117.222127	0.01	109
NWW-29	R6	1 – 1	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub.	34.798766, -117.222983	<0.01	96
NWW-30	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.798508, -117.221906	0.03	311
NWW-31	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, small, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.798583, -117.221247	0.01	145

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-32	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub south of National Trails Hwy.	34.798456, -117.220065	<0.01	32
NWW-33	R6	3 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.799322, -117.219846	0.02	171
NWW-34	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.800955, -117.215818	0.03	572
NWW-35	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.807290, -117.203290	0.01	66
NWW-36	R6	4 – 4	CAST, CVC, BBS; See ODP 18	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area. (See Photo 23 on Figures 5A– 5B and Appendix G.)	34.808738, -117.201555	0.01	183
NWW-37	R6	6 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.809189, -117.201054	0.01	150
NWW-38	R6	5 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.809316, -117.200892	0.01	141
NWW-39	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.809671, -117.200471	<0.01	182
NWW-40	R6	6 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.810099, -117.199975	0.01	155
NWW-41	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.810323, -117.199718	0.01	172
NWW-42	R6	8 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.811425, -117.198424	0.02	175

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-43	R6	12 – 12	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; indicators of flow not present before dirt road.	34.826693, -117.188511	0.13	475
NWW-44	R6	2 – 80	CAST, CVC, BBS; See ODP 17	WH[5]	Yes/No	Unvegetated Channel	Large, primarily unvegetated feature fed by culvert along Hinkley Road and road runoff from National Trails Hwy and/or features south of National Trails Hwy (NWW-105 and NWW-106).; located within unvegetated channel and allscale scrub; feature runs along berm (earthen-lined and partially concrete); feature enlarges near railroad crossing. (See Photo 21 on Figures 5A– 5B and Appendix G.)	34.829248, -117.186429	3.13	5,956
NWW-45	R6	2 – 6	CAST, CVC, BBS; See ODP 16	WH; see WDP 4	Yes/No	Allscale Scrub[6]; See WDP 4	Primarily unvegetated braided feature within allscale scrub; feature initiates at and is sourced by a residential lot. (See Photo 20 on Figures 5A– 5B and Appendix G.)	34.834684, -117.182237	0.21	2,468
NWW-46	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated braided feature within allscale scrub between hillslopes.	34.835168, -117.181479	0.06	1,172
NWW-47	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from two dirt roads leading from National Trails Hwy.	34.833706, -117.176283	0.04	580
NWW-48	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.836991, -117.181122	0.03	481
NWW-49	R6	2 – 10	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, large braided and interwoven feature with multiple tributaries within allscale scrub between hillslopes.	34.836110, -117.179064	0.73	7,138
NWW-50	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.837239, -117.179203	0.02	461

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-51	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.837464, -117.178078	0.04	842
NWW-52	R6	3 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.837867, -117.177679	0.04	562
NWW-53	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.837648, -117.177101	0.07	1,131
NWW-54	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.835210, -117.172619	0.02	354
NWW-55	R6	2 – 10	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.835454, -117.171863	0.02	170
NWW-56	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.835773, -117.172617	0.02	252
NWW-57	R6	2 – 7	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.836014, -117.172631	0.02	264
NWW-58	R6	2 – 14	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub.	34.838348, -117.176084	0.50	4,358
NWW-59	R6	1- 13	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Large, primarily unvegetated, fan feature with multiple braids and heavily interwoven throughout; upstream portion of the feature runs through various hillslopes and fans downstream; within allscale scrub and creosote bush scrub; portions originate as runoff from National Trails Hwy and/or feature south of National Trails Hwy (NWW-107).	34.838248, -117.174160	0.75	8,262
NWW-60	R6	6 – 51	CVS, CVC, BBS; See ODP 27	WH; See WDP 10	Yes/No	Creosote Bush Scrub	Vegetated feature north of railroad tracks within creosote bush scrub; receives sheet flows from dirt road north of and parallel to railroad tracks. (See Photos 35 and 36 on Figures 5A– 5B and Appendix G.)	34.840401, -117.179750	0.17	188

