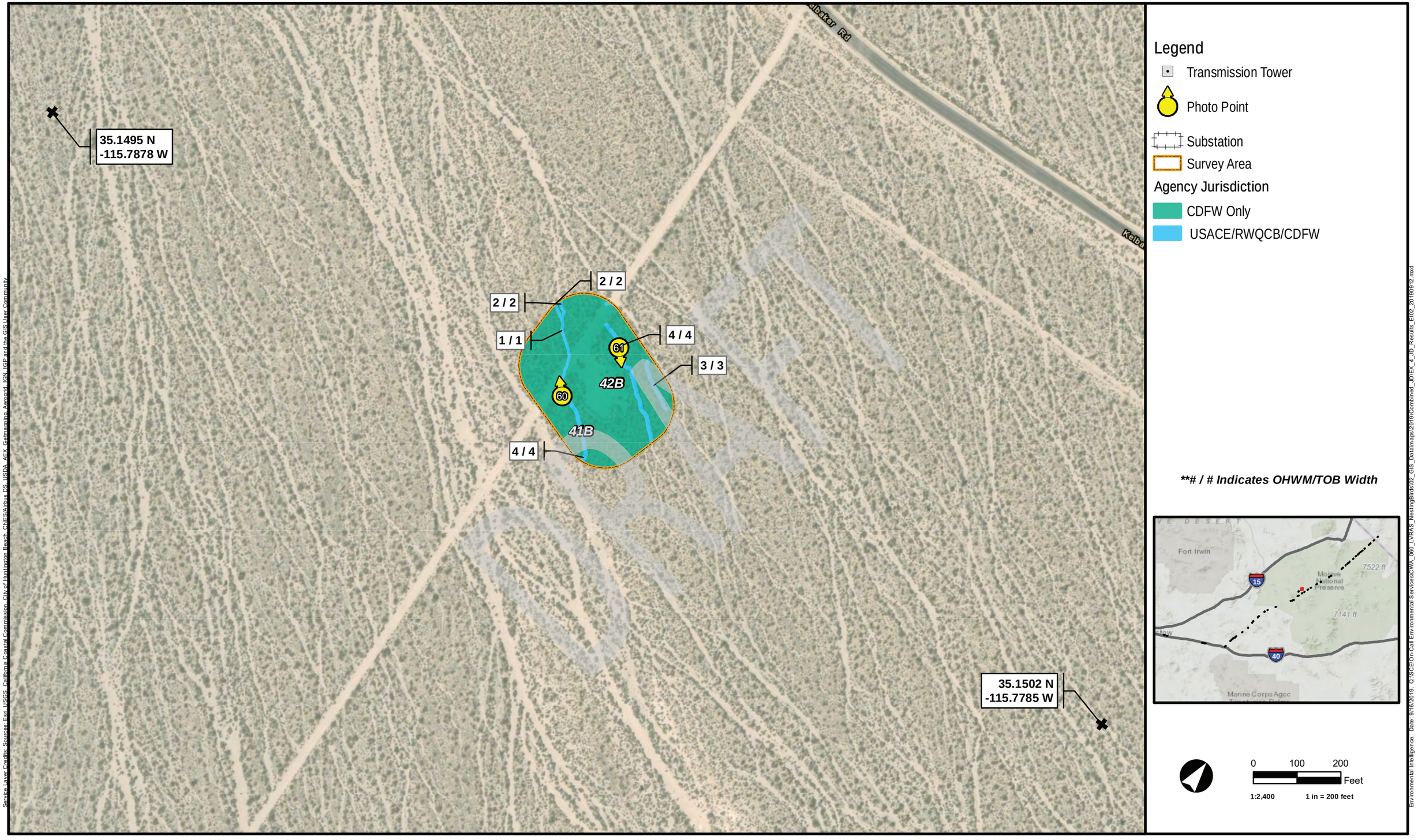

35.1495 N
-115.7878 W
Kelbaker Rd
2 / 2
2 / 2
1 / 1
4 / 4
3 / 3
61
60
42B
41B
4 / 4
35.1502 N
-115.7785 W
Legend
Transmission Tower
Photo Point
Substation
Survey Area
Agency Jurisdiction
CDFW Only
USACE/RWQCB/CDFW
**# / # Indicates OHWM/TOB Width
Fort Irwin
Mojave National Preserve
7522 ft
7141 ft
15
40
Marine Corps Agcc
0
100
200
Feet
1:2,400
1 in = 200 feet
Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community
Environmental Intelligence; Date: 9/16/2019; Q:\SCE\On-Call Environmental Services\CWA_0060_LVKAS_Nesting\mxds\02_GIS_Deliverables\2019\Combined_DDEX_4_DD_Results_Et02_20190912.mxd

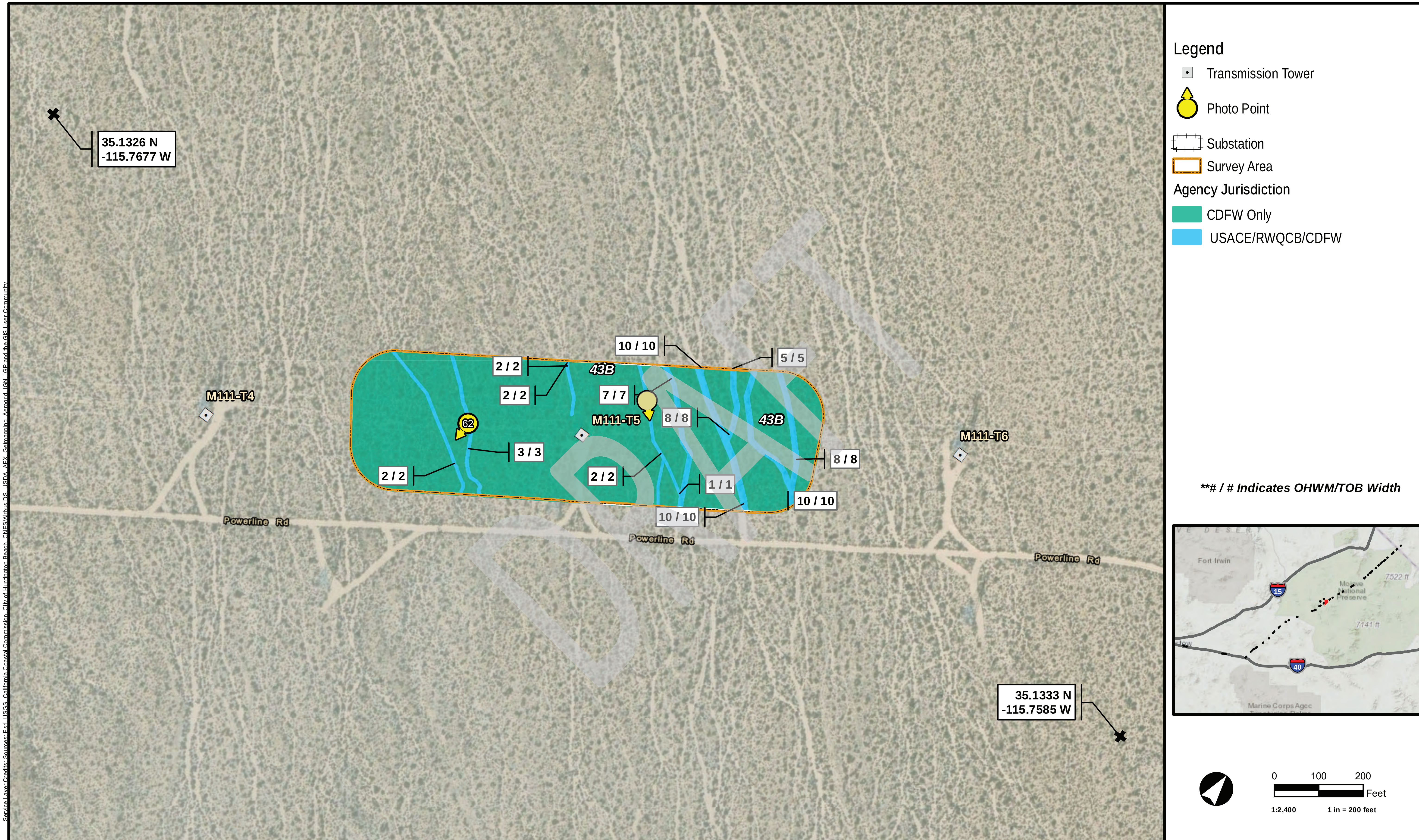


Exhibit 4. Jurisdictional Delineation Results (Page 33 of 57)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

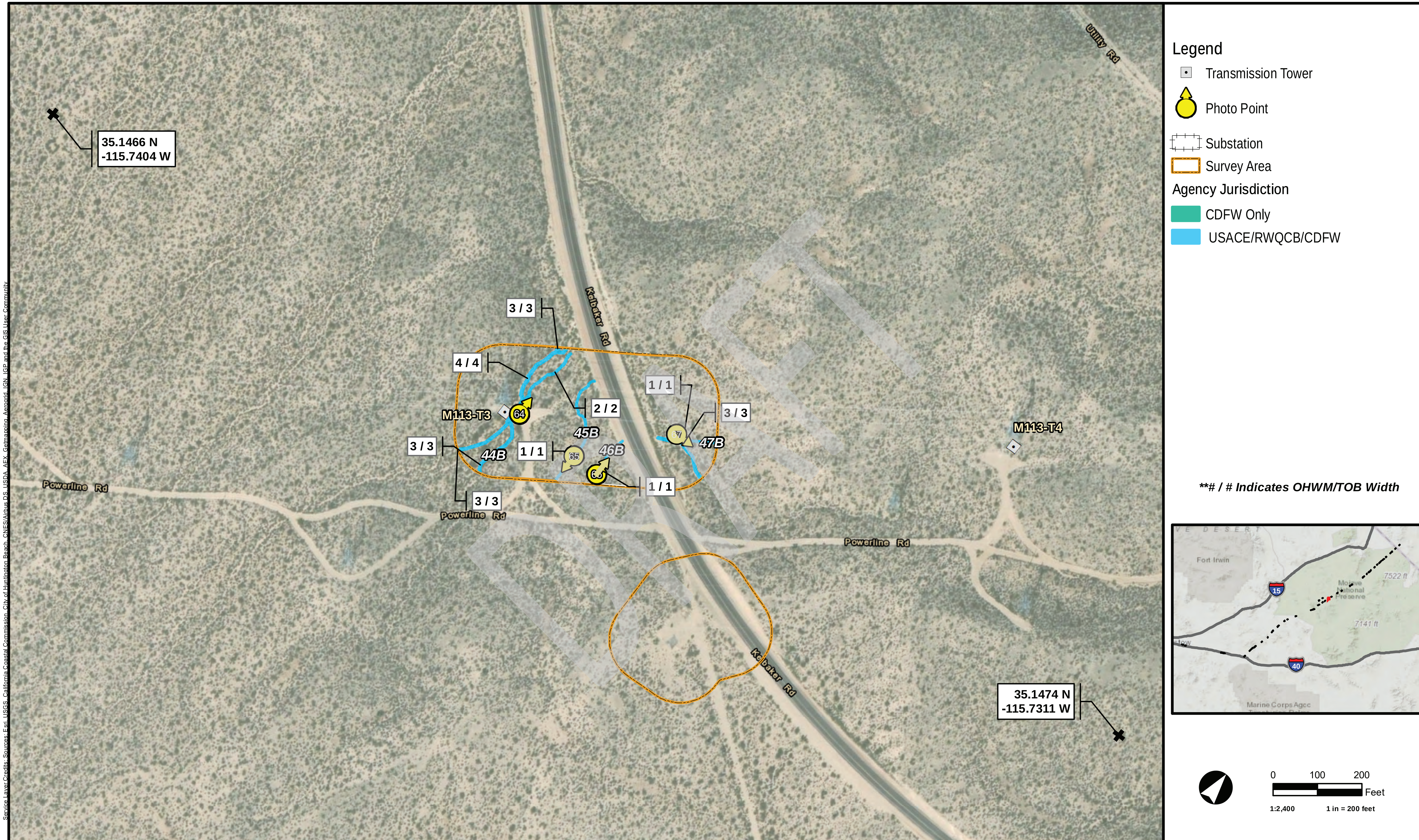
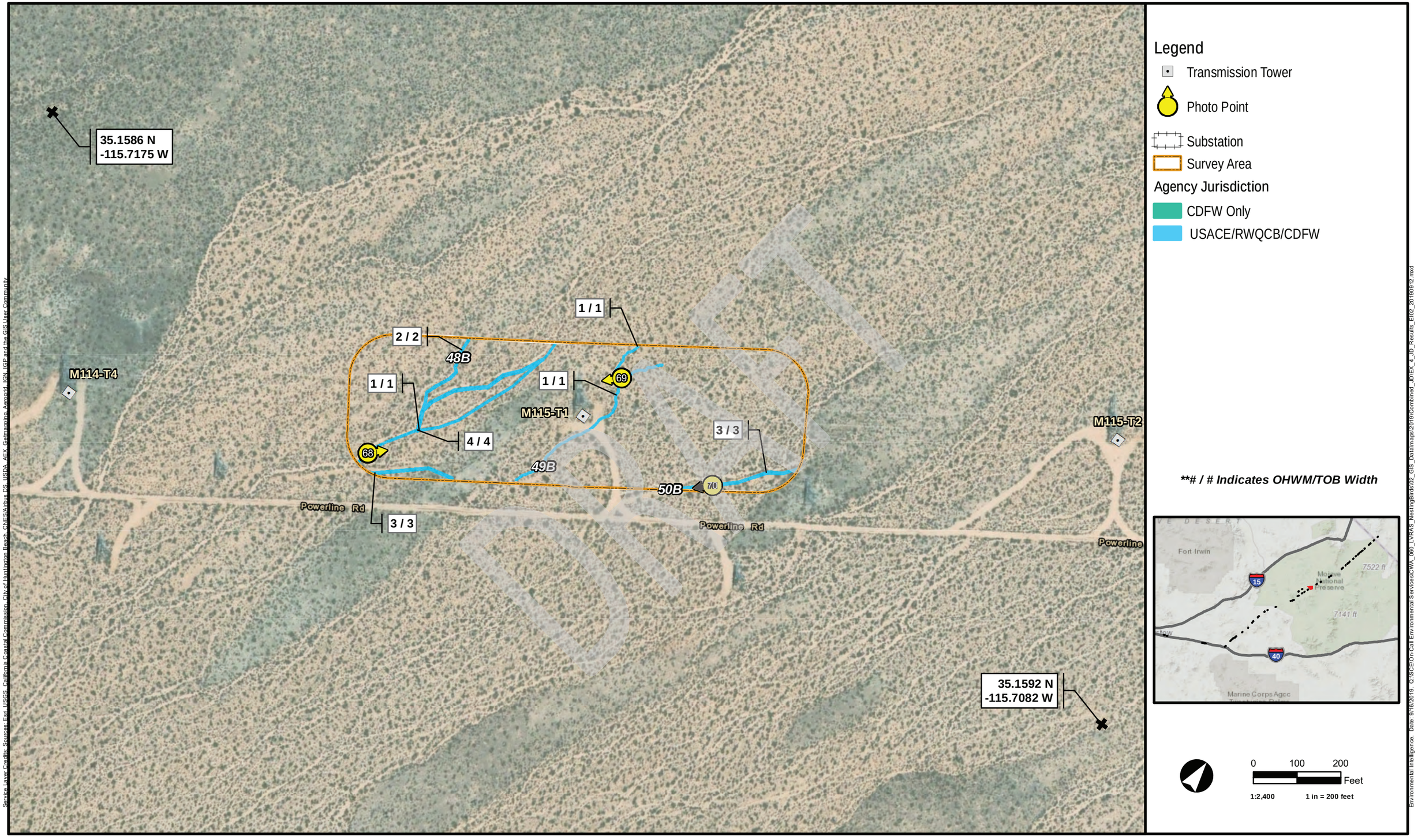


Exhibit 4. Jurisdictional Delineation Results (Page 34 of 57)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV