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-61	R6	1 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from National Trails Hwy/Main St.	34.837031, -117.169791	0.05	910
NWW-62	R6	2 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated feature within allscale scrub between hillslopes; multiple tributaries.	34.840397, -117.175307	0.14	1,696
NWW-63	R6	2 – 6	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated feature within allscale scrub between hillslopes; multiple tributaries.	34.840934, -117.174275	0.20	2,174
NWW-64	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.841711, -117.174418	0.04	538
NWW-65	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub within hillslopes.	34.842293, -117.173643	0.02	482
NWW-66	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, double-thread feature within allscale scrub within hillslopes.	34.843147, -117.172457	0.08	1,260
NWW-67	R6	1 – 12	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated feature with multiple tributaries upstream within creosote bush scrub.	34.841131, -117.171984	0.22	2,373
NWW-68	R6	1 – 12	CAST, CVC, BBS; See ODP 21	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, braided feature within creosote bush scrub; originates as runoff from National Trails Hwy/Main St. (See Photo 27 on Figures 5A– 5B and Appendix G.)	34.839992, -117.170094	0.34	5,708
NWW-69	R6	2 – 8	CAST, CVC, BBS; See ODP 19	WH[5]	Yes/No	Allscale Scrub[6]	Large, primarily unvegetated, braided and interwoven feature within allscale scrub and creosote bush scrub between hillslopes. (See Photo 24 on Figures 5A– 5B and Appendix G.)	34.842933, -117.168625	0.68	6,858

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-70	R6	1 – 20	CAST, CVC, BBS; See ODP 15	WH[5]	Yes/No	Creosote Bush Scrub[6]	Large, primarily unvegetated, braided and interwoven feature with multiple mainstems fed by various tributaries; located within allscale scrub and creosote bush scrub between hillslopes; originates as runoff from unnamed dirt roads leading from National Trails Hwy. (See Photo 19 on Figures 5A– 5B and Appendix G.)	34.842209, -117.166408	2.09	18,554
NWW-71	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.844554, -117.165718	0.10	1,128
NWW-72	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.845370, -117.166236	0.04	427
NWW-73	R6	2 – 12	CAST, CVC, BBS; See ODP 14	WH[5]	Yes/No	Allscale Scrub[6]	Large, primarily unvegetated, interwoven feature with multiple mainstems fed by various tributaries within allscale scrub and creosote bush scrub; originates as runoff from unnamed dirt roads leading from National Trails Hwy. (See Photo 18 on Figures 5A– 5B and Appendix G.)	34.844453, -117.163545	1.24	13,348
NWW-74	R6	2 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from unnamed dirt road.	34.846950, -117.162756	0.17	1,582
NWW-75	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, double-thread feature within allscale scrub.	34.845550, -117.159978	0.04	487
NWW-76	R6	2 – 13	CAST, CVC, BBS; See ODP 24	WH[5]	Yes/No	Allscale Scrub[6]	Large, primarily unvegetated, braided feature with multiple tributaries within allscale scrub; originates as runoff from unnamed dirt road leading from National Trails Hwy. (See Photo 30 on Figures 5A– 5B and Appendix G.)	34.848019, -117.159133	0.86	8,649

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-77	R6	2 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated feature with one tributary within allscale scrub in between hillslopes; originates as runoff from unnamed dirt road leading from National Trails Hwy.	34.847129, -117.156396	0.16	1,677
NWW-78	R6	2 – 2	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.848845, -117.157242	0.01	278
NWW-79	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, braided feature within allscale scrub; originates as runoff from unnamed dirt road.	34.850248, -117.158057	0.13	1,874
NWW-80	R6	1 – 20	CAST, CVC, BBS; See ODP 13 and 22	WH[5]	Yes/No	Creosote Bush Scrub[6]	Large, primarily unvegetated, braided and interwoven feature with multiple mainstems fed by various tributaries within creosote bush scrub; originates as runoff from National Trails Hwy/Main St and/or feature south of National Trails Hwy (NWW-108); portions of feature display disturbance by off-road vehicle usage. (See Photos 17 and 28 on Figures 5A– 5B and Appendix G.)	34.850680, -117.154564	2.02	15,877
NWW-81	R6	2 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub.	34.853340, -117.156269	0.12	1,229
NWW-82	R6	1 – 15	CAST, CVC, BBS; See ODP 12	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, braided feature within allscale scrub and creosote bush scrub; heavily eroded where feature runs parallel to railroad tracks. (See Photo 16 on Figures 5A– 5B and Appendix G.)	34.854433, -117.152784	0.64	8,328
NWW-83	R6	2 – 3	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.856239, -117.153167	0.01	250
NWW-84	R6	1 – 1	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, single-thread feature within creosote bush scrub.	34.854958, -117.146066	0.02	909

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-85	R6	1 – 5	CAST, CVC, BBS; See ODP 11	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated feature with multiple tributaries within allscale scrub; originates as runoff from unnamed dirt road. (See Photo 11 on Figures 5A– 5B and Appendix G.)	34.857281, -117.149898	0.31	3,921
NWW-86	R6	3 – 3	CAST, CVC, BBS[5]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from unnamed dirt road.	34.856698, -117.147965	0.02	218
NWW-87	R6	2 – 4	CAST, CVC, BBS; See ODP 10	WH[5]	Yes/No	Creosote Bush Scrub[6]	Primarily unvegetated, double-thread feature within creosote bush scrub; originates as runoff from unnamed dirt road. (See Photo 13 on Figures 5A– 5B and Appendix G.)	34.857936, -117.147949	0.13	2,162
NWW-88	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from unnamed dirt road.	34.858906, -117.148308	0.04	403
NWW-89	R6	1 – 18	CAST, CVC, BBS; see ODP 5, 6, 7, 23, 25	None; See WDP 3	Yes/No	Allscale Scrub[6]	Large, primarily unvegetated feature within allscale scrub, creosote bush scrub, and disturbed habitat that consists of two large mainstems with several tributaries; eastern main stem originates south of National Trails Hwy/Main St before traveling through a culvert, western main stem originates as runoff from Mockingbird Rd (dirt road); disturbed by off-road vehicle use and obstructions (tree logs) likely placed by adjacent residential lot residents; heavily eroded downstream near manipulated and heavily used dirt roads adjacent to the railroad tracks. (See Photos 7 – 10, 29, and 32 on Figures 5A– 5B and Appendix G.)	34.863711, -117.134655	1.39	12,490

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-90	R6	2 – 6	CAST, CVC, BBS; See ODP 8	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from unnamed dirt road. (See Photo 11 on Figures 5A– 5B and Appendix G.)	34.860552, -117.142795	0.08	995
NWW-91	R6	2 – 2	CAST, CVC, BBS; See ODP 9	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, small, single-thread feature within allscale scrub near residential lots; originates as runoff from upstream residential lot and Dundee St. (See Photo 12 on Figures 5A– 5B and Appendix G.)	34.863147, -117.140564	0.01	150
NWW-92	R6	8 – 40	CAST, BBS; See ODP 4	WH[5]	Yes/No	Unvegetated Channel	Primarily unvegetated, large, trapezoidal feature (San Bernardino County Flood Control District Channel) within heavily manipulated, unvegetated channel; evidence of off-road vehicle use; originates south of Main St/National Trails Hwy. (See Photo 6 on Figures 5A– 5B and Appendix G.)	34.874455, -117.131291	1.32	4,629
NWW-93	R6	3 – 20	CAST, CVC, BBS[4]	WH[5]	Yes/No	Disturbed Habitat[6]	Rip-rap feature within developed and fenced area; originates at culvert outlet near intersection of National Trails Hwy and Lenwood Rd; downstream extent is large, rip-rap, circular, unvegetated drainage area containing a culvert inlet.	34.873485, -117.118709	0.06	409
NWW-94	R6	6 – 6	CAST, CVC, BBS; See ODP 3	WH; See WDP 2	Yes/No	Disturbed Habitat[6]	Primarily unvegetated feature within disturbed habitat; feature initiates from large stormwater concrete channelized structure. (See Photos 4 and 5 on Figures 5A– 5B and Appendix G.)	34.874055, -117.117372	0.06	401
NWW-95	R6	2 – 5	CAST, CVC, BBS; See ODP 2	WH[5]	Yes/No	Disturbed Habitat[6]	Primarily unvegetated, single-thread feature within disturbed habitat that outlets from culvert along National Trails Hwy; manipulation on the eastern slopes. (See Photo 3 on Figures 5A– 5B and Appendix G.)	34.877087, -117.110926	0.03	307