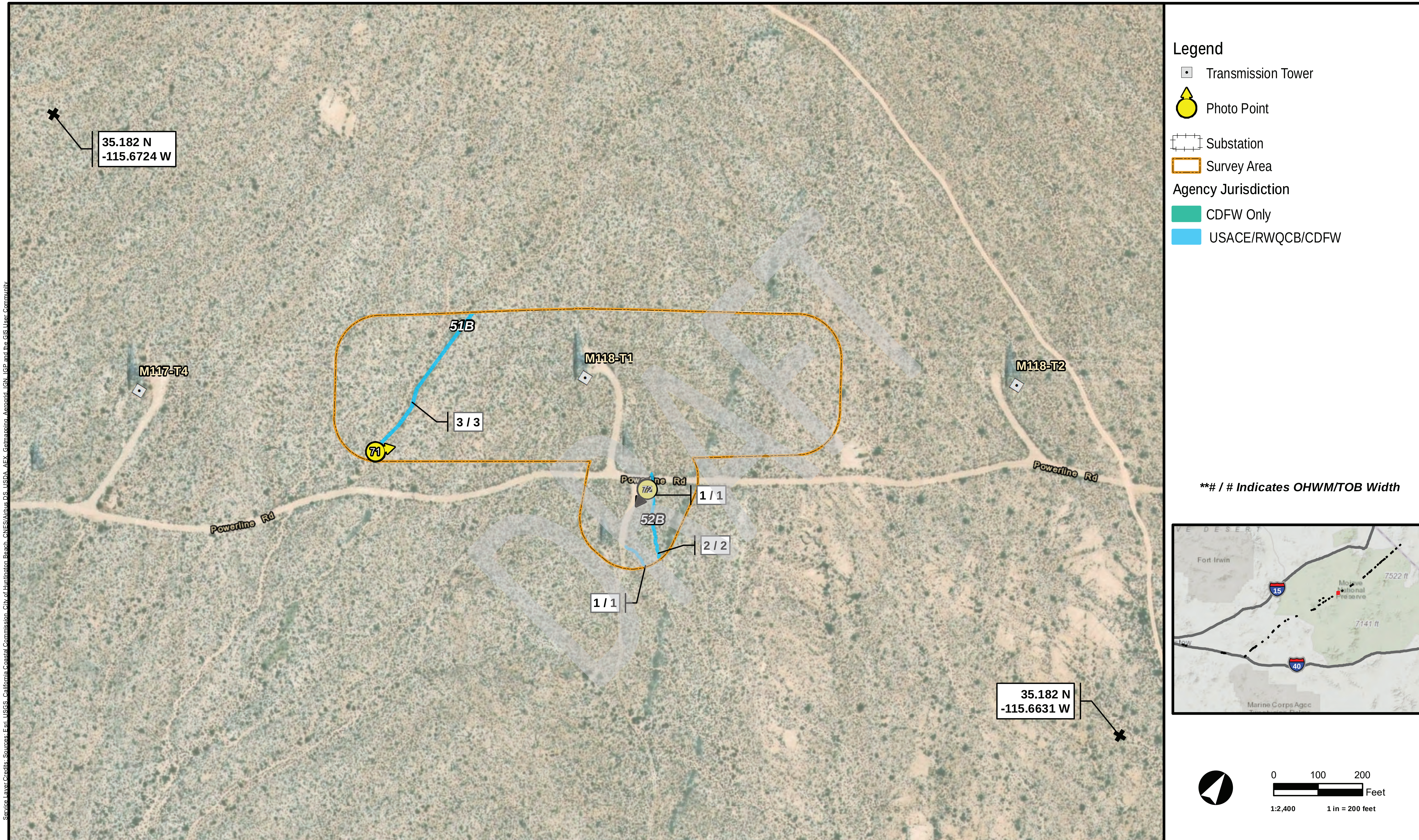
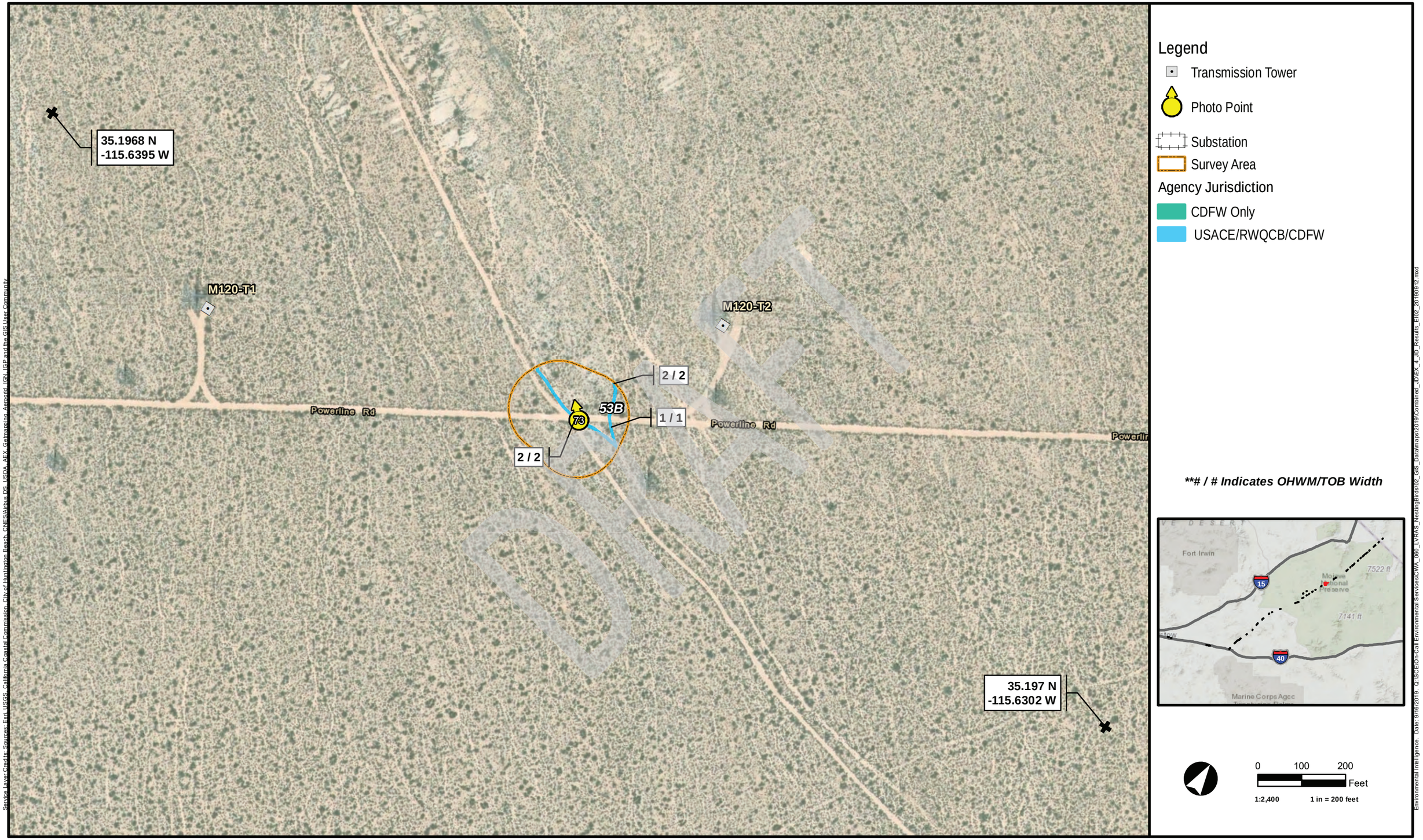


Exhibit 4. Jurisdictional Delineation Results (Page 36 of 57)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV



Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, GNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence Date: 9/16/2019 G:\SCE\Eton-Cal Environmental Services\CWA_060_LVRAS_Nestlingbirds\02_GIS_Data\maps\2019\Combined_DIEX_4_DD_Results_EI02_20190912.mxd

Exhibit 4. Jurisdictional Delineation Results (Page 37 of 57)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

35.2275 N
-115.5743 W

M124-T2

1 / 1

54B

74

75

55B

2 / 2

Powerline Rd

Powerline Rd

3 / 3

5 / 5

56B

2 / 2

3 / 3

10 / 10

M124-T3

76

1 / 1

77

57B

5 / 5

2 / 2

2 / 2

10 / 25

58B

78

Powerline

35.2279 N
-115.565 W

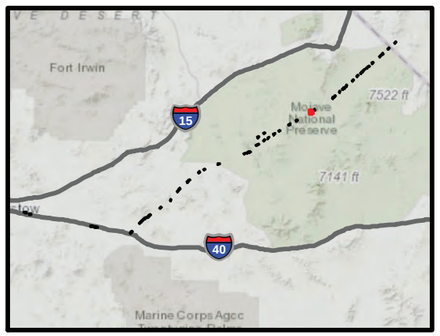
Legend

- Transmission Tower
- Photo Point
- Substation
- Survey Area

Agency Jurisdiction

- CDFW Only
- USACE/RWQCB/CDFW

 # / # Indicates OHWM/TOB Width



0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence Date: 9/16/2019 G:\SCE\On-Call Environmental Services\CWA_060_LVRAS_NestingBirds\02_GIS_Data\mxds\02_EI02_20190912.mxd

Exhibit 4. Jurisdictional Delineation Results (Page 38 of 57)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

35.2343 N
-115.5596 W

M125-T1

2 / 2

59B

79

M125-T2

2 / 2

M125-T3

Powerline Rd

Powerline Rd

Powerline Rd

Powerline Rd

35.2348 N
-115.5503 W

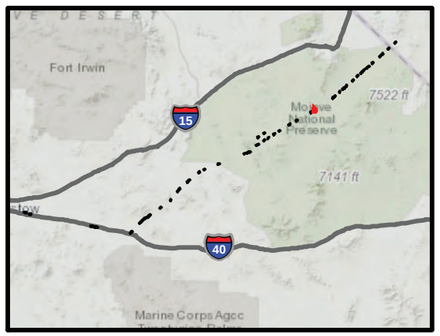
Legend

- Transmission Tower
- Photo Point
- Substation
- Survey Area

Agency Jurisdiction

- CDFW Only
- USACE/RWQCB/CDFW

 # / # Indicates OHWM/TOB Width



0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 9/16/2019. Q:\SCE\On-Call Environmental Services\CWA_0060_LVKAS_Nesting\mxds\02_GIS_Data\maps\2019\Combined_DDEX_4_DD_Results_Ed02_20190912.mxd

Exhibit 4. Jurisdictional Delineation Results (Page 39 of 57)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

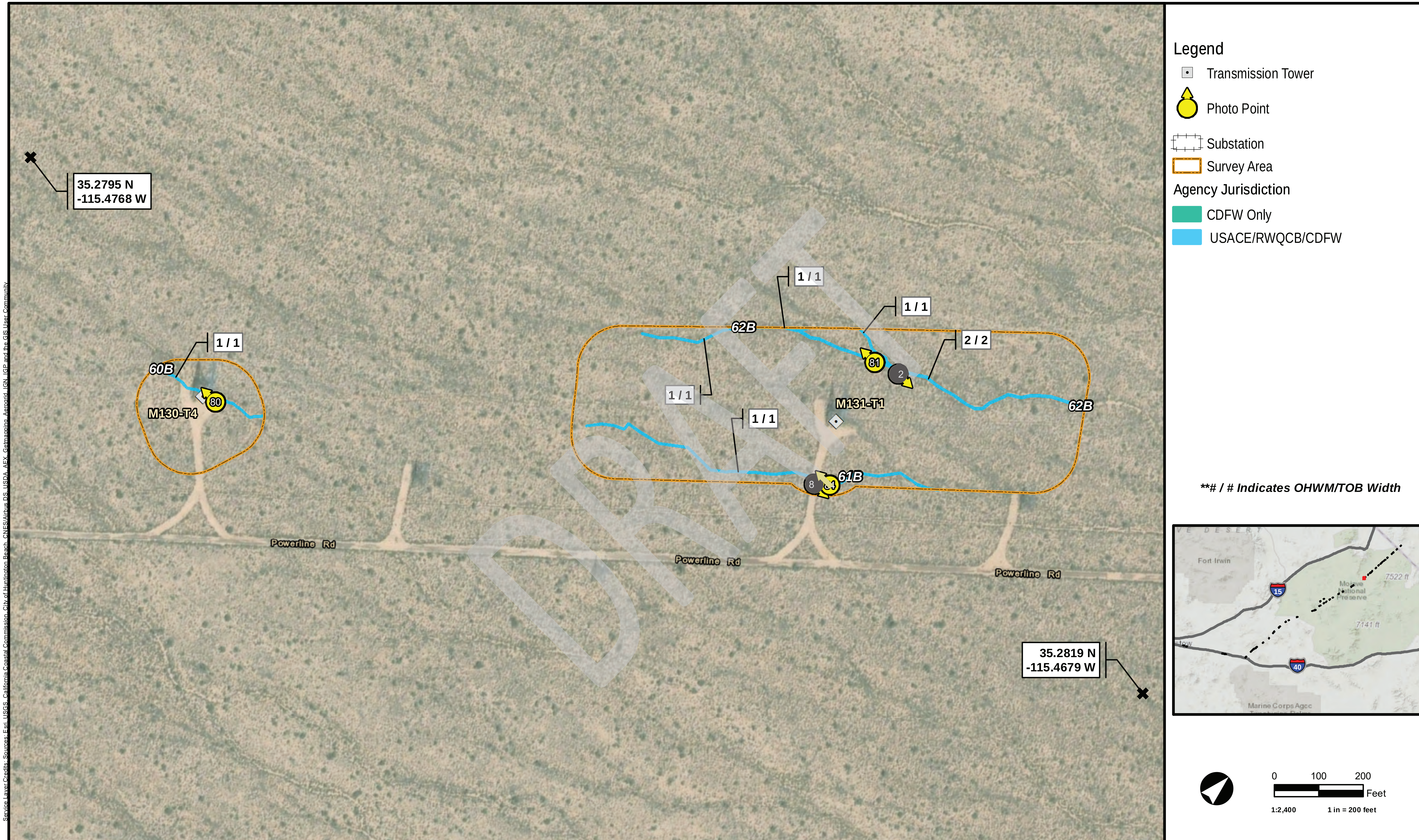
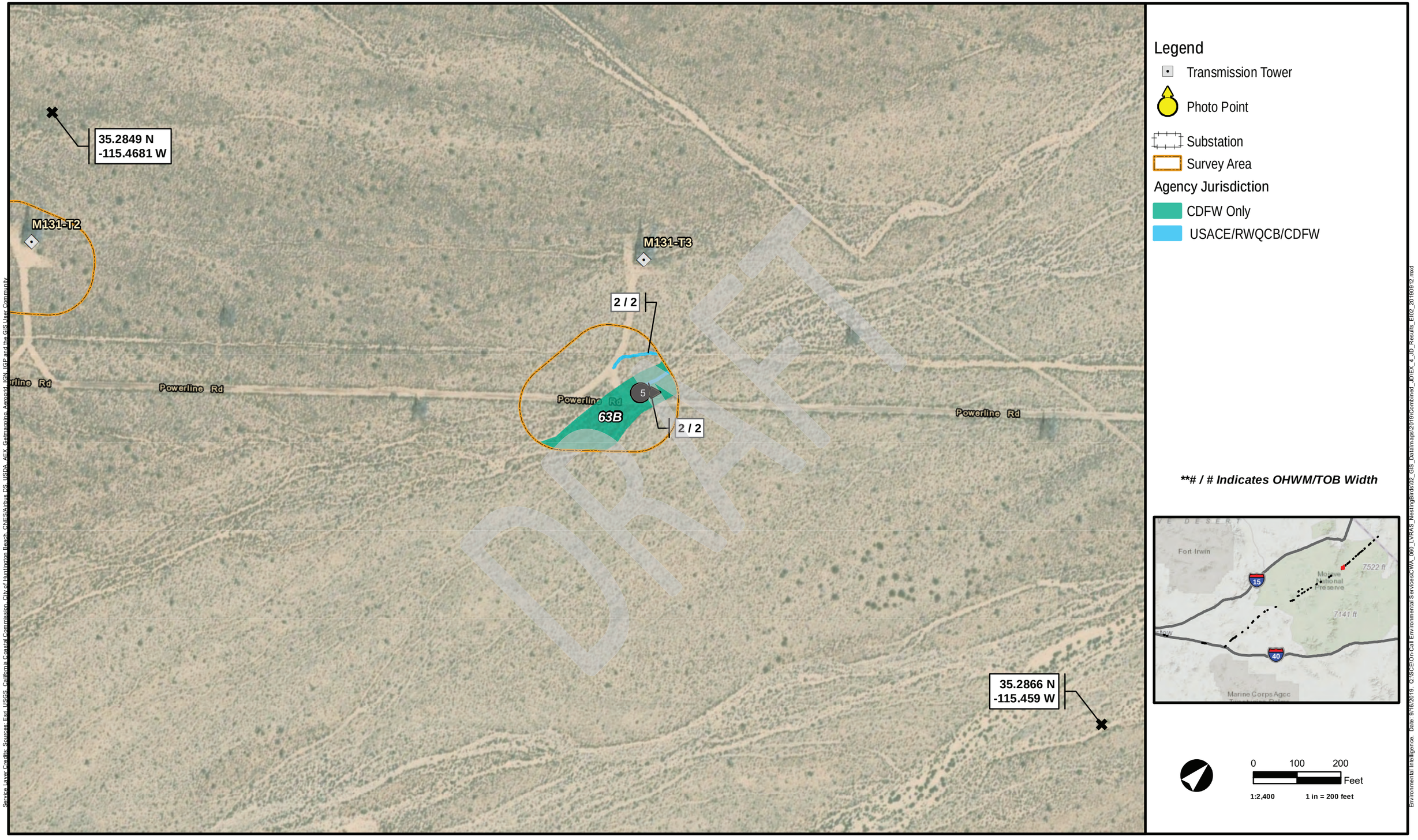


Exhibit 4. Jurisdictional Delineation Results (Page 40 of 57)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV


35.2849 N
-115.4681 W
M131-T2
M131-T3
2 / 2
5
2 / 2
63B
Powerline Rd
Powerline Rd
Powerline Rd
Powerline Rd
35.2866 N
-115.459 W
Legend
Transmission Tower
Photo Point
Substation
Survey Area
Agency Jurisdiction
CDFW Only
USACE/RWQCB/CDFW
**# / # Indicates OHWM/TOB Width
Fort Irwin
7522 ft
7141 ft
15
40
Marine Corps Agcc
0
100
200
Feet
1:2,400
1 in = 200 feet

35.3013 N
-115.446 W

M133-T2

15 / 15

86

64B

Powerline Rd

87

65B

3 / 3

M133-T3

Powerline Rd

Powerline Rd

35.3029 N
-115.4369 W

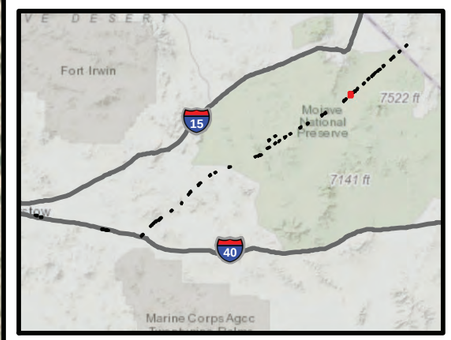
Legend

- Transmission Tower
- Photo Point
- Substation
- Survey Area
- Riparian Area

Agency Jurisdiction

- CDFW Only
- USACE/RWQCB/CDFW

 # / # Indicates OHWM/TOB Width



0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence; Date: 9/16/2019; Q:\SCE\On-Call Environmental Services\CWA_0060_LVKAS_Nesting\mxds\02_GIS_Data\maps\2019\Combined_DIEX_4_JD_Results_EI02_20190912.mxd

Exhibit 4. Jurisdictional Delineation Results (Page 42 of 57)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

35.3126 N
-115.4318 W

30 / 30
5 / 5
2 / 2
2 / 2
2 / 2
2 / 2
75 / 75
1 / 1
10 / 10
2 / 2
3 / 3
3 / 3
8 / 8
15 / 15
3 / 3
1 / 1