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-96	R6	5 – 5	CAST, CVC, BBS[4]	None; See WDP 1	Yes/No; See WDP 1	Disturbed Habitat	Primarily heavily vegetated, disturbed, single-thread feature within disturbed habitat and tamarisk thickets; originates as road runoff from National Trails Hwy. (See Photo 2 on Figures 5A– 5B and Appendix G.)	34.878268, -117.108708	0.05	439
NWW-97	R6	3 – 3	CAST, CVC, BBS; See ODP 1	WH[5]	Yes/No	Disturbed Habitat[6]	Primarily unvegetated, single-thread feature generally within disturbed habitat; feature drains through private commercial lots and outputs across a culvert crossing. (See Photo 1 on Figures 5A– 5B and Appendix G.)	34.879422, -117.105552	0.03	506
NWW-98	R6	4 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub – Disturbed[6]	Small, unvegetated single-thread feature within allscale scrub – disturbed habitat that originates as runoff from dirt road parallel to the north side of railroad tracks.	34.880017, -117.105950	0.01	124
NWW-99	R6	2 – 4	CAST, CVC, BBS[4]	WH[5]	Yes/No	Disturbed Habitat	Vegetated, single-thread feature within disturbed habitat that originates at culvert north of Main St/National Trails Hwy.	34.880936, -117.101226	0.03	353
NWW-100	R6	2 – 13	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated feature within allscale scrub with several tributaries that travels through several culverts; originates as runoff from and at a culvert north of Main St/National Trails Hwy.	34.882602, -117.095407	0.34	2,524
NWW-101	R6	3 – 28	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated feature within allscale scrub with multiple tributaries that travels through several culverts; originates as runoff from and at a culvert north of Main St/National Trails Hwy.	34.883416, -117.092671	0.29	1,003
NWW-102	R6	2 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated feature within allscale scrub that originates as runoff from Main St/National Trails Hwy.	34.883038, -117.091930	0.01	99

Aquatic Resource Name (Corps/ RWQCB)	Cowardin Code	Active Channel Width Range (Feet)	Observed OHWM Indicators[1]	Observed Wetland Parameters[2]	Presence of OHWM/ Wetland	Dominant Vegetation[3]	General Characteristics	Location (Latitude, Longitude)	Acre(s)	Linear Feet
NWW-103	R6	4 – 15	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy and converge with NWW-27.	34.797426, -117.223080	0.01	43
NWW-104	R6	4 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy and converge with NWW-27.	34.797510, -117.222886	0.01	70
NWW-105	R6	8 – 8	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Small, primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy and converge with NWW-44.	34.828712, -117.182373	0.01	29
NWW-106	R6	12 – 12	CAST, CVC, BBS[4]	WH[5]	Yes/No	Allscale Scrub[6]	Primarily unvegetated, single-thread feature within allscale scrub that may continue over Main St/National Trails Hwy and converge with NWW-44.	34.828907, -117.182084	0.01	36
NWW-107	R6	3 – 5	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub[6]	Small, primarily unvegetated, single-thread feature within creosote bush scrub that may continue over Main St/National Trails Hwy converge with NWW-59.	34.835555, -117.169501	<0.01	51
NWW-108	R6	16 – 16	CAST, CVC, BBS[4]	WH[5]	Yes/No	Creosote Bush Scrub – Disturbed[6]	Primarily unvegetated, single-thread feature within creosote bush scrub – disturbed that may continue over Main St/National Trails Hwy and converge with NWW-80.	34.847053, -117.151904	0.01	36
NWW-109 (Mojave River)	R4	500 – 1400	CAST, CVS, CVC, BBS; See ODP 26 and 28	WH[5]	Yes/No	Active Desert Dunes	Sparsely vegetated, dry, sandy wash that comprises the on-site extent of the Mojave River; generally flows southwest to northeast before continuing off site. (See Photos 33, 37, and 38 on Figures 5A – 5B and Appendix G.)	34.863277, -117.170128	104.30	4,818
								Total	125.58	177,864

[1] OHWM Indicators: CAST = Change in average sediment texture; CVS = Change in vegetation species; CVC = Change in vegetation cover; BBS = Break in bank slope

[2] Wetland Indicators: WH = Wetland Hydrology
[3] See Figure 6 for all vegetation communities present within/around each aquatic resource.
[4] Based on a representative ODP taken within an aquatic resource with similar conditions.
[5] Based on a representative WDP taken within an aquatic resource with similar conditions.
[6] Unvegetated within mapped vegetation community; however, no vegetation technically present within the OHWM.
[7] Acreages and linear feet totals were summed using raw numbers provided during GIS analysis (available upon request) and thus, the sum of the total rounded numbers may not directly add up in this table.

Table H-2. Aquatic Resource Summary: CDFW

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-1	Unvegetated Streambed[3]	Allscale Scrub[4]	6 – 12	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.772787, -117.284653	0.02	123
NWW-2	Unvegetated Streambed[3]	Allscale Scrub[4]	6 – 6	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.772847, -117.284610	0.02	121
NWW-3	Unvegetated Streambed[3]	Allscale Scrub[4]	6 – 6	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773221, -117.283817	0.02	132
NWW-4	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 8	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773653, -117.283036	0.02	113
NWW-5	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 8	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.773734, -117.282869	0.01	109
NWW-6	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 8	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.774652, -117.281701	0.02	126
NWW-7	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 5	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.776674, -117.278786	0.01	119
NWW-8	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.776786, -117.278705	0.01	96
NWW-9	Unvegetated Streambed[3]	Allscale Scrub[4]	35 – 35	Primarily unvegetated, single-thread feature within allscale scrub; originates as road runoff from dirt road north of and parallel to railroad tracks.	34.778794, -117.277384	0.10	107
NWW-10	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.778399, -117.276743	<0.01	52
NWW-11	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 4	Small, primarily unvegetated, double-thread feature within allscale scrub; originates south of review area.	34.778377, -117.276478	0.02	223
NWW-12	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778670, -117.276121	0.01	127
NWW-13	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 6	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778712, -117.276024	0.01	113

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-14	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.778886, -117.275827	0.01	133
NWW-15	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 4	Small, primarily unvegetated, double-thread feature within allscale scrub; originates south of review area.	34.778978, -117.275585	0.01	184
NWW-16	Unvegetated Streambed[3]	Allscale Scrub[4]	16 – 24	Primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.784276, -117.262668	0.08	214
NWW-17	Unvegetated Streambed[3]	Allscale Scrub[4]	27 – 27	Primarily unvegetated, single-thread feature within allscale scrub.	34.784361, -117.262104	0.06	81
NWW-18	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.786948, -117.252605	0.01	104
NWW-19	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 5	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.787318, -117.251761	0.01	114
NWW-20	Unvegetated Streambed[3]	Disturbed Habitat[4]	33 – 96	Primarily unvegetated, single-thread feature within disturbed habitat; originates south of review area. (See Photo 39 on Figure 5C and Appendix G.)	34.791189, -117.241868	1.32	852
NWW-21	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 15	Primarily unvegetated, single-thread feature within allscale scrub that originates as runoff from National Trails Hwy/Main St.	34.795810, -117.228450	0.09	428
NWW-22	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 7	Primarily unvegetated, single-thread feature within allscale scrub; originates downstream of NWW-21.	34.796559, -117.227801	0.02	176
NWW-23	Unvegetated Streambed[3]	Allscale Scrub[4]	8 – 16	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.795776, -117.228162	0.07	221
NWW-24	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 20	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.797160, -117.227759	0.22	801
NWW-25	Unvegetated Streambed[3]	Allscale Scrub[4]	5 – 15	Primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.796981, -117.225815	0.16	727