66B
66B
66B
67B
68B

88
89
90
91

M134-T2
M134-T3

Powerline Rd
Powerline Rd

35.3141 N
-115.4226 W

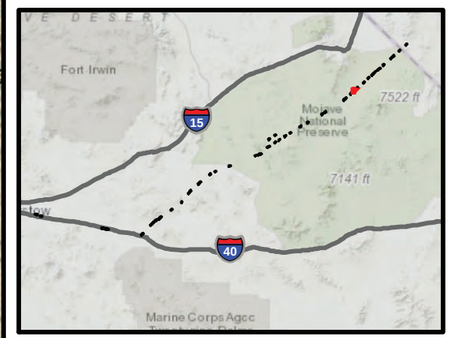
Legend

- Transmission Tower
- Photo Point
- Substation
- Survey Area
- Riparian Area

Agency Jurisdiction

- CDFW Only
- USACE/RWQCB/CDFW

 # / # Indicates OHWM/TOB Width



0 100 200 Feet

1:2,400 1 in = 200 feet

35.3167 N
-115.4243 W

M134-T4

M135-T1

6 / 6

93

92

69B

Powerline Rd

Powerline Rd

Powerline Rd

Rd

35.3187 N
-115.4153 W

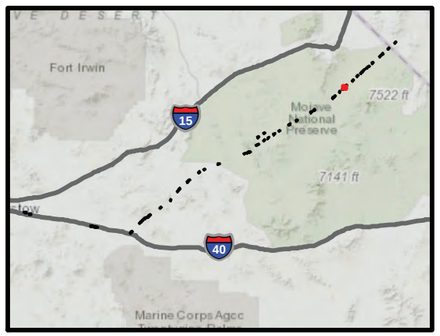
Legend

- Transmission Tower
- Photo Point
- Substation
- Survey Area

Agency Jurisdiction

- CDFW Only
- USACE/RWQCB/CDFW

 # / # Indicates OHWM/TOB Width



0 100 200
Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence; Date: 9/16/2019; Q:\SCE\On-Call Environmental Services\CWA_0060_LVKAS_Nesting\mxds\02_GIS_Data\maps\2019\Combined_DDEX_4_DD_Results_Et02_20190912.mxd

Exhibit 4. Jurisdictional Delineation Results (Page 44 of 57)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

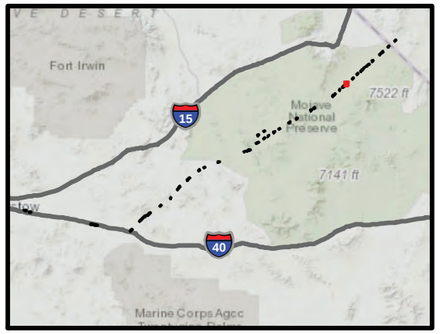
Legend

- Transmission Tower
- Photo Point
- Substation
- Survey Area

Agency Jurisdiction

- CDFW Only
- USACE/RWQCB/CDFW

 # / # Indicates OHWM/TOB Width



0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 9/16/2019. Q:\SCE\On-Call Environmental Services\CWA_0060_LVKAS_Nesting\mxds\02_GIS_Data\maps\2019\Combined_DDEX_4_DD_Results_El02_20190912.mxd

Exhibit 4. Jurisdictional Delineation Results (Page 45 of 57)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

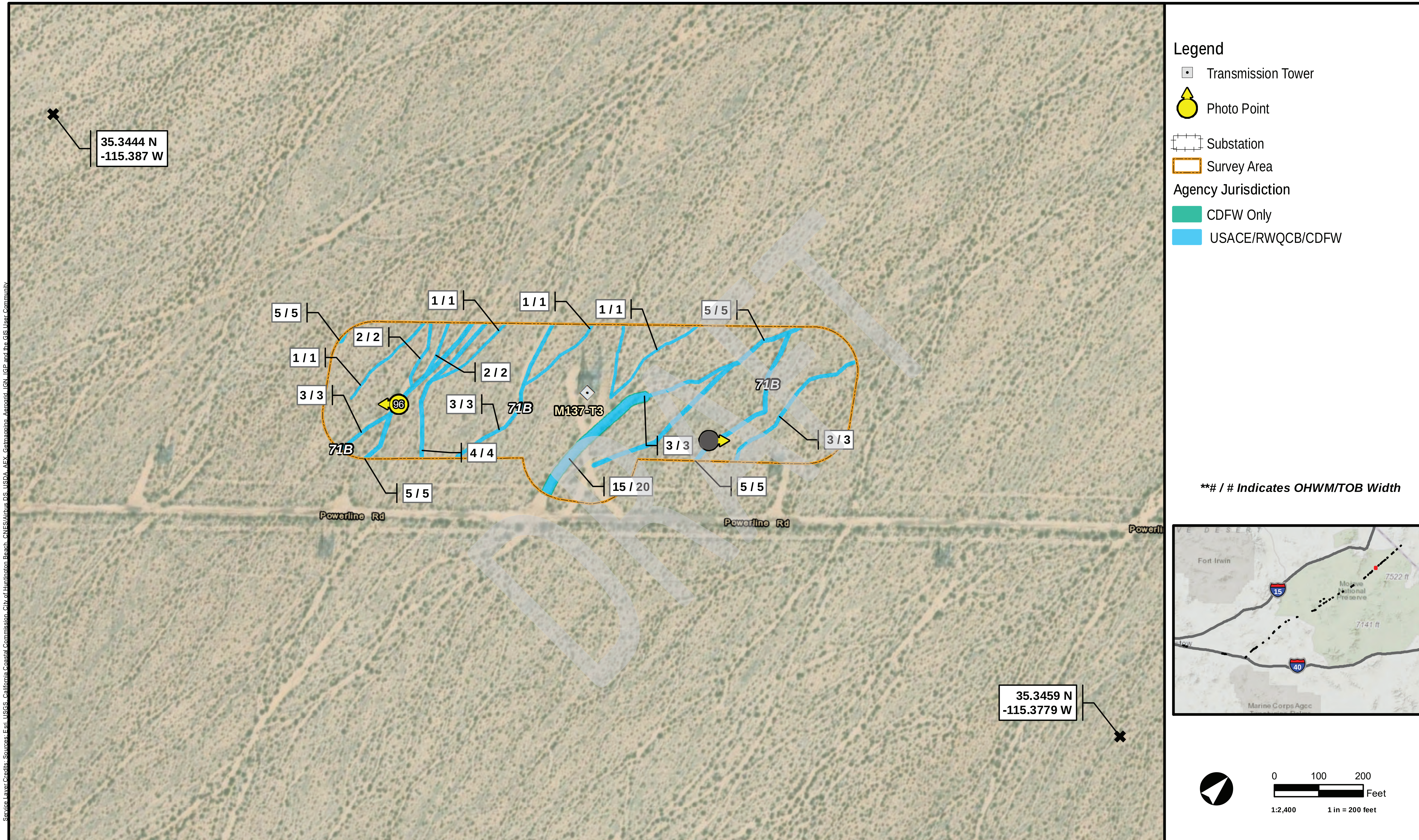
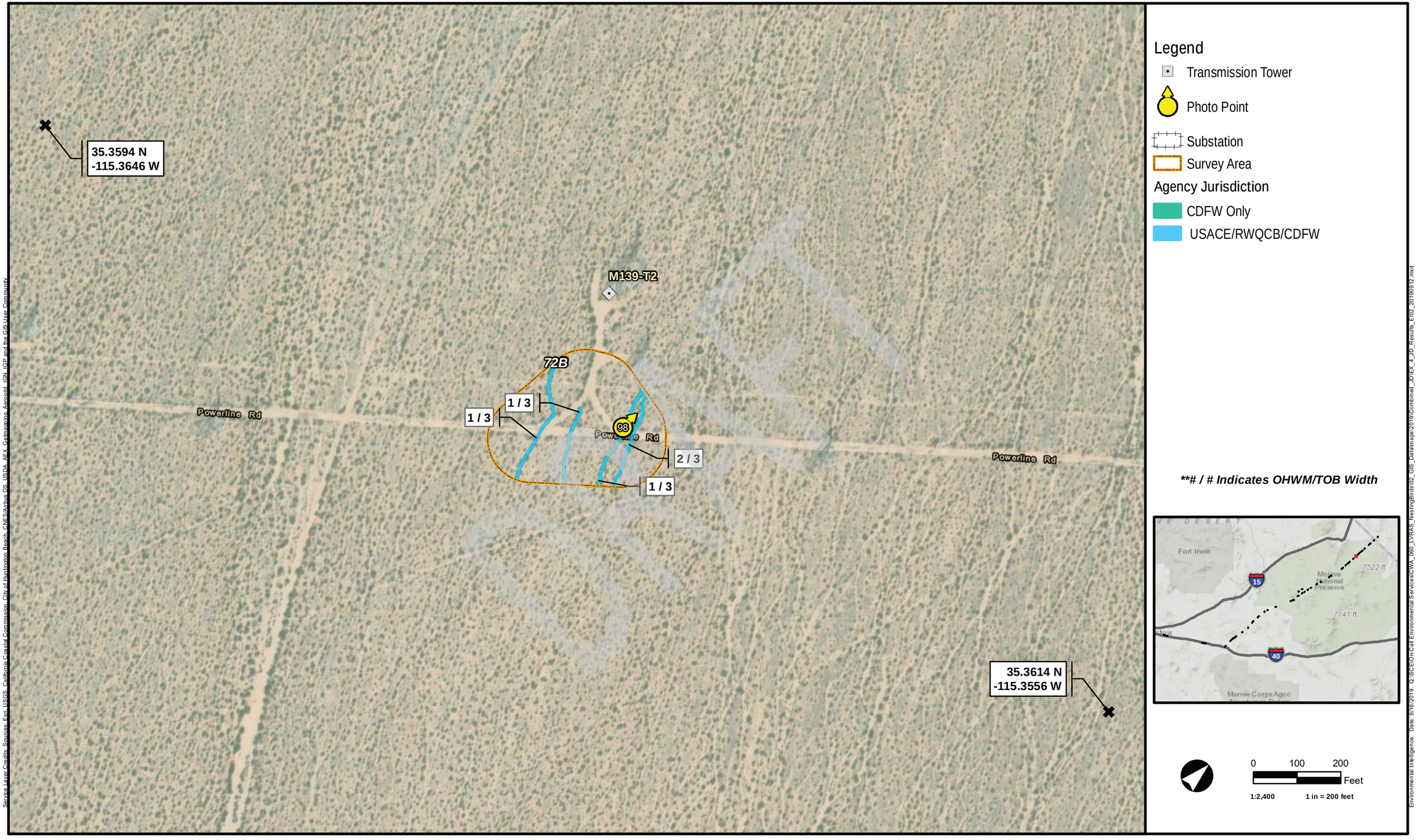
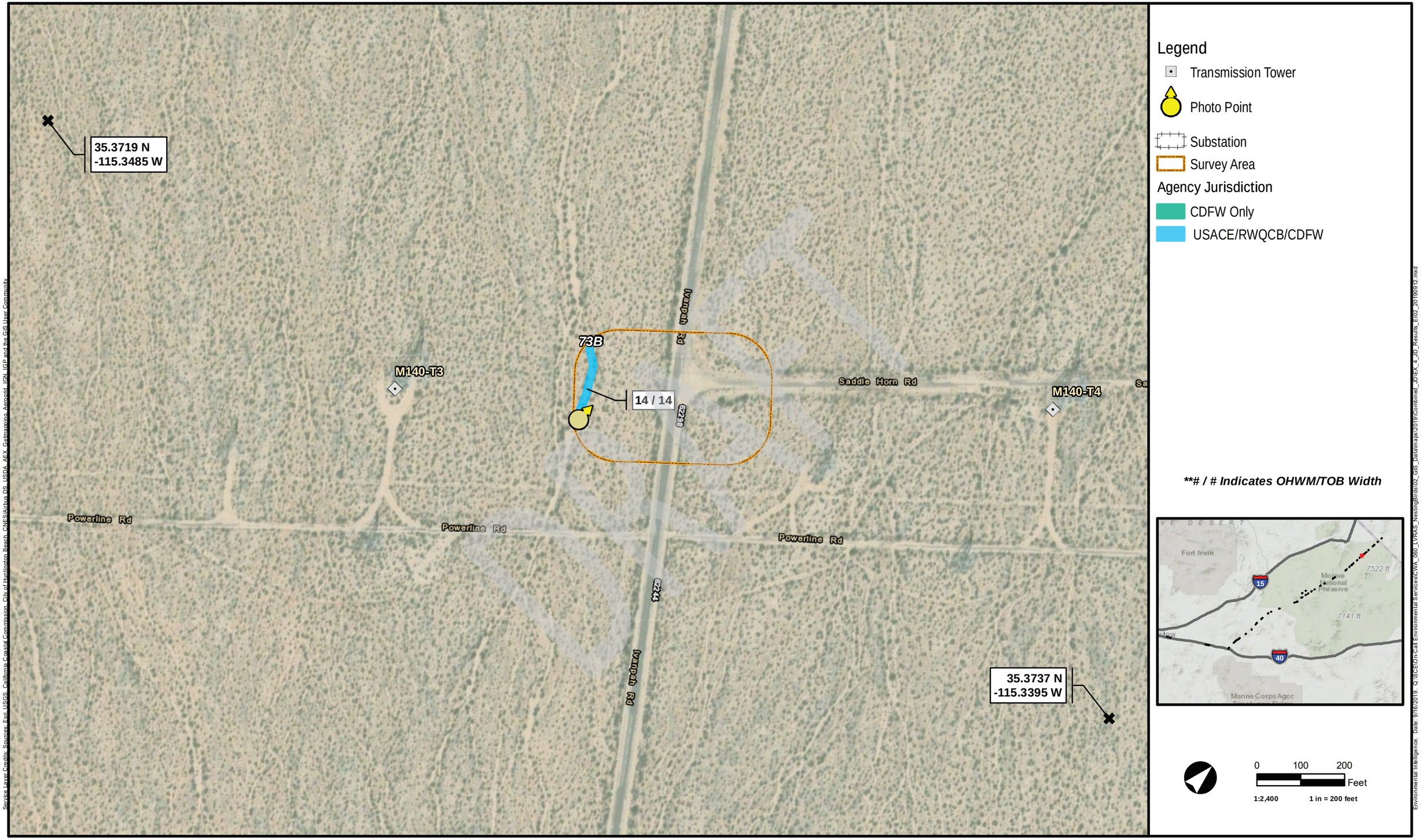
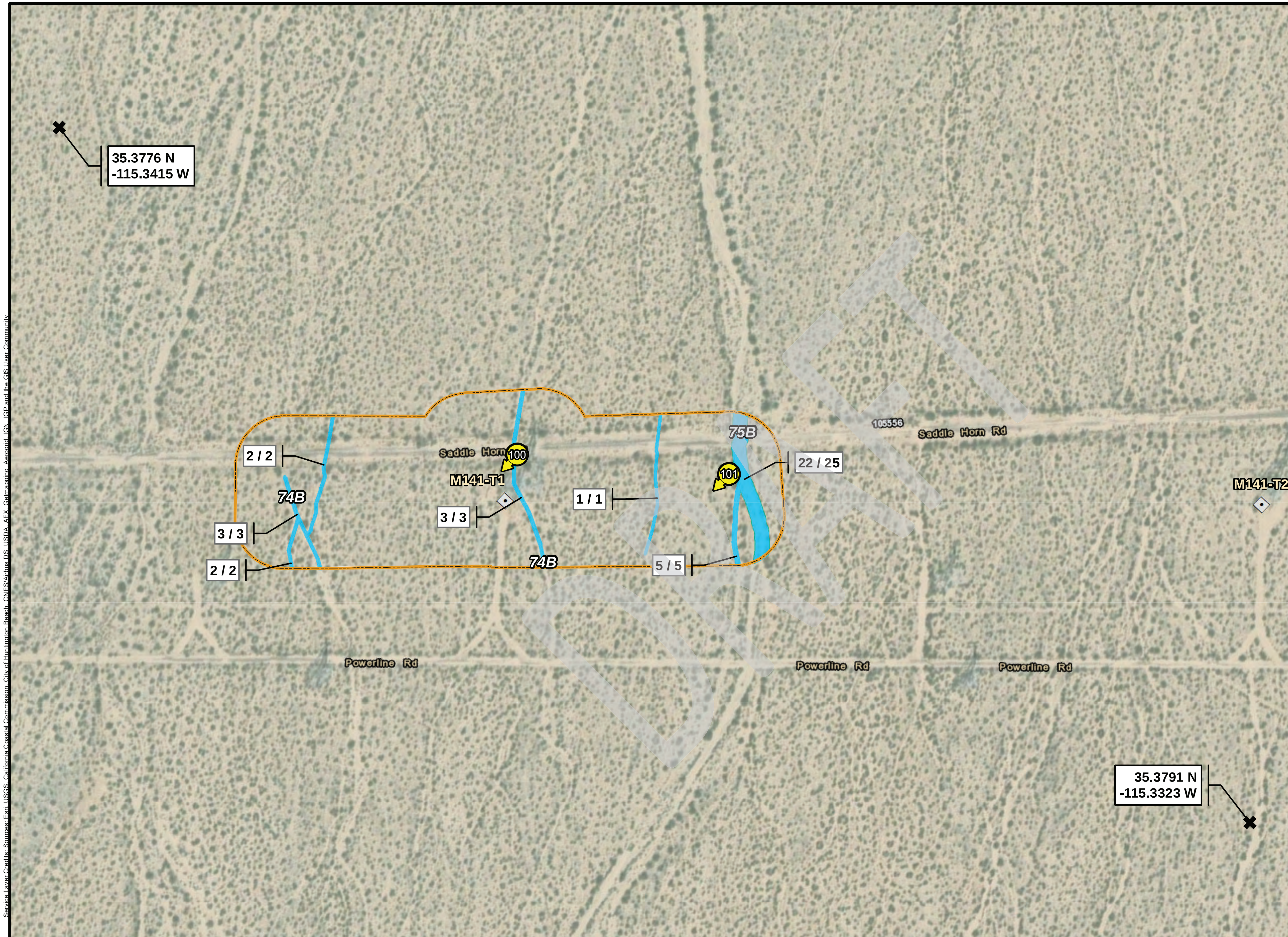


Exhibit 4. Jurisdictional Delineation Results (Page 46 of 57)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV







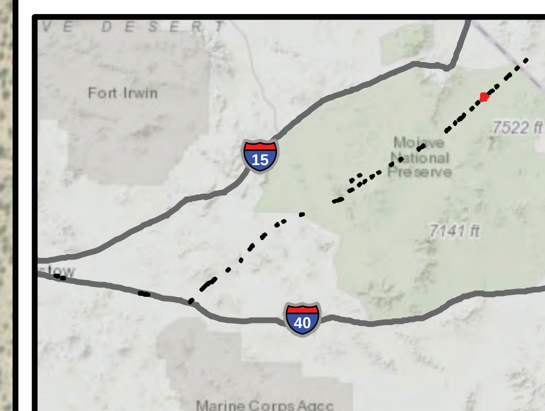
Legend

- Transmission Tower
- Photo Point
- Substation
- Survey Area

Agency Jurisdiction

- CDFW Only
- USACE/RWQCB/CDFW

***# / # Indicates OHWM/TOB Width*



0 100 200 Feet

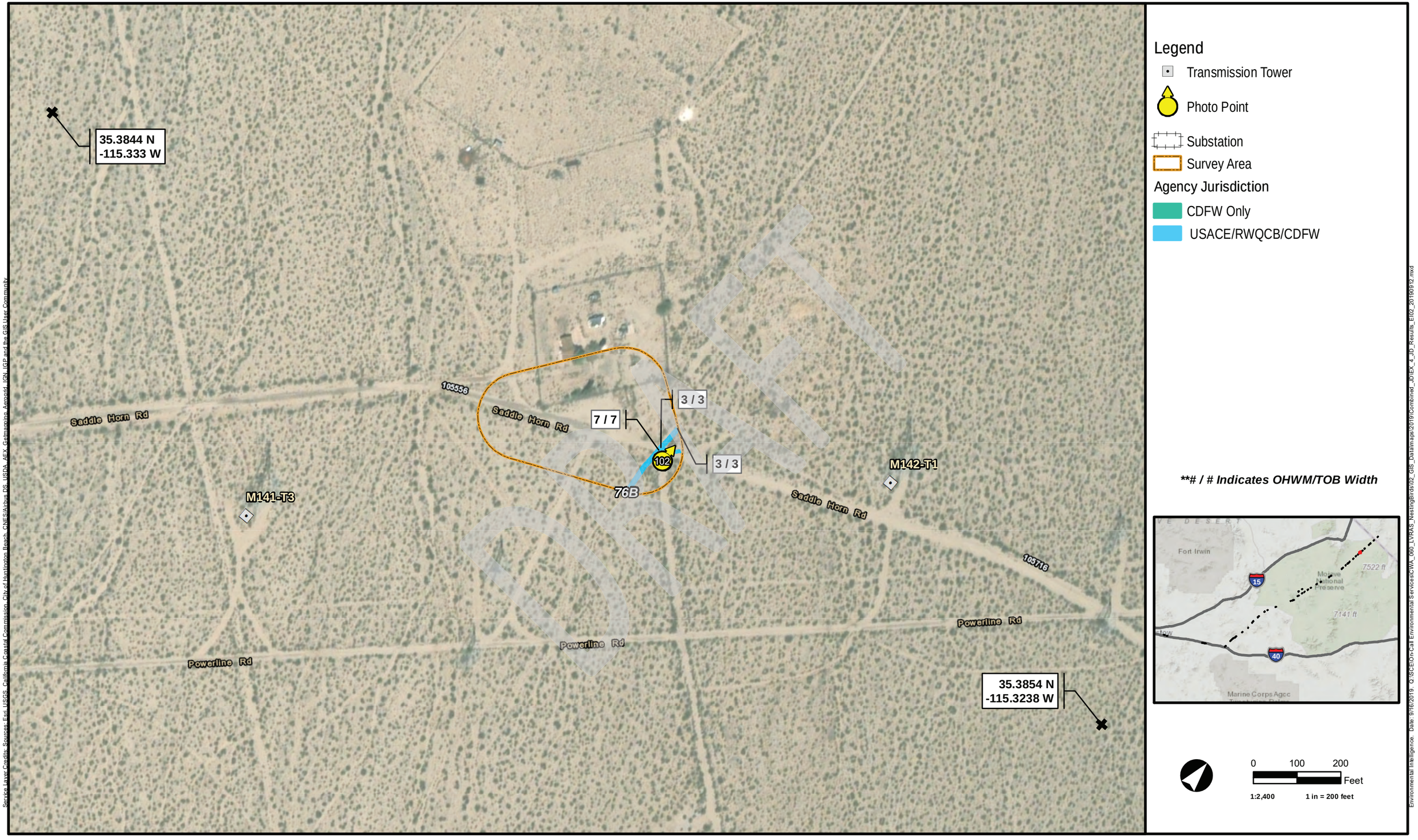
1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

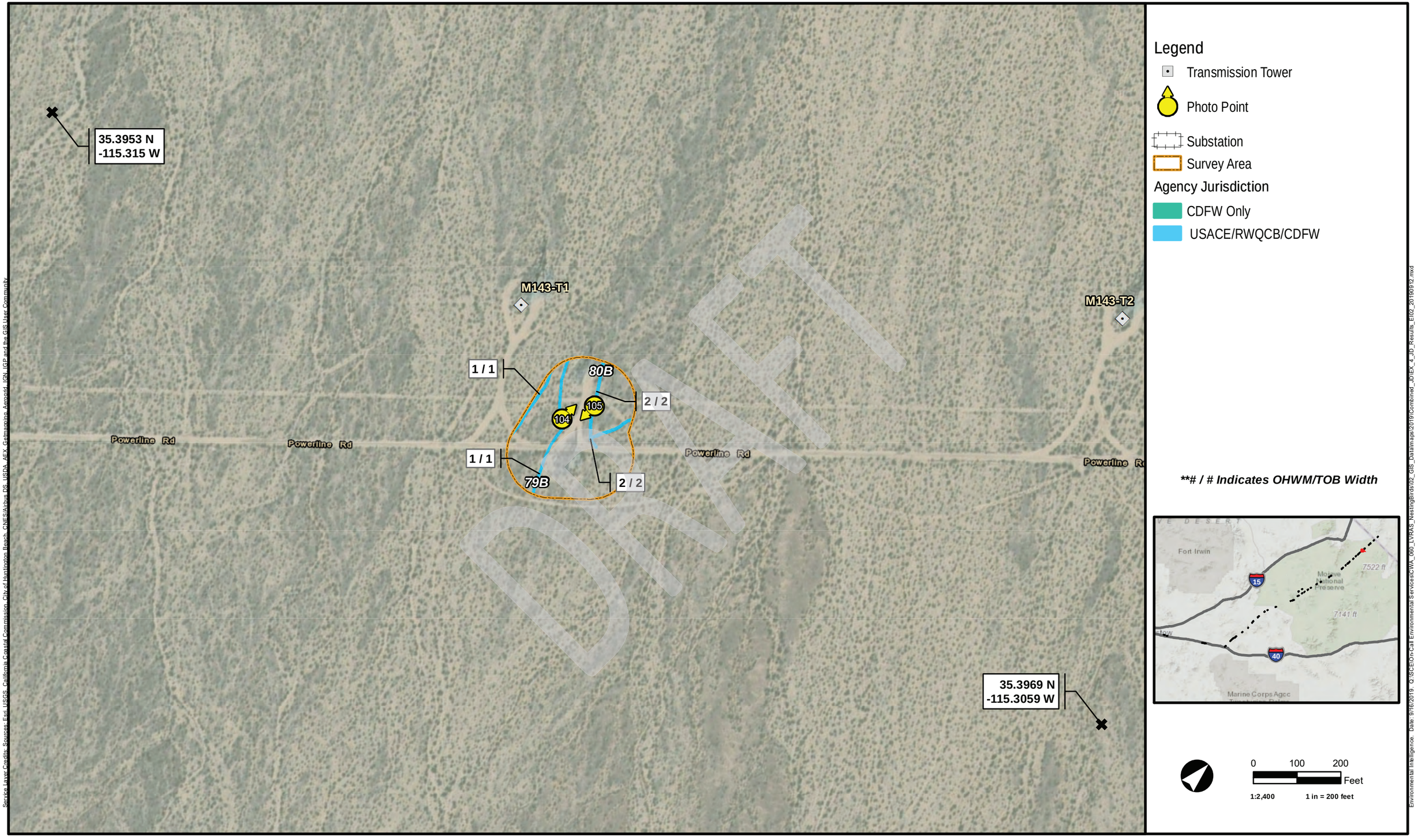
Environmental Intelligence. Date: 9/16/2019. Q:\SCE\On-Call Environmental Services\CWA_060_LVRAS_NestingBirds\02_GIS_Data\maps\2019\Combined_JD\EX_4_JD_Results_E02_20190912.mxd

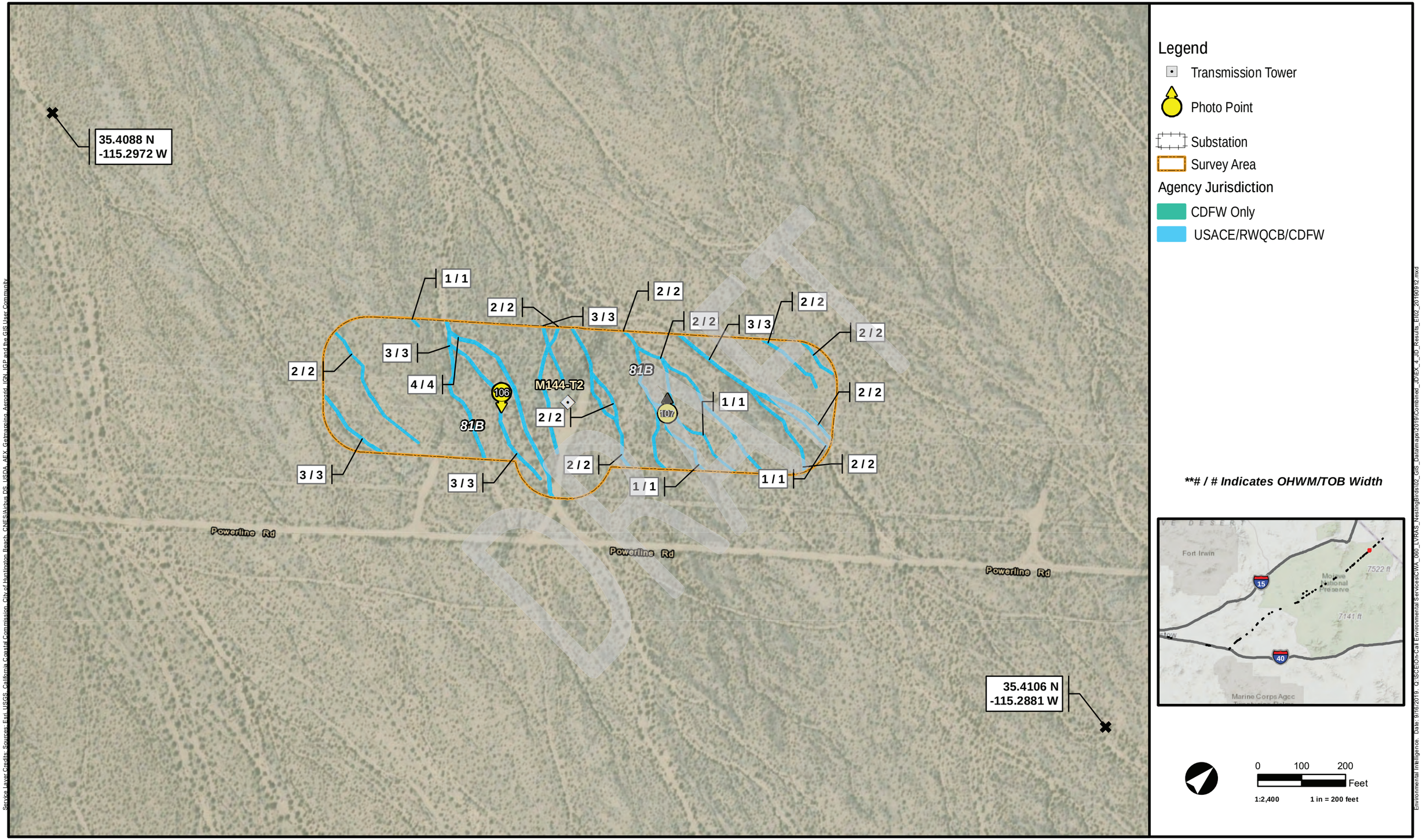
Exhibit 4. Jurisdictional Delineation Results (Page 49 of 57)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV


35.3844 N
-115.333 W
Saddle Horn Rd
105356
Saddle Horn Rd
7 / 7
3 / 3
3 / 3
102
76B
M142-T1
M141-T3
Saddle Horn Rd
105716
Powerline Rd
Powerline Rd
Powerline Rd
35.3854 N
-115.3238 W
Legend
Transmission Tower
Photo Point
Substation
Survey Area
Agency Jurisdiction
CDFW Only
USACE/RWQCB/CDFW
**# / # Indicates OHWM/TOB Width
Fort Irwin
Mojave National Preserve
7522 ft
7141 ft
15
40
Marine Corps Agcc
0
100
200
Feet
1:2,400
1 in = 200 feet
Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community
Environmental Intelligence; Date: 9/16/2019; Q:\SCE\On-Call Environmental Services\CWA_0060_LVKAS_Nesting\mxds\02_GIS_Data\maps\2019\Combined_DIDEX_4_DD_Results_EI02_20190912.mxd


35.3894 N
-115.3227 W
M142-T3
Powerline Rd
Powerline Rd
Powerline Rd
Powerline Rd
Powerline Rd
5 / 5
2 / 2
12 / 12
103
77B
78B
No Hesa Rd
35.3915 N
-115.3138 W
Legend
Transmission Tower
Photo Point
Substation
Survey Area
Agency Jurisdiction
CDFW Only
USACE/RWQCB/CDFW
**# / # Indicates OHWM/TOB Width
Fort Irwin
Mojave National Preserve
7522 ft
7141 ft
15
40
Marine Corps Agcc
0
100
200
Feet
1:2,400
1 in = 200 feet
DRAFT
Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community
Environmental Intelligence; Date: 9/16/2019; Q:\SCE\On-Call Environmental Services\CWA_0060_LVKAS_Nesting\mxds\02_GIS_Data\maps\2019\Combined_DDEX_4_DD_Results_E\02_20190912.mxd





35.4327 N
-115.264 W

Nipton Moore Rd

82B

15 / 18

108

2 / 2

109

64352

Nipton Moore Rd

M147-T1

83B

111

10 / 10

110

6 / 6

35.4345 N
-115.2549 W

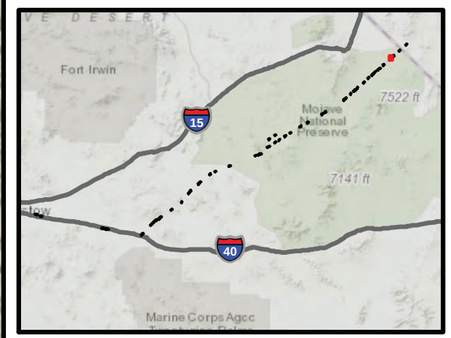
Legend

- Transmission Tower
- Photo Point
- Substation
- Survey Area

Agency Jurisdiction

- CDFW Only
- USACE/RWQCB/CDFW

****# / # Indicates OHWM/TOB Width**



0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence Date: 9/16/2019 G:\SCE\Of-Cal Environmental Services\CWA_060_LVKAS_NestingBirds\02_GIS_Data\mxds\02_GIS_Data\mxds\2019\Combined_DDEX_4_DD_Results_E\02_20190912.mxd

35.4408 N
-115.2531 W

35.4421 N
-115.2439 W

2 / 2
2 / 2
2 / 2
2 / 2
2 / 2
2 / 2
3 / 6
4 / 4
3 / 3
2 / 4
2 / 2
2 / 4
84B
M147-T4
2 / 2
113
4 / 10
84B
2 / 2
4 / 4
2 / 4
2 / 4
2 / 2
2 / 2

**# / # Indicates OHWM/TOB Width

Legend

Transmission Tower

Photo Point

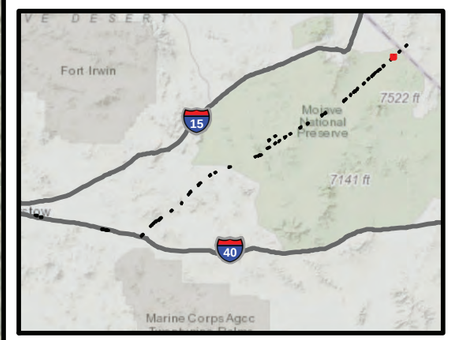
Substation

Survey Area

Agency Jurisdiction

CDFW Only

USACE/RWQCB/CDFW



0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 9/16/2019. Q:\SCE\On-Call Environmental Services\CWA_0060_LVRAS_Nesting\mxds\02_GIS_Data\mxds\2019\Combined_DDEX_4_DD_Results_EI02_20190912.mxd

Exhibit 4. Jurisdictional Delineation Results (Page 55 of 57)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

35.4614 N
-115.2241 W

M149-T4

M150-T1

87B

86B

85B

114

2 / 4

2 / 2

1 / 1

3 / 3

1 / 2

3 / 4

3 / 5

4 / 4

35.4631 N
-115.215 W

Legend

Transmission Tower

Photo Point

Substation

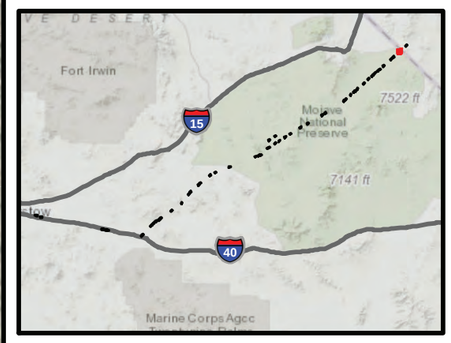
Survey Area

Agency Jurisdiction

CDFW Only

USACE/RWQCB/CDFW

**# / # Indicates OHWM/TOB Width



0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence Date: 9/16/2019 G:\SCE\Con-Cal Environmental Services\CWA_080_LVRAS_Nesting\mxds\02_GIS_Data\maps\2019\Combined_DJDEX_4_DJD_Results_EI02_20190912.mxd

Exhibit 4. Jurisdictional Delineation Results (Page 56 of 57)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