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-26	Unvegetated Streambed[3]	Allscale Scrub[4]	5 – 15	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.797595, -117.225008	0.16	522
NWW-27	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 20	Primarily unvegetated, partially braided feature within allscale scrub; originates as runoff from National Trails Hwy/Main St and/or features south of National Trails Hwy (NWW-103 and NWW-104); watercourse mapped throughout.	34.798258, -117.223204	0.26	1,155
	Watercourse[5]	Allscale Scrub	N/A			2.58	–
NWW-28	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 5	Small, primarily unvegetated, double-thread feature within allscale scrub south of National Trails Hwy; watercourse mapped throughout	34.797819, -117.222127	0.01	109
	Watercourse[5]	Allscale Scrub	N/A			0.16	–
NWW-29	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Primarily unvegetated, single-thread feature within allscale scrub; occurs within watercourse mapped as associated with NWW-27.	34.798766, -117.222983	<0.01	96
NWW-30	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 12	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.798508, -117.221906	0.05	311
NWW-31	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 10	Primarily unvegetated, small, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.798583, -117.221247	0.03	145
NWW-32	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub south of National Trails Hwy; watercourse mapped throughout.	34.798456, -117.220065	<0.01	32
	Watercourse[5]	Allscale Scrub	N/A			0.16	–
NWW-33	Unvegetated Streambed[3]	Allscale Scrub[4]	5 – 18	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.799322, -117.219846	0.05	171
NWW-34	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.800955, -117.215818	0.03	572
NWW-35	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.807290, -117.203290	0.01	66

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-36	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area; watercourse mapped throughout. (See Photo 23 on Figure 5C and Appendix G.)	34.808738, -117.201555	0.01	183
	Watercourse[5]	Allscale Scrub	N/A			0.11	–
NWW-37	Unvegetated Streambed[3]	Allscale Scrub[4]	6 – 6	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area; watercourse mapped throughout.	34.809189, -117.201054	0.01	150
	Watercourse[5]	Allscale Scrub	N/A			0.21	–
NWW-38	Unvegetated Streambed[3]	Allscale Scrub[4]	5 – 5	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area; occurs within watercourse mapped as associated with NWW-37.	34.809316, -117.200892	0.01	141
NWW-39	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.809671, -117.200471	<0.01	182
NWW-40	Unvegetated Streambed[3]	Allscale Scrub[4]	6 – 6	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area; watercourse mapped throughout.	34.810099, -117.199975	0.01	155
	Watercourse[5]	Allscale Scrub	N/A			0.29	–
NWW-41	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area; occurs within watercourse mapped as associated with NWW-40.	34.810323, -117.199718	0.01	172
NWW-42	Unvegetated Streambed[3]	Allscale Scrub[4]	8 – 8	Small, primarily unvegetated, single-thread feature within allscale scrub; originates south of review area.	34.811425, -117.198424	0.02	175
NWW-43	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	20 – 20	Primarily unvegetated, single-thread feature within creosote bush scrub; indicators of flow not present before dirt road.	34.826693, -117.188511	0.34	475