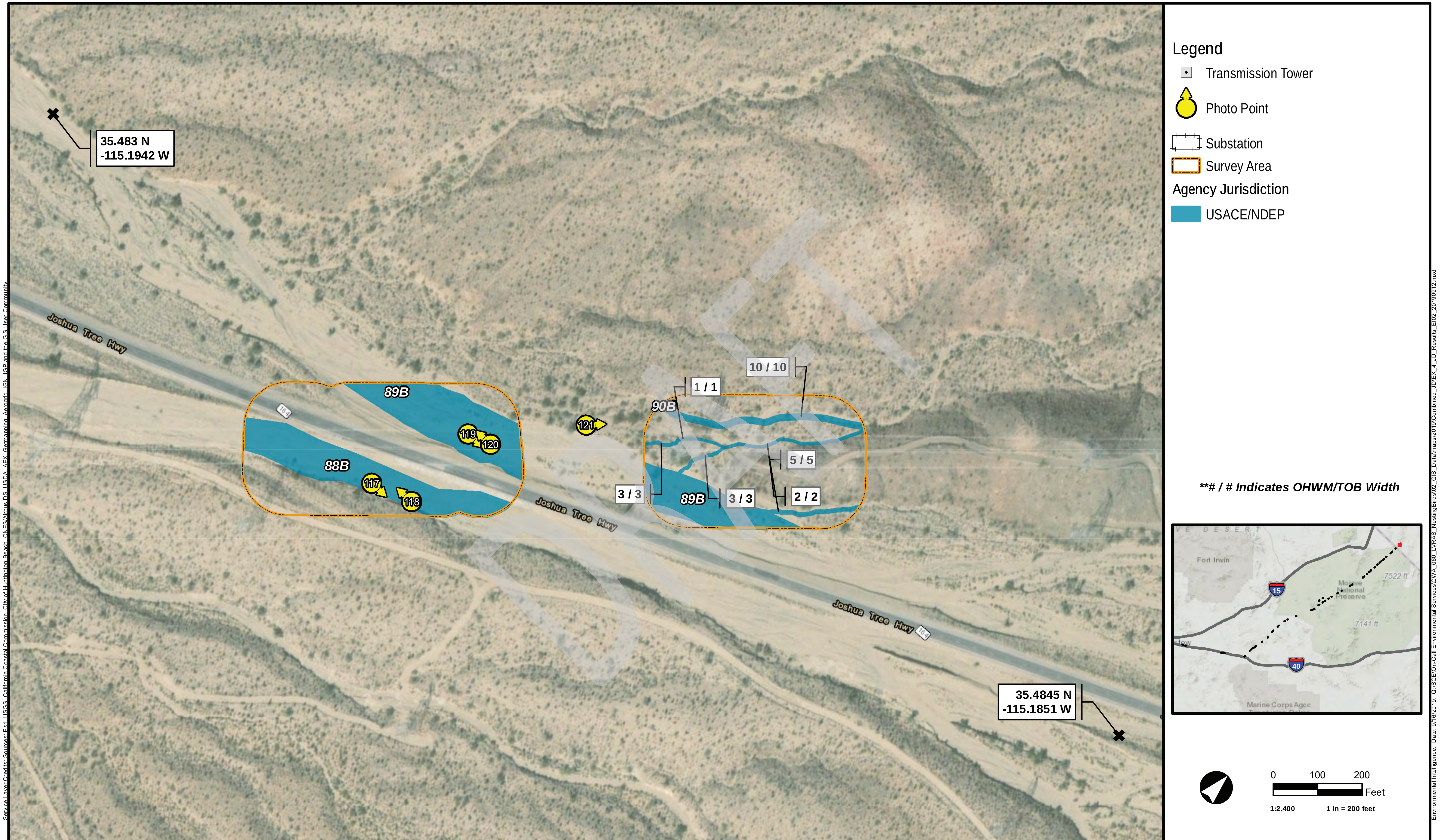


Exhibit 4. Jurisdictional Delineation Results (Page 57 of 57)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

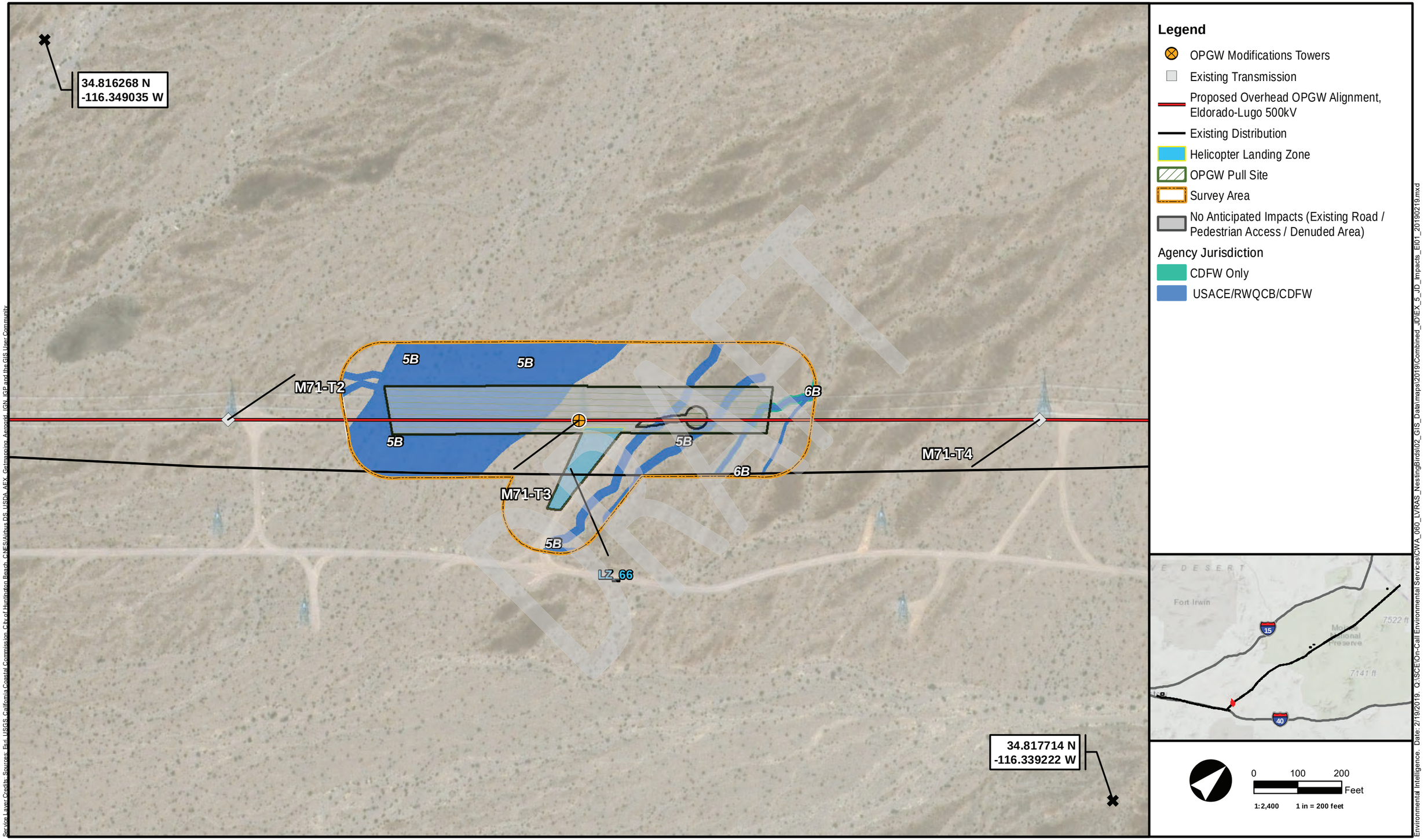


Exhibit 5. Proposed Impacts (Page 1 of 13)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

34.873956 N
-116.254537 W

M78-T1
M77-T5
M78-T3
M78-T2
16B
17B
15B
18B
LZ_60

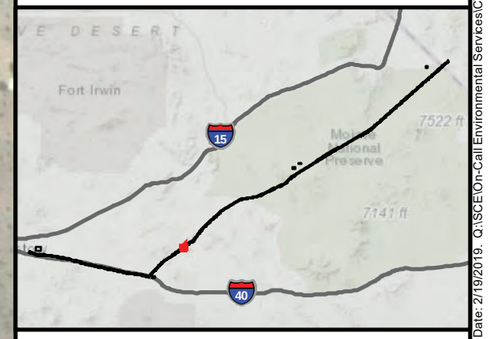
34.874246 N
-116.244568 W

Legend

- OPGW Modifications Towers
- Existing Transmission
- Proposed Overhead OPGW Alignment, Eldorado-Lugo 500kV
- Helicopter Landing Zone
- OPGW Pull Site
- Survey Area
- No Anticipated Impacts (Existing Road / Pedestrian Access / Denuded Area)

Agency Jurisdiction

- CDFW Only
- USACE/RWQCB/CDFW



0 100 200 Feet

1:2,400 1 in = 200 feet

Source: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 2/19/2019. Q:\SCE\On-Call Environmental Services\CWA_060_LVRAS_NestingBirds\02_GIS_Data\maps\2019\Combined_JD\EX_5_JD_Impacts_El01_20190219.mxd

Exhibit 5. Proposed Impacts (Page 2 of 13)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

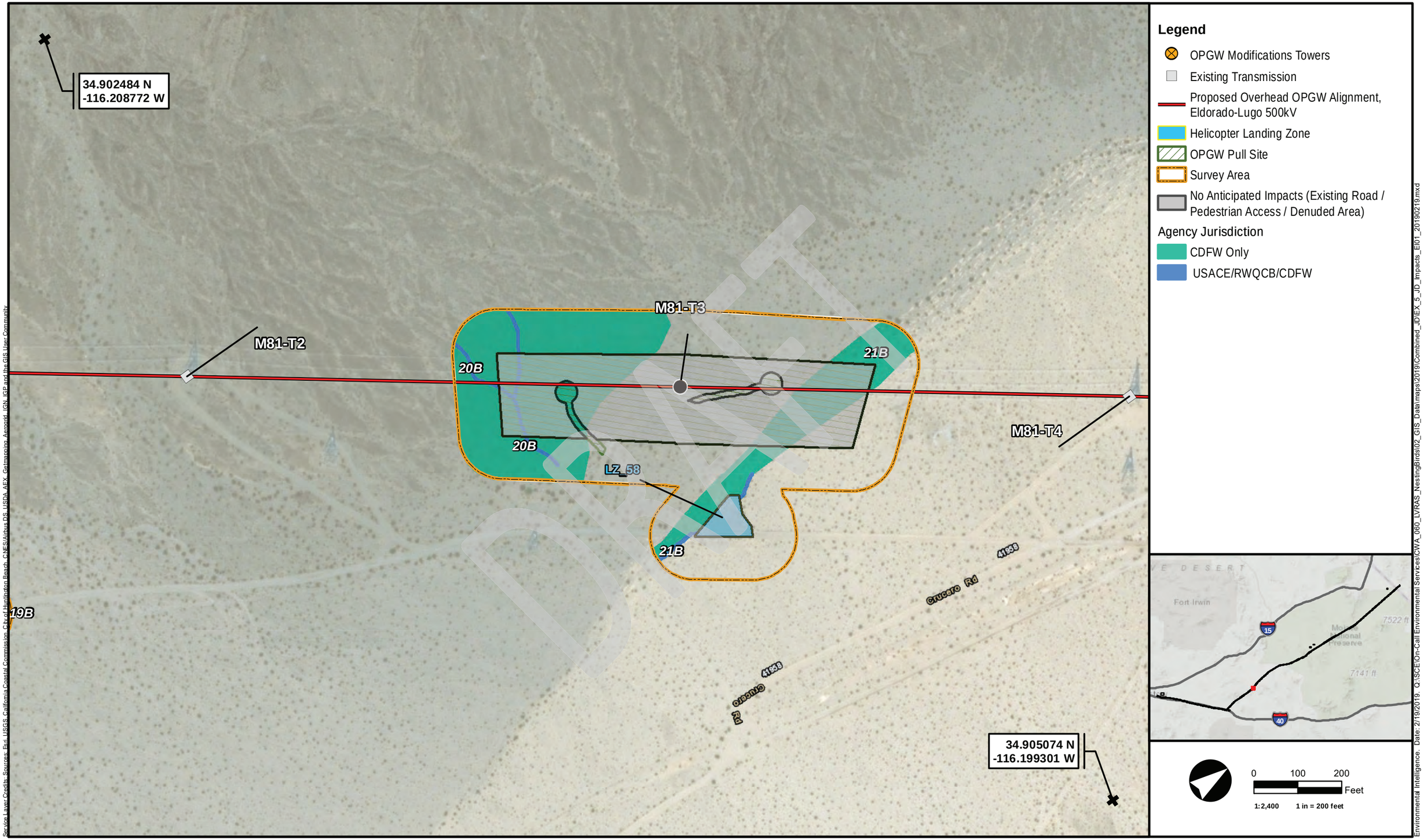


Exhibit 5. Proposed Impacts (Page 3 of 13)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

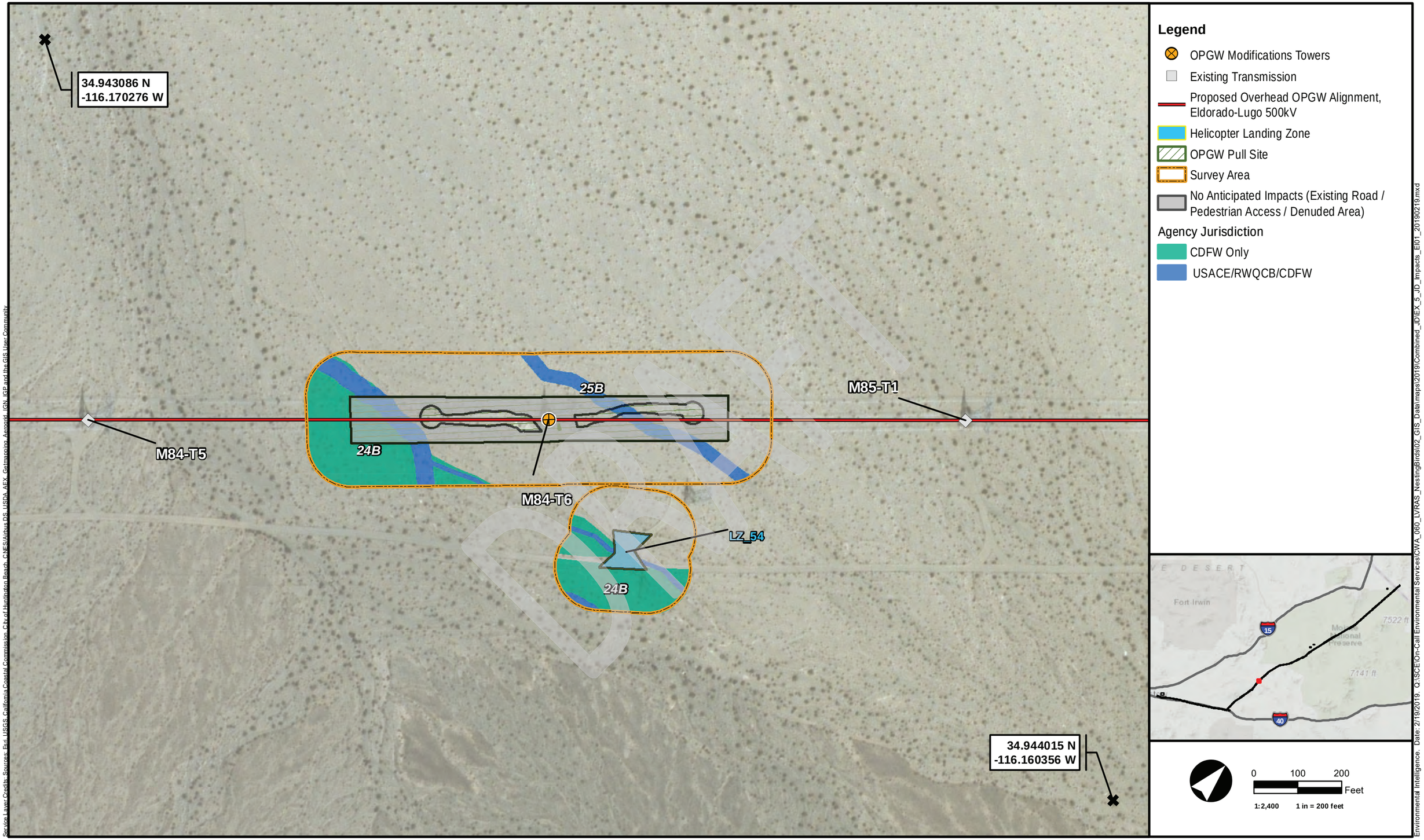


Exhibit 5. Proposed Impacts (Page 4 of 13)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

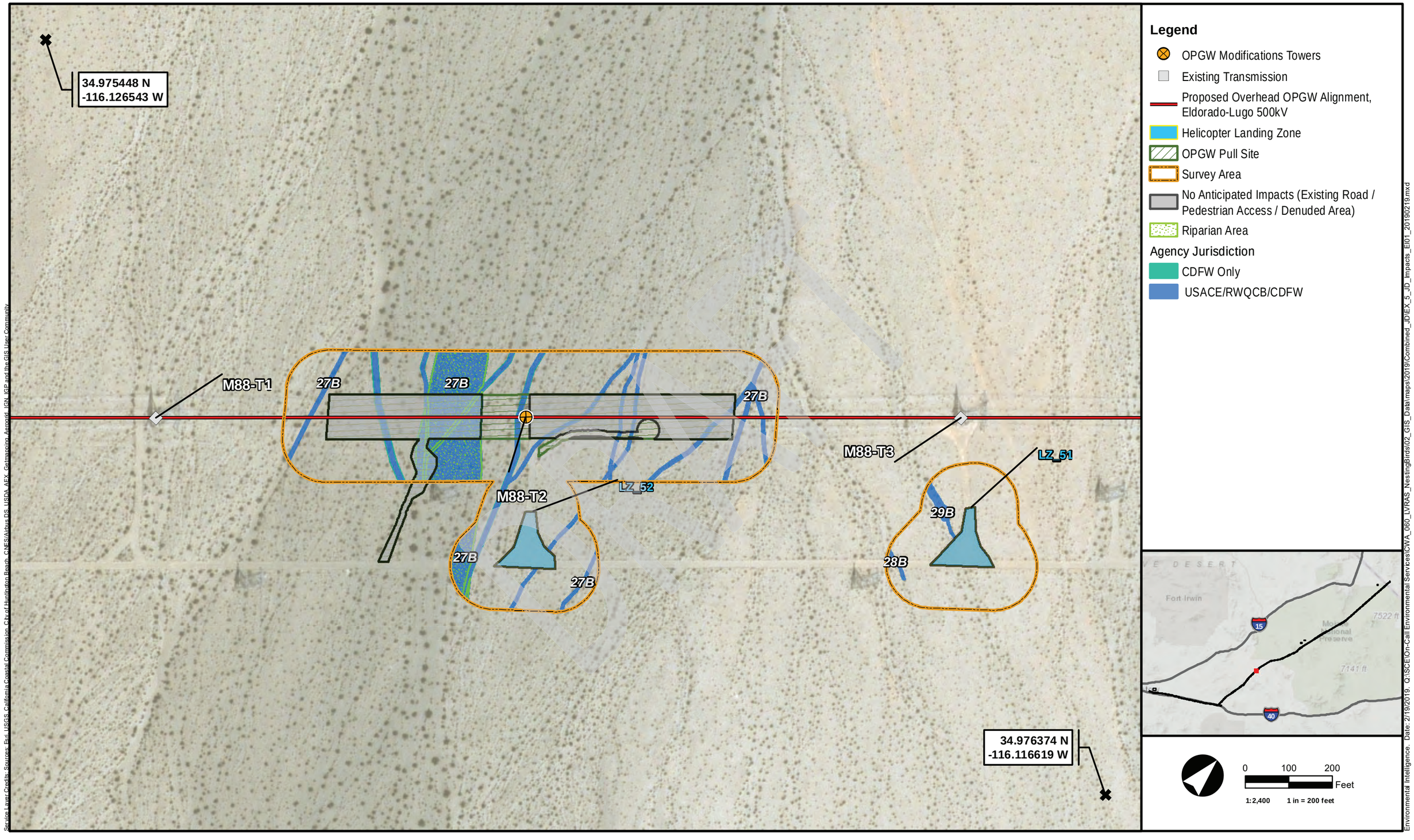


Exhibit 5. Proposed Impacts (Page 5 of 13)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

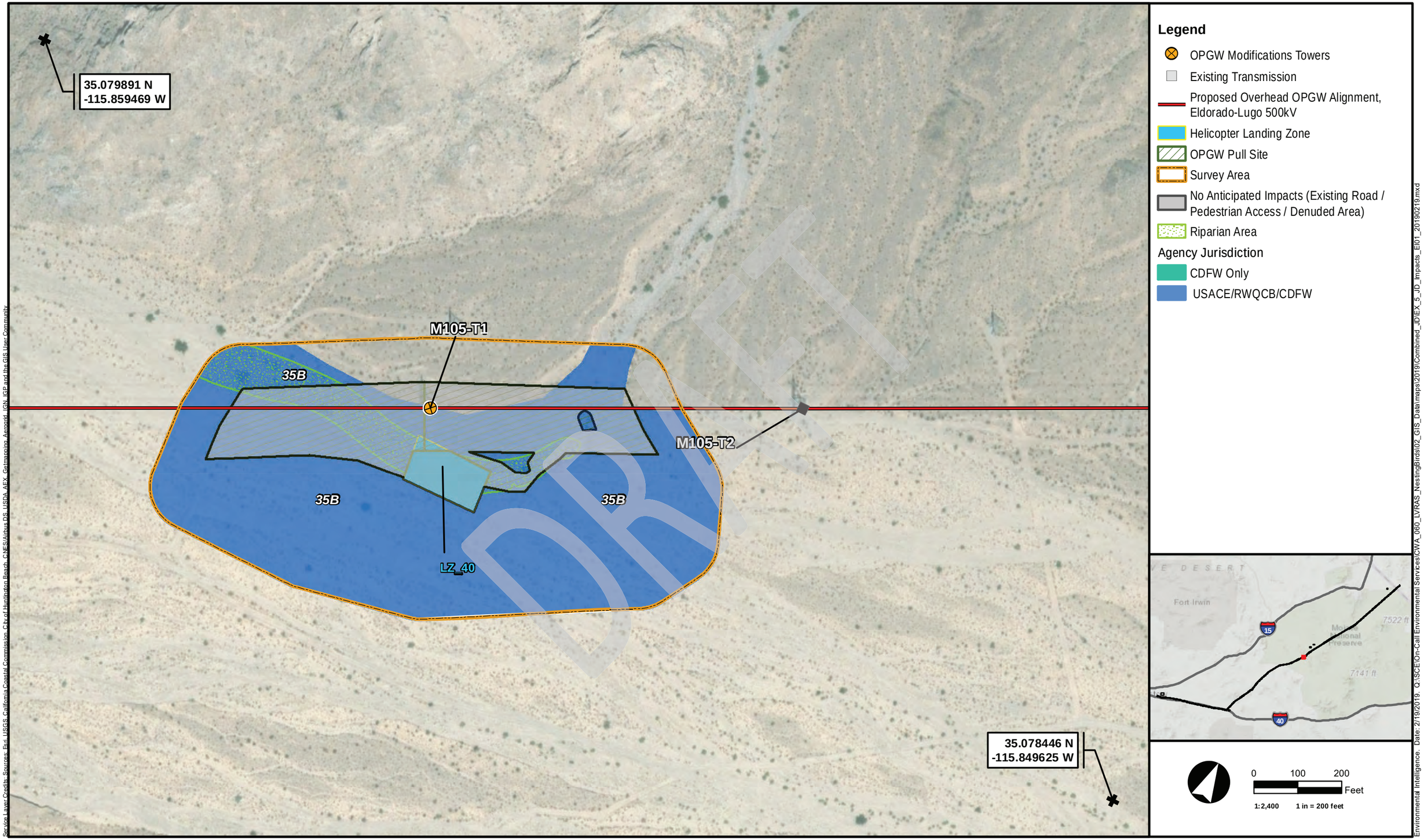


Exhibit 5. Proposed Impacts (Page 6 of 13)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

35.133145 N
-115.768187 W

43B
43B
43B
43B
43B
43B

M111-T4
M111-T5
M111-T6

Powerline Rd
Powerline Rd
Powerline Rd

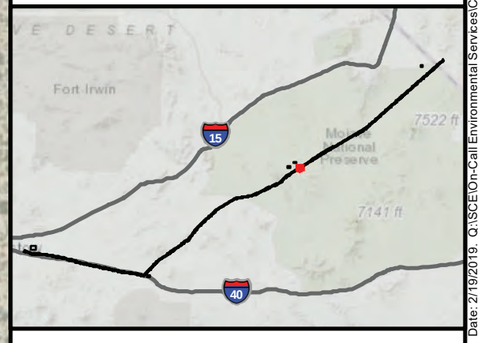
35.132689 N
-115.758197 W

Legend

- OPGW Modifications Towers
- Existing Transmission
- Proposed Overhead OPGW Alignment, Eldorado-Lugo 500kV
- OPGW Pull Site
- Survey Area
- No Anticipated Impacts (Existing Road / Pedestrian Access / Denuded Area)

Agency Jurisdiction

- CDFW Only
- USACE/RWQCB/CDFW



0 100 200 Feet

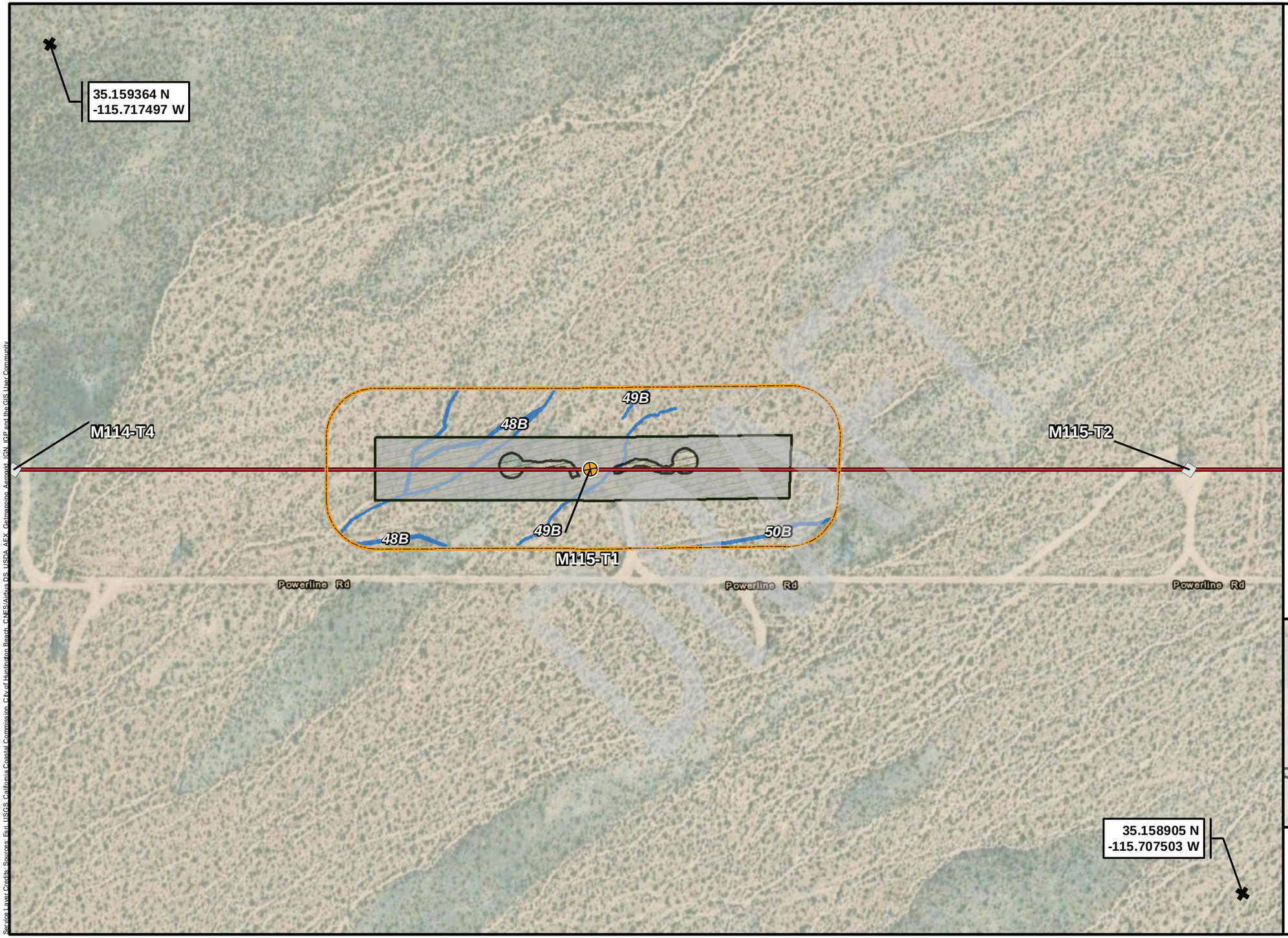
1:2,400 1 in = 200 feet

Source: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 2/19/2019. Q:\SCE\On-Call Environmental Services\CWA_060_LVRAS_NestingBirds\02_GIS_Data\maps\2019\Combined_JD\EX_5_JD_Impacts_E01_20190219.mxd

Exhibit 5. Proposed Impacts (Page 7 of 13)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

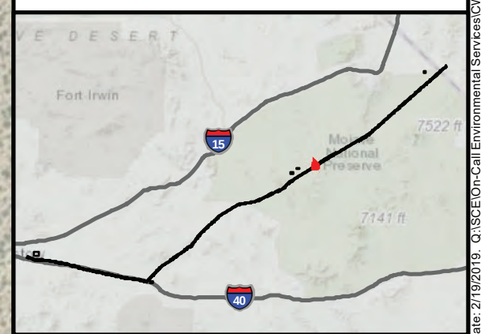


Legend

- OPGW Modifications Towers
- Existing Transmission
- Proposed Overhead OPGW Alignment, Eldorado-Lugo 500kV
- OPGW Pull Site
- Survey Area
- No Anticipated Impacts (Existing Road / Pedestrian Access / Denuded Area)

Agency Jurisdiction

- CDFW Only
- USACE/RWQCB/CDFW



0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Source: Esri, USGS, California Coastal Commission, City of Huntington Beach, GNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP and the GIS User Community

Environmental Intelligence. Date: 2/19/2019. Q:\SCE\On-Call\Environmental Services\CWA_060_LVRAS_NestingBirds\02_GIS_Data\maps\2019\Combined_JD\EX_5_JD_Impacts_El01_20190219.mxd

Exhibit 5. Proposed Impacts (Page 8 of 13)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

35.18167 N
-115.673921 W

M118-T1

51B

M117-T4

LZ_29

52B

Powerline Rd

Powerline Rd

Powerline Rd

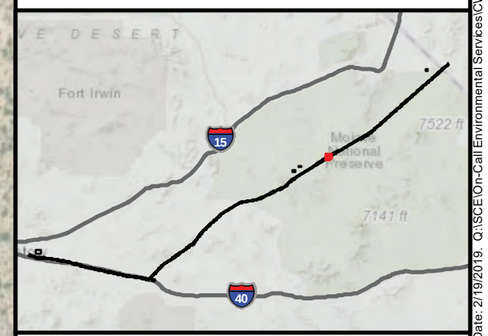
35.181139 N
-115.66393 W

Legend

- OPGW Modifications Towers
- Existing Transmission
- Proposed Overhead OPGW Alignment, Eldorado-Lugo 500kV
- Helicopter Landing Zone
- OPGW Pull Site
- General Disturbance
- Survey Area
- No Anticipated Impacts (Existing Road / Pedestrian Access / Denuded Area)

Agency Jurisdiction

- CDFW Only
- USACE/RWQCB/CDFW



0 100 200 Feet

1:2,400 1 in = 200 feet

Service Layer Credits: Sources: Esri, USGS, California Coastal Commission, City of Huntington Beach, GNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 2/19/2019. Q:\SCE\On-Call\Environmental Services\CWA_060_LVRAS_NestingBirds\02_GIS_Data\maps\2019\Combined_JD\EX_5_JD_Impacts_El01_20190219.mxd

Exhibit 5. Proposed Impacts (Page 9 of 13)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

35.312874 N
-115.432168 W

66B
66B
66B
66B
67B
68B
M134-T3
M134-T2
LZ_14
Powerline Rd
Powerline Rd

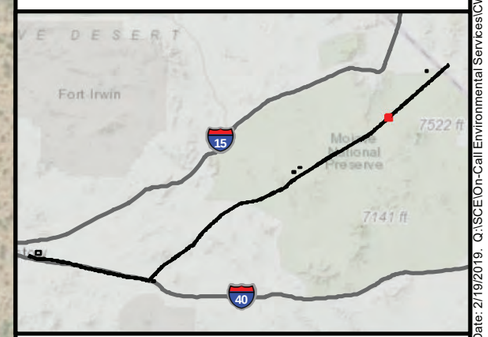
35.313703 N
-115.422191 W

Legend

- OPGW Modifications Towers
- Existing Transmission
- Proposed Overhead OPGW Alignment, Eldorado-Lugo 500kV
- Helicopter Landing Zone
- OPGW Pull Site
- Survey Area
- No Anticipated Impacts (Existing Road / Pedestrian Access / Denuded Area)
- Riparian Area

Agency Jurisdiction

- CDFW Only
- USACE/RWQCB/CDFW



0 100 200 Feet

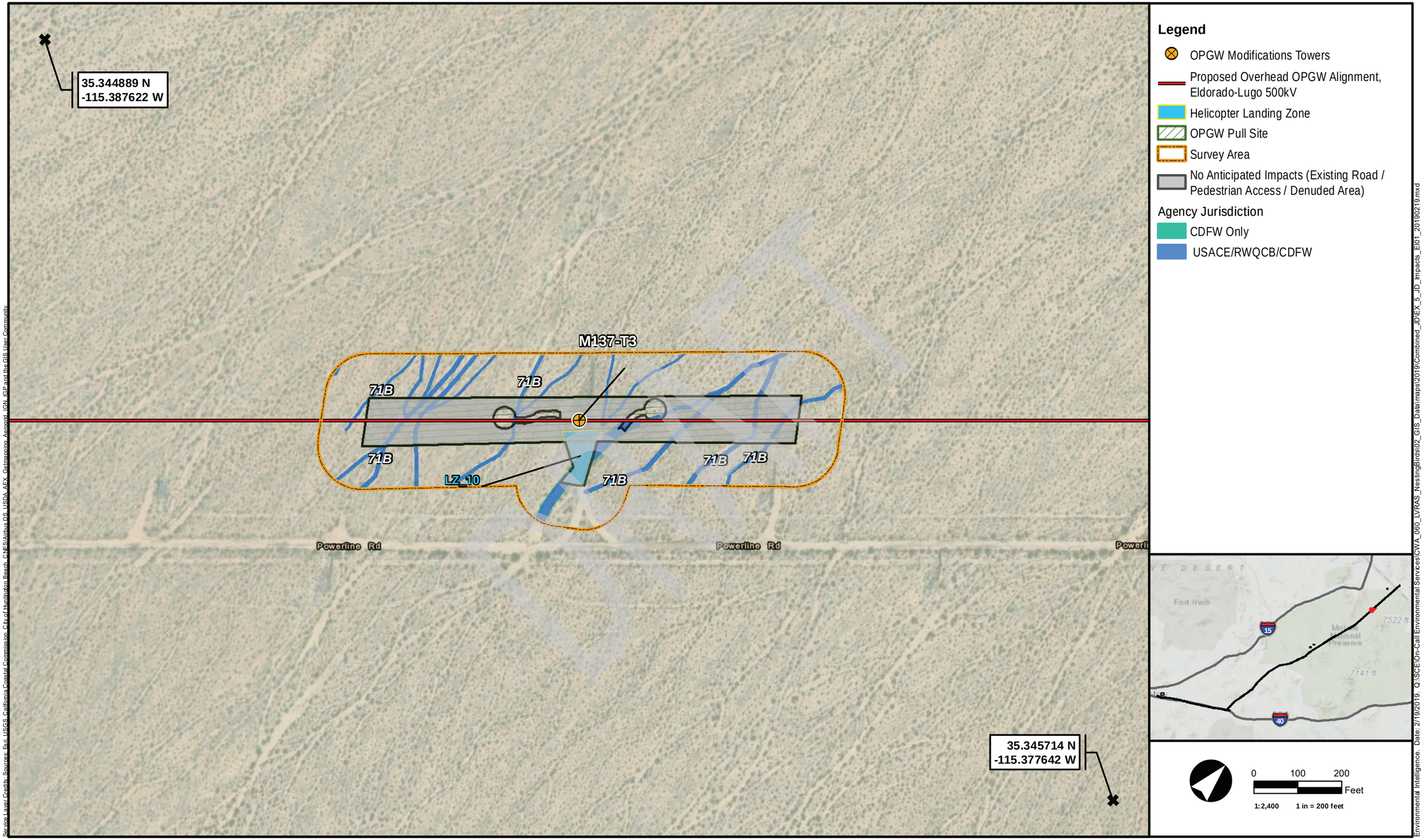
1:2,400 1 in = 200 feet

Service Layer Credits: Source: Esri, USGS, California Coastal Commission, City of Hunington Beach, CNES/Airbus DS, USDA, AEX, Geimapping, Aerogrid, IGN, IGP and the GIS User Community