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-44	Unvegetated Streambed[3]	Unvegetated Channel	2 - 150	Large, primarily unvegetated feature fed by culvert along Hinkley Road and road runoff from National Trails Hwy and/or features south of National Trails Hwy (NWW-105 and NWW-106).; located within unvegetated channel and allscale scrub; feature runs along berm (earthen-lined and partially concrete); feature enlarges near railroad crossing. (See Photo 21 on Figure 5C and Appendix G.)	34.829248, -117.186429	3.72	5,956
NWW-45	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 6	Primarily unvegetated braided feature within allscale scrub; feature initiates at and is sourced by a residential lot; watercourse present throughout some portions of feature. (See Photo 20 on Figure 5C and Appendix G.)	34.834684, -117.182237	0.21	2,468
	Watercourse[5]	Allscale Scrub	N/A			0.66	–
NWW-46	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 4	Primarily unvegetated braided feature within allscale scrub between hillslopes.	34.835168, -117.181479	0.06	1,172
NWW-47	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 4	Small, primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from two dirt roads leading from National Trails Hwy.	34.833706, -117.176283	0.04	580
NWW-48	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub; portion occurs within watercourse mapped as associated with NWW-49.	34.836991, -117.181122	0.03	481
NWW-49	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 10	Primarily unvegetated, large braided and interwoven feature with multiple tributaries within allscale scrub between hillslopes; watercourse present throughout some portions of feature. (See Photo 41 on Figure 5C and Appendix G.)	34.836110, -117.179064	0.73	7,138
	Watercourse[5]	Allscale Scrub	N/A			1.62	–
NWW-50	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.837239, -117.179203	0.02	461
NWW-51	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.837464, -117.178078	0.04	842
NWW-52	Unvegetated Streambed[3]	Allscale Scrub[4]	3 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.837867, -117.177679	0.04	562

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-53	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 3	Primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.837648, -117.177101	0.07	1,131
NWW-54	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 3	Small, primarily unvegetated, single-thread feature within allscale scrub; originates as runoff from National Trails Hwy/Main St.	34.835210, -117.172619	0.02	354
NWW-55	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 10	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.835454, -117.171863	0.02	170
NWW-56	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 5	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.835773, -117.172617	0.02	252
NWW-57	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 7	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.836014, -117.172631	0.02	264
NWW-58	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 14	Primarily unvegetated, single-thread feature within allscale scrub.	34.838348, -117.176084	0.50	4,358
NWW-59	Unvegetated Streambed[3]	Allscale Scrub[4]	1 – 16	Large, primarily unvegetated, fan feature with multiple braids and heavily interwoven throughout; upstream portion of the feature runs through various hillslopes and fans downstream; within allscale scrub and creosote bush scrub; portions originate as runoff from National Trails Hwy and/or feature south of National Trails Hwy (NWW-107); watercourse present throughout some portions of feature. (See Photo 42 on Figure 5C and Appendix G.)	34.838248, -117.174160	0.82	8,262
	Watercourse[5]	Allscale Scrub	N/A			9.45	–
NWW-60	Vegetated Streambed[3]	Creosote Bush Scrub	6 – 51	Vegetated feature north of railroad tracks within creosote bush scrub; receives sheet flows from dirt road north of and parallel to railroad tracks. (See Photos 35 and 36 on Figure 5C and Appendix G.)	34.840401, -117.179750	0.17	188
NWW-61	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 12	Primarily unvegetated, single-thread feature within creosote bush scrub; originates as runoff from National Trails Hwy/Main St.	34.837031, -117.169791	0.08	910
NWW-62	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 8	Primarily unvegetated feature within allscale scrub between hillslopes; multiple tributaries.	34.840397, -117.175307	0.14	1,696

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-63	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 6	Primarily unvegetated feature within allscale scrub between hillslopes; multiple tributaries.	34.840934, -117.174275	0.20	2,174
NWW-64	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 4	Small, primarily unvegetated, double-thread feature within allscale scrub between hillslopes.	34.841711, -117.174418	0.04	538
NWW-65	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, single-thread feature within allscale scrub within hillslopes.	34.842293, -117.173643	0.02	482
NWW-66	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 3	Primarily unvegetated, double-thread feature within allscale scrub within hillslopes.	34.843147, -117.172457	0.08	1,260
NWW-67	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 12	Primarily unvegetated feature with multiple tributaries upstream within creosote bush scrub.	34.841131, -117.171984	0.22	2,373
NWW-68	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 12	Primarily unvegetated, braided feature within creosote bush scrub; originates as runoff from National Trails Hwy/Main St; watercourse present throughout some portions of feature. (See Photo 27 on Figure 5C and Appendix G.)	34.839992, -117.170094	0.36	5,708
	Watercourse[5]	Creosote Bush Scrub	N/A			0.51	–
NWW-69	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 8	Large, primarily unvegetated, braided and interwoven feature within allscale scrub and creosote bush scrub between hillslopes; watercourse present throughout some portions of feature. (See Photo 24 on Figure 5C and Appendix G.)	34.842933, -117.168625	0.68	6,858
	Watercourse[5]	Allscale Scrub	N/A			0.83	–
NWW-70	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	1 – 20	Large, primarily unvegetated, braided and interwoven feature with multiple mainstems fed by various tributaries; located within allscale scrub and creosote bush scrub between hillslopes; originates as runoff from unnamed dirt roads leading from National Trails Hwy; watercourse present throughout some portions of feature. (See Photo 19 on Figure 5C and Appendix G.)	34.842209, -117.166408	2.10	18,554
	Watercourse[5]	Allscale Scrub	N/A			6.25	–
NWW-71	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.844554, -117.165718	0.10	1,128
NWW-72	Unvegetated Streambed[3]	Allscale Scrub[4]	4 – 4	Small, primarily unvegetated, single-thread feature within allscale scrub between hillslopes.	34.845370, -117.166236	0.04	427

Aquatic Resource Name (CDFW)	Aquatic Resource Type	Dominant Vegetation Community	Width Range[1] (Min to Max) (Linear Feet)	General Characteristics	Location (Latitude, Longitude)	Acres	Linear Feet[2]
NWW-73	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 12	Large, primarily unvegetated, interwoven feature with multiple mainstems fed by various tributaries within allscale scrub and creosote bush scrub; originates as runoff from unnamed dirt roads leading from National Trails Hwy. (See Photo 18 on Figure 5C and Appendix G.)	34.844453, -117.163545	1.24	13,348
NWW-74	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 8	Primarily unvegetated, double-thread feature within allscale scrub; originates as runoff from unnamed dirt road.	34.846950, -117.162756	0.17	1,582
NWW-75	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 4	Small, primarily unvegetated, double-thread feature within allscale scrub.	34.845550, -117.159978	0.04	487
NWW-76	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 13	Large, primarily unvegetated, braided feature with multiple tributaries within allscale scrub; originates as runoff from unnamed dirt road leading from National Trails Hwy; watercourse present throughout some portions of feature. (See Photo 30 on Figure 5C and Appendix G.)	34.848019, -117.159133	0.86	8,649
	Watercourse[5]	Allscale Scrub	N/A			15.45	–
NWW-77	Unvegetated Streambed[3]	Creosote Bush Scrub[4]	2 – 8	Primarily unvegetated feature with one tributary within allscale scrub in between hillslopes; originates as runoff from unnamed dirt road leading from National Trails Hwy; downstream extent continues into watercourse associated with NWW-76.	34.847129, -117.156396	0.17	1,677
NWW-78	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 2	Small, primarily unvegetated, single-thread feature within allscale scrub.	34.848845, -117.157242	0.01	278
NWW-79	Unvegetated Streambed[3]	Allscale Scrub[4]	2 – 5	Primarily unvegetated, braided feature with island within allscale scrub; originates as runoff from unnamed dirt road.	34.850248, -117.158057	0.13	1,874