Environmental Intelligence. Date: 2/19/2019. Q:\SCE\On-Call Environmental Services\CWA_060_LVRAS_NestingBirds\02_GIS_Data\maps\2019\Combined_JD\EX_5_JD_Impacts_El01_20190219.mxd

Exhibit 5. Proposed Impacts (Page 10 of 13)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV



Service Layer Credits: Source: Esri, USGS, California Coastal Commission, City of Huntington Beach, GNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP and the GIS User Community

Environmental Intelligence. Date: 2/19/2019. Q:\SCE\On-Call\Environmental Services\CWA_060_LVRAS_NestingBirds\02_GIS_Data\maps\2019\Combined_JD\EX_5_JD_Impacts_E01_20190219.mxd

Exhibit 5. Proposed Impacts (Page 11 of 13)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

35.40932 N
-115.297801 W

M144-T2

81B

81B

81B

81B

LZ_4

Powerline Rd

Powerline Rd

Powerline Rd

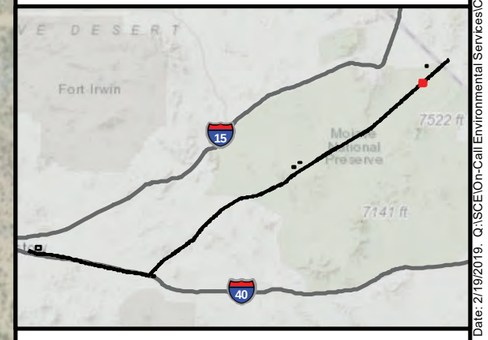
35.410137 N
-115.287812 W

Legend

- OPGW Modifications Towers
- Proposed Overhead OPGW Alignment, Eldorado-Lugo 500kV
- Helicopter Landing Zone
- OPGW Pull Site
- Survey Area
- No Anticipated Impacts (Existing Road / Pedestrian Access / Denuded Area)

Agency Jurisdiction

- CDFW Only
- USACE/RWQCB/CDFW



0 100 200 Feet

1:2,400 1 in = 200 feet

Source: Esri, USGS, California Coastal Commission, City of Huntington Beach, CNES/Airbus DS, USDA, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Environmental Intelligence. Date: 2/19/2019. Q:\SCE\On-Call Environmental Services\CWA_060_LVRAS_NestingBirds\02_GIS_Data\maps\2019\Combined_JD\EX_5_JD_Impacts_E01_20190219.mxd

Exhibit 5. Proposed Impacts (Page 12 of 13)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

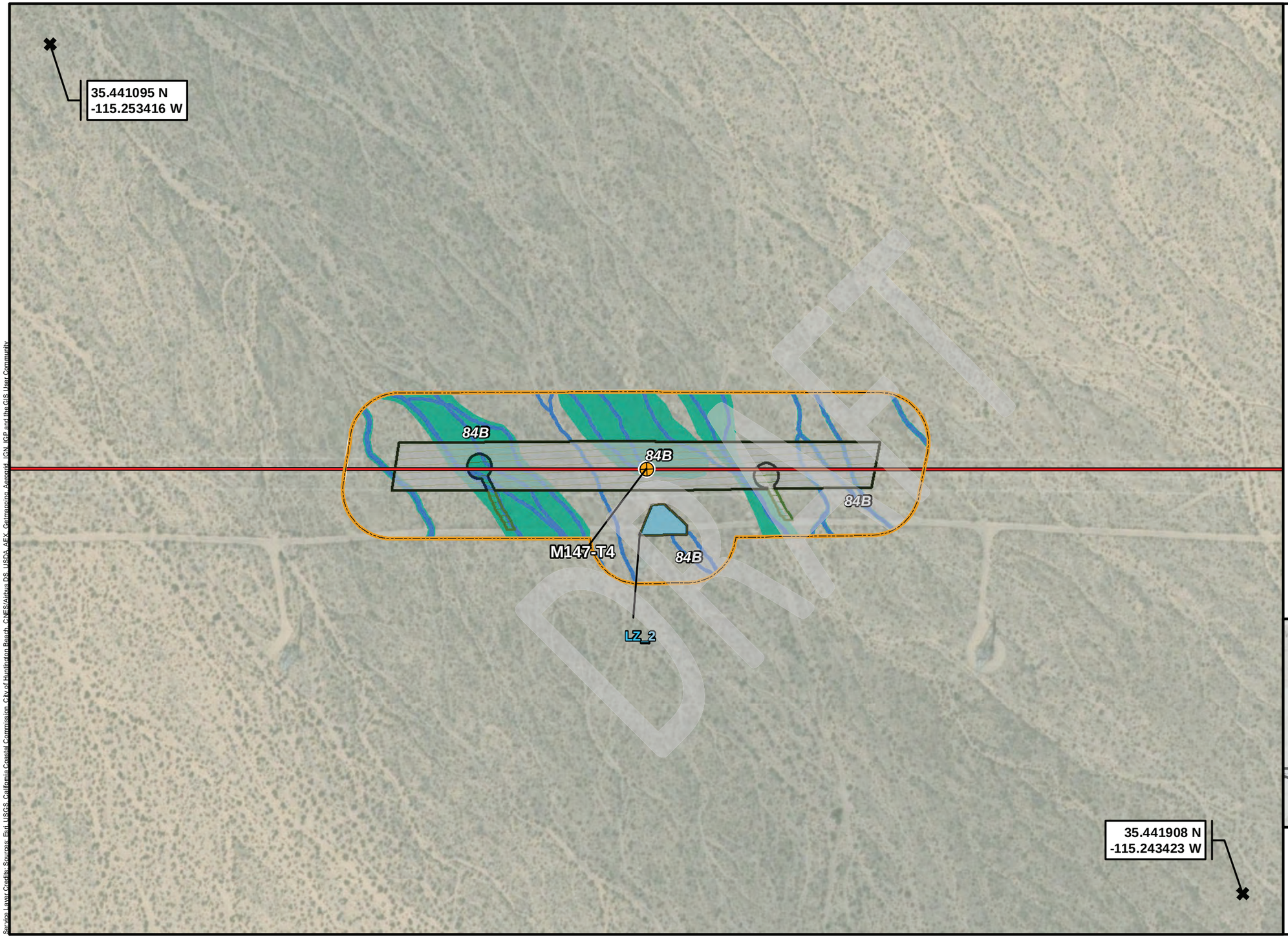


Exhibit 5. Proposed Impacts (Page 13 of 13)

Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project | San Bernardino County, CA and Clark County, NV

APPENDIX B:

SURVEY PHOTOGRAPHS

	**Photo 1:** Feature 1A. at the bridge crossing facing north.
	**Photo 2:** Feature 2A. at the bridge crossing facing northeast.
	**Photo 3:** Feature 3A. facing west.
	**Photo 4:** Feature 4A. View of dry playa facing west.

	**Photo 5:** Feature 1B, facing northwest.
	**Photo 6:** Feature 2B, facing northwest.
	**Photo 7:** Feature 3B, facing northwest.
	**Photo 8:** Feature 5B, facing north.

	**Photo 9:** Feature 5B, facing west.
	**Photo 10:** Feature 5B, facing northwest.
	**Photo 11:** Feature 6B, facing south.
	**Photo 12:** Feature 7B, facing southwest.

	**Photo 13:** Feature 8B, facing south.
	**Photo 14:** Feature 9B, facing west.
	**Photo 15:** Feature 10B, facing northwest.
	**Photo 16:** Feature 10B, facing southeast.

	**Photo 17:** Feature 11B, facing south.
	**Photo 18:** Feature 12B, facing southeast.
	**Photo 19:** Feature 13B, facing east.
	**Photo 20:** Feature 13B, facing west.

	**Photo 21:** Feature 14B, facing east.
	**Photo 22:** Feature 15B, facing northwest.
	**Photo 23:** Feature 15B, facing north.
	**Photo 24:** Feature 16B, facing northeast.

	**Photo 25:** Feature 16B, facing northwest.
	**Photo 26:** Feature 17B, facing northwest.
	**Photo 27:** Feature 18B, facing south.
	**Photo 28:** Feature 19B, facing northwest.

	**Photo 29:** Feature 20B, facing northwest.
	**Photo 30:** Feature 21B, facing southwest.
	**Photo 31:** Feature 22B, facing north.
	**Photo 32:** Feature 22B, facing east.

	**Photo 33:** Feature 23B, facing northwest.
	**Photo 34:** Feature 24B, facing northwest.
	**Photo 35:** Feature 24B, facing southwest.
	**Photo 36:** Feature 25B, facing northwest.

	**Photo 37:** Feature 26B, facing west.
	**Photo 38:** Feature 27B, facing west.
	**Photo 39:** Feature 27B, facing east.
	**Photo 40:** Feature 27B, facing northwest.

	**Photo 41:** Feature 28B, facing southeast.
	**Photo 42:** Feature 29B, facing northwest.
	**Photo 43:** Feature 30B, facing north.
	**Photo 44:** Feature 30B, facing south.

	**Photo 45:** Feature 31B, facing north.
	**Photo 46:** Feature 32B, facing north.
	**Photo 47:** Feature 33B, facing south.
	**Photo 48:** Feature 34B, facing east.

	**Photo 49:** Feature 35B, facing northwest.
	**Photo 50:** Feature 35B, facing southeast.
	**Photo 51:** Feature 35B, facing east.
	**Photo 52:** Feature 35B, facing southwest.

	**Photo 53:** Feature 36B, facing northwest.
	**Photo 54:** Feature 37B, facing north.
	**Photo 55:** Feature 38B, facing west.
	**Photo 56:** Feature 40B, facing northwest.

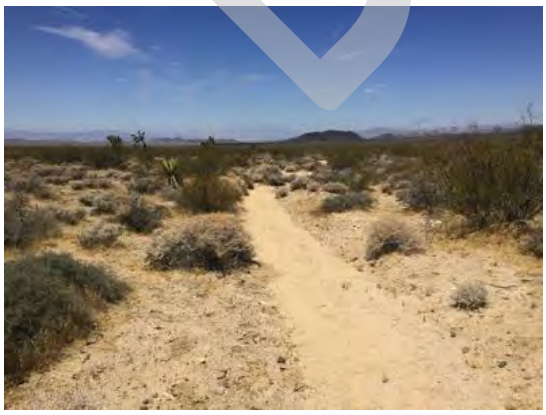
	**Photo 57:** Feature 40B, facing southeast.
	**Photo 58:** Feature 39B, facing southeast.
	**Photo 59:** Feature 39B, facing northwest.
	**Photo 60:** Feature 41B, facing northwest.

	**Photo 61:** Feature 42B, facing southeast.
	**Photo 62:** Feature 43B, facing south.
	**Photo 63:** Feature 43B, facing southeast.
	**Photo 64:** Feature 44B, facing north.

	**Photo 65:** Feature 45B, facing north.
	**Photo 66:** Feature 46B, facing north.
	**Photo 67:** Feature 44B and 47B, facing east.
	**Photo 68:** Feature 48B, facing northeast.

	**Photo 69:** Feature 49B, facing southwest.
	**Photo 70:** Feature 50B, facing southwest.
	**Photo 71:** Feature 51B, facing northeast.
	**Photo 72:** Feature 52B, facing south.

	**Photo 73:** Feature 53B, facing northwest.
	**Photo 74:** Feature 54B, facing north.
	**Photo 75:** Feature 55B, facing northeast.
	**Photo 76:** Feature 56B, facing north.

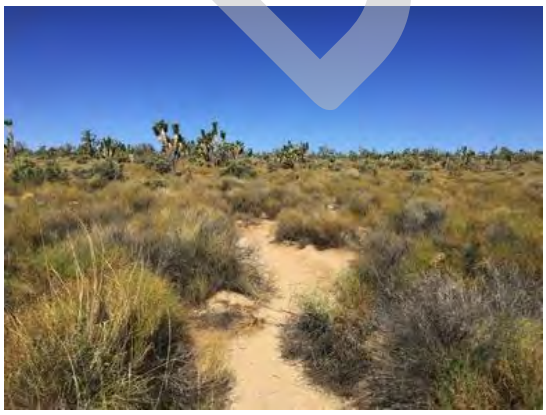
	**Photo 77:** Feature 57B, facing south.
	**Photo 78:** Feature 58B, facing north.
	**Photo 79:** Feature 59B, facing south.
	**Photo 80:** Feature 60B, facing west.

	**Photo 81:** Feature 62B, facing northeast.
	**Photo 82:** Feature 62B, facing east.
	**Photo 83:** Feature 61B, facing east.
	**Photo 84:** Feature 61B, facing west.

	**Photo 85:** Feature 63B, facing northeast.
	**Photo 86:** Feature 64B, facing northeast.
	**Photo 87:** Feature 65B, facing west.
	**Photo 88:** Feature 66B, facing east.

	**Photo 89:** Feature 66B, facing west.
	**Photo 90:** Feature 67B, facing south.
	**Photo 91:** Feature 68B, facing south.
	**Photo 92:** Feature 69B, facing southwest.

	**Photo 93:** Feature 69B, facing northeast.
	**Photo 94:** Feature 70B, facing southwest.
	**Photo 95:** Feature 70B, facing southwest.
	**Photo 96:** Feature 71B, facing southwest.

	**Photo 97:** Feature 71B, facing northeast.
	**Photo 98:** Feature 72B, facing north.
	**Photo 99:** Feature 73B, facing north.
	**Photo 100:** Feature 74B, facing south.

	**Photo 101:** Feature 75B, facing south.
	**Photo 102:** Feature 76B, facing north.
	**Photo 103:** Feature 77B and 78B, facing north.
	**Photo 104:** Feature 79B, facing north.

	**Photo 105:** Feature 80B, facing south.
	**Photo 106:** Feature 81B, facing southeast.
	**Photo 107:** Feature 81B, facing northwest.
	**Photo 108:** Feature 82B, facing west.

	**Photo 109:** Feature 82B, facing west.
	**Photo 110:** Feature 83B, facing west.
	**Photo 111:** Feature 83B, facing northeast.
	**Photo 112:** Feature 84B, facing north.

	**Photo 113:** Feature 84B, facing south.
	**Photo 114:** Feature 85B, facing west.
	**Photo 115:** Feature 86B, facing north.
	**Photo 116:** Feature 87B, facing northwest.

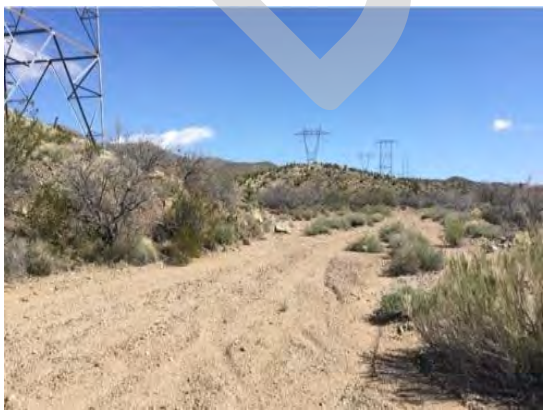
	**Photo 117:** Feature 88B, facing east.
	**Photo 118:** Feature 88B, facing west.
	**Photo 119:** Feature 89B, facing southeast.
	**Photo 120:** Feature 89B, facing west.

	**Photo 121:** Feature 90B, facing east.

APPENDIX C:

PREPARED REQUEST FOR CORPS JURISDICTIONAL DETERMINATION SHEET
AND
PREPARED PRELIMINARY JURISDICTIONAL DETERMINATION FORM

Appendix 1 - REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD)

To: USACE Los Angeles District (Los Angles and San Bernardino Section)

- I am requesting a JD on property located at: N/A. Project is located within San Bernardino County between the towns of Dagget and Ludlow and a portion in Clark County, Nevada
  (Street Address)
  City/Township/Parish: N/A County: San Bernardino and Clark State: CA and NV
  Acreage of Parcel/Review Area for JD: total area of waters: 55.92
  Section: ___ Township: _____ Range: _____ Multiple STR (S3T008NR006E, S12T012NR011E, S16T009NR007E, S16T010NR008E, S26T013NR012E, S26T013NR012E)

  Latitude (decimal degrees): 35.105866 Longitude (decimal degrees): -115.813770
  (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 requester.
  X Other (please explain): SCE ROW. Please see JDR Exhibits 1 through 4
- 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.
  X 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 1O 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.
  X 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.
  X 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.

*Signature: _____ Date: _____

- Typed or print name: Rey Gonzales
  Company name: Southern California Edison
  Address: 244 Walnut Grove GO1 Quad 2C Rosemead, CA 91770
  Daytime phone no.: _____
  Email address: rey.gonzales@sce.com

***Authorities:** Rivers and Harbors Act, Section 1o, 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:

Lugo-Victorville 500 kV Transmission Line Remedial Action Scheme Project Jurisdictional Delineation Report Completed September 15, 2019

B. NAME AND ADDRESS OF PERSON REQUESTING PJD:

Rey Gonzales, Senior Project Manager, Southern California Edison.
2244 Walnut Grove GO1 Quad C
Rosemead, CA 91770
rey.gonzales@sce.com

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

Los Angeles District, Regulatory Division, Los Angeles and San Bernardino Counties Section

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 and NV* County/parish/borough: San Bernardino (CA) and Clark (NV) City: *N/A*

Center coordinates of site (lat/long in degree decimal format):

Lat.: *35.105866* Long.: *-115.813770* UTM: *608108.49 m E3885426.95 m* N

Name of nearest waterbody:

C. 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)	Estimated amount of aquatic resource in review area (linear feet)	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)
1A	34.856535	-116.861524	0.35	1524.64	Non-wetland (Riverine)	Section 404
1B	34.781378	-116.38384	0.01	234.95	Non-wetland (Riverine)	Section 404
2A	34.855026	-116.857509	0.19	1276.75	Non-wetland (Riverine)	Section 404

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION (Continued).

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Estimated amount of aquatic resource in review area (linear feet)	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)
2B	34.783904	-116.383413	0.17	304.87	Non-wetland (Riverine)	Section 404
3A	34.849541	-116.839423	0.33	1235.70	Non-wetland (Riverine)	Section 404
3B	34.786727	-116.380074	0.05	363.78	Non-wetland (Riverine)	Section 404
4A	34.801571	-116.542366	15.69	6232.86	Non-wetland (Lacustrine [Playa])	Section 404
5B	34.816842	-116.344346	3.36	3449.82	Non-wetland (Riverine)	Section 404
6B	34.817843	-116.343122	0.06	587.05	Non-wetland (Riverine)	Section 404
7B	34.823721	-116.335643	0.01	136.48	Non-wetland (Riverine)	Section 404
8B	34.824044	-116.335111	0.01	34.51	Non-wetland (Riverine)	Section 404
9B	34.829013	-116.328541	0.02	333.88	Non-wetland (Riverine)	Section 404
10B	34.829397	-116.328117	0.02	240.06	Non-wetland (Riverine)	Section 404
11B	34.834992	-116.317765	0.002	84.91	Non-wetland (Riverine)	Section 404
12B	34.83542	-116.317528	0.001	34.46	Non-wetland (Riverine)	Section 404
13B	34.840972	-116.306592	0.49	281.13	Non-wetland (Riverine)	Section 404
14B	34.846769	-116.296674	0.02	384.02	Non-wetland (Riverine)	Section 404
15B	34.873077	-116.25064	0.27	503.89	Non-wetland (Riverine)	Section 404
16B	34.873646	-116.250455	0.02	449.36	Non-wetland (Riverine)	Section 404

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION (Continued).

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Estimated amount of aquatic resource in review area (linear feet)	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)
17B	34.87435	-116.249166	0.04	1327.34	Non-wetland (Riverine)	Section 404
18B	34.87495	-116.248003	0.01	228.77	Non-wetland (Riverine)	Section 404
19B	34.899824	-116.205844	2.06	374.20	Non-wetland (Riverine)	Section 404
20B	34.903554	-116.204557	0.04	603.80	Non-wetland (Riverine)	Section 404
21B	34.904078	-116.202843	0.03	303.29	Non-wetland (Riverine)	Section 404
22B	34.935304	-116.174043	0.22	241.73	Non-wetland (Riverine)	Section 404
23B	34.938097	-116.171452	0.19	228.78	Non-wetland (Riverine)	Section 404
24B	34.942712	-116.165599	0.40	939.55	Non-wetland (Riverine)	Section 404
25B	34.943804	-116.165016	0.34	584.43	Non-wetland (Riverine)	Section 404
26B	34.970367	-116.127637	0.07	1100.67	Non-wetland (Riverine)	Section 404
27B	34.975608	-116.121749	1.49	4156.12	Non-wetland (Riverine)	Section 404
28B	34.976578	-116.118998	0.01	77.38	Non-wetland (Riverine)	Section 404
29B	34.977025	-116.119028	0.04	189.12	Non-wetland (Riverine)	Section 404
30B	35.00519	-116.077277	0.09	161.37	Non-wetland (Riverine)	Section 404
31B	35.006122	-116.075217	0.05	456.39	Non-wetland (Riverine)	Section 404
32B	35.016034	-116.053585	0.15	600.67	Non-wetland (Riverine)	Section 404

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION (Continued).

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Estimated amount of aquatic resource in review area (linear feet)	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)
34B	35.037502	-115.985862	0.06	85.67	Non-wetland (Riverine)	Section 404
35B	35.074932	-115.869649	17.37	5709.61	Non-wetland (Riverine)	Section 404
36B	35.106186	-115.813094	0.10	596.30	Non-wetland (Riverine)	Section 404
37B	35.107178	-115.810827	0.05	1095.48	Non-wetland (Riverine)	Section 404
38B	35.110635	-115.807041	0.12	213.59	Non-wetland (Riverine)	Section 404
39B	35.135413	-115.808188	0.59	422.95	Non-wetland (Riverine)	Section 404
40B	35.123691	-115.783645	0.18	1010.97	Non-wetland (Riverine)	Section 404
41B	35.149988	-115.78327	0.02	432.65	Non-wetland (Riverine)	Section 404
42B	35.150296	-115.782934	0.04	435.39	Non-wetland (Riverine)	Section 404
43B	35.133314	-115.762393	0.34	2748.59	Non-wetland (Riverine)	Section 404
44B	35.146929	-115.736033	0.06	902.15	Non-wetland (Riverine)	Section 404
45B	35.146963	-115.735768	0.01	278.52	Non-wetland (Riverine)	Section 404
46B	35.146915	-115.73546	0.003	120.32	Non-wetland (Riverine)	Section 404
47B	35.147335	-115.735017	0.002	105.31	Non-wetland (Riverine)	Section 404
48B	35.158551	-115.713669	0.07	1295.91	Non-wetland (Riverine)	Section 404
49B	35.159032	-115.71277	0.01	554.15	Non-wetland (Riverine)	Section 404

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION (Continued).

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Estimated amount of aquatic resource in review area (linear feet)	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)
50B	35.159169	-115.711602	0.02	309.85	Non-wetland (Riverine)	Section 404
51B	35.181678	-115.668932	0.04	524.69	Non-wetland (Riverine)	Section 404
52B	35.181457	-115.666884	0.01	269.53	Non-wetland (Riverine)	Section 404
53B	35.196984	-115.634854	0.02	421.06	Non-wetland (Riverine)	Section 404
54B	35.22634	-115.572214	0.004	164.43	Non-wetland (Riverine)	Section 404
55B	35.226442	-115.571598	0.01	143.16	Non-wetland (Riverine)	Section 404
56B	35.228059	-115.569141	0.13	1634.84	Non-wetland (Riverine)	Section 404
57B	35.228009	-115.568074	0.02	466.23	Non-wetland (Riverine)	Section 404
58B	35.228697	-115.567388	0.12	532.74	Non-wetland (Riverine)	Section 404
59B	35.234379	-115.555223	0.01	264.16	Non-wetland (Riverine)	Section 404
60B	35.27922	-115.474535	0.01	269.77	Non-wetland (Riverine)	Section 404
61B	35.281257	-115.471196	0.02	854.55	Non-wetland (Riverine)	Section 404
62B	35.28226	-115.470925	0.04	1204.83	Non-wetland (Riverine)	Section 404
63B	35.286288	-115.46345	0.01	210.69	Non-wetland (Riverine)	Section 404
64B	35.302267	-115.441826	0.02	75.52	Non-wetland (Riverine)	Section 404
65B	35.301763	-115.441195	0.02	225.42	Non-wetland (Riverine)	Section 404

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION (Continued).

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Estimated amount of aquatic resource in review area (linear feet)	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)
66B	35.313154	-115.427591	5.68	3937.77	Non-wetland (Riverine)	Section 404
67B	35.312186	-115.42825	0.02	452.76	Non-wetland (Riverine)	Section 404
68B	35.312576	-115.427682	0.004	195.32	Non-wetland (Riverine)	Section 404
69B	35.317777	-115.420012	0.03	227.10	Non-wetland (Riverine)	Section 404
70B	35.323751	-115.411302	0.07	891.56	Non-wetland (Riverine)	Section 404
71B	35.345243	-115.382548	0.42	4551.74	Non-wetland (Riverine)	Section 404
72B	35.360375	-115.359991	0.03	968.59	Non-wetland (Riverine)	Section 404
73B	35.37302	-115.344133	0.06	198.62	Non-wetland (Riverine)	Section 404
74B	35.377423	-115.337935	0.06	1212.48	Non-wetland (Riverine)	Section 404
75B	35.378591	-115.336365	0.17	494.51	Non-wetland (Riverine)	Section 404
76B	35.384997	-115.327734	0.03	241.68	Non-wetland (Riverine)	Section 404
77B	35.39018	-115.318359	0.01	215.79	Non-wetland (Riverine)	Section 404
78B	35.390527	-115.317887	0.09	451.77	Non-wetland (Riverine)	Section 404
79B	35.396007	-115.310627	0.01	497.15	Non-wetland (Riverine)	Section 404
80B	35.396268	-115.310349	0.01	311.48	Non-wetland (Riverine)	Section 404
81B	35.409801	-115.292752	0.27	5150.85	Non-wetland (Riverine)	Section 404

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION (Continued).

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Estimated amount of aquatic resource in review area (linear feet)	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)
82B	35.431813	-115.261825	0.13	403.16	Non-wetland (Riverine)	Section 404
83B	35.434184	-115.257571	0.09	483.53	Non-wetland (Riverine)	Section 404
84B	35.441398	-115.248581	0.27	4897.78	Non-wetland (Riverine)	Section 404
85B	35.45982	-115.220831	0.01	191.73	Non-wetland (Riverine)	Section 404
86B	35.460493	-115.220759	0.02	288.66	Non-wetland (Riverine)	Section 404
87B	35.462722	-115.218777	0.17	3891.90	Non-wetland (Riverine)	Section 404
88B	35.482604	-115.190673	0.92	512.44	Non-wetland (Riverine)	Section 404
89B	35.483464	-115.189703	1.38	701.52	Non-wetland (Riverine)	Section 404
90B	35.484413	-115.188556	0.17	1350.66	Non-wetland (Riverine)	Section 404
TOTAL			**55.92**	**79,333.40**		

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

■ Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
Maps:

☐ 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:

■ U.S. Geological Survey Hydrologic Atlas: http://nhd.usgs.gov/.
■ USGS NHD Data
■ USGS 8 and 12 digit HUC Maps: https://www.usgs.gov/mission-areas/water-resources/maps

■ U.S. Geological Survey Map(s). Cite scale and quad name: *7.5 minute: Hector, Sleeping Beauty, Broadwell Lake, West of Broadwell Mesa, Broadwell Mesa, Soda Lake South, Cowhole Mountain, Old Dad Mountain, Indian Spring, Marl Mountains, Cima, Cima Dome, Joshua, Ivanpah, Nipton, Minneola, Newberry Springs, Troy Lake, Lavic Lake, Ludlow, and Crescent Peak*

■ Natural Resource Conservation Soil Survey. *Citation: Web Soil Survey. Available at: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx*.

■ Natural Wetlands Inventory Map(s). Cite name: *National Wetlands Inventory Mapper. Available at: https://www.fws.gov/wetlands/data/mapper.html*.

☐ State/Local Wetland Inventory Map(s). Service U.S. Geological Survey Map(s):

■ FEMA/FIRM maps: *National Flood Hazard Layer. Accessed online at: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd*

☐ 100-year Floodplain Elevation is: *N/A. No baseflood information. Citation: https://msc.fema.gov/portal/search?AddressQuery=daggett%2C%20ca#searchresultsanchor*

■ Photographs: ■ Aerial (Name & Date): *Google Earth Pro (2017) and USDA National Agriculture Imagery Program. https://www.fsa.usda.gov/programs-and-services/aerial-photography/imagery-programs/naip-imagery/ (2017).*

■ Other (Name & Date): *Delineation field photographs (2016). See Appendix B in Jurisdictional Delineation Report.*

☐ Previous determinations(s). File no. and date of response letter:

■ Other Information (please specify): *Please see Jurisdictional Delineation Report.*

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	Signature and date of person requesting PJD (REQUIRED, unless obtaining the signature is impracticable)[1]

[1] Districts may establish timeframes for requester to return signed PJD forms. If the requester 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.

APPENDIX D:

ORM WATERS BULK UPLOAD SHEET
(ELECTRONIC VERSION ONLY)

Appendix D-13

Aquatic Resources Delineation Report

AQUATIC RESOURCES DELINEATION REPORT FOR THE LUGO-VICTORVILLE 500 KV TRANSMISSION LINE REMEDIAL ACTION SCHEME PROJECT

San Bernardino County, California and Clark County, Nevada

Prepared for:
Southern California Edison
2244 Walnut Grove
Rosemead, California 91770
Applicant Contact: Rey Gonzales
Senior Project Manager, Environmental
Southern California Edison
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In partnership with:
Rincon Consultants, Inc.
Contact: Shauna Callery
SCallery@rinconconsultants.com

October 2021

Artemis Environmental Services, Inc.

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APPENDICES

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EXECUTIVE SUMMARY

Artemis Environmental Services, Inc. (Artemis Environmental) was retained by Rincon Consultants, Inc. (Rincon) to perform an aquatic resources delineation on behalf of Southern California Edison (SCE) for the Lugo-Victorville 500-kilovolt (kV) Transmission Line Remedial Action Scheme Project (Project). A previous aquatic resource delineation was performed in 2019 by Environmental Intelligence, LLC (EI; 2019). The Project also received a prior verification of presence of waters of the U.S. and authorization under Nationwide Permit No. 18 (Minor Discharges) from the U.S. Army Corps of Engineers (USACE) on August 27, 2020 (SPL-2020-00130-VN; USACE 2020). Due to engineering design changes in the Project footprint, Artemis Environmental was retained to survey the areas not captured in the previous delineation effort and to update previous survey data.

The Project spans San Bernardino County, California and Clark County, Nevada, and includes two segments, Segment 1: Gale Substation to Pisgah Substation (Gale to Pisgah; Segment 1), including the Pisgah Substation, and Segment 2: Pisgah Substation to Nipton Substation (Pisgah to Nipton; Segment 2). Segment 1 includes the installation of telecommunication all-dielectric self-supporting (ADSS) cable line from SCE's Gale Substation near Barstow, California to SCE's Pisgah Substation near Ludlow, California for approximately 29 miles within the existing SCE right-of-way (ROW) along U.S. Route 66 and Interstate Highway 40. The ADSS cable would be attached overhead to existing wood poles, and 1.3 miles would be placed in underground conduits. Segment 2 includes the removal of the existing overhead ground wire (OHGW) and replacement with Optical Ground Wire (OPGW) along approximately 84 miles within the existing SCE ROW starting at SCE's Pisgah Substation and ending at transmission tower M152-T2 within Clark County, Nevada (near Nipton Road/Joshua Tree Highway). The Project is located along the southern portion of the Antelope Valley within three Hydrologic Units (HU): Ivanpah (HU 612.00), Mojave (HU 628.00), and Broadwell (HU 629.00). The aquatic resources delineation Survey Area (Survey Area) totals 756.96 acres and encompasses a 25-foot buffer from the Gale Substation to Structure 30654S (304.34 acres), a 65-foot buffer from Structure 30654S to Pisgah Substation (125.95 acres), and a 50-foot buffer from the Pisgah Substation to the Nipton Substation (325.67 acres).

This aquatic resources delineation report (ARDR) summarizes the existing conditions within the Survey Area, the methodologies employed prior to and during field work, and the results of the delineation survey, including data and mapping of the amount, type, and location of aquatic resources.

The Survey Area contains the amount and type of aquatic resources reported in Table 1. Overall, aquatic resources totaled 86.05 acres (281,314 linear feet) within the Survey Area, including 42.42 acres (131,473 linear feet) in Segment 1: Gale-Pisgah and 43.63 acres (149,841 linear feet) in Segment 2: Pisgah to Nipton. Aquatic resources under the purview of USACE total 40.51 acres (192,996 linear feet) within the Survey Area, including 10.31 acres (46,892 linear feet) in the Segment 1: Gale-Pisgah and 30.20 (146,104 linear feet) in Segment 2: Pisgah to Nipton. Aquatic resources under the purview of the Regional Water Quality Control Board (RWQCB) total 66.97 acres (278,156 linear feet) within the Survey Area, including 36.25 acres (131,473 linear feet) in the Segment 1: Gale-Pisgah and 30.72 (146,683 linear feet) in Segment 2: Pisgah to Nipton. Aquatic resources under the purview of California Department of Fish and Wildlife (CDFW) total 70.41 acres (192,996 linear feet) within the Survey Area, including 27.95 acres (46,892 linear feet) in Segment 1: Gale-Pisgah and 42.46 acres (146,104linear feet) in Segment 2: Pisgah to Nipton. Aquatic

resources under the purview of Nevada Division of Environmental Protection (NDEP) total 0.64 acre (3,157 linear feet) within the Survey Area in Segment 2: Pisgah to Nipton.

Table 1.Summary of Aquatic Resources within the Survey Area

Aquatic Resource Type Potential Jurisdiction *(feature type[1])*	Amount[2]	
	Acres	Linear feet
Segment 1: Gale to Pisgah		
Non-wetland Waters of the U.S. and State		
USACE/RWQCB/CDFW (vegetated and unvegetated streambed, ditch/canal)	10.31	46,892
RWQCB/CDFW (playa, connected basin)	11.49	--
RWQCB-exclusive (isolated basin, excavated diversion ditch, roadside ditch)	14.45	84,582
CDFW-exclusive (vegetated and unvegetated streambed bank, ditch/canal bank)	6.15	--*
Total USACE Aquatic Resources in Segment 1	**10.31**	**46,892**
Total RWQCB Aquatic Resources in Segment 1	**36.25**	**131,473**
Total CDFW Aquatic Resources in Segment 1	**27.95**	**46,892**
Total Aquatic Resources in Segment 1	**42.42**	**131,473**
Segment 2: Pisgah to Nipton		
Non-wetland Waters of the State		
USACE/RWQCB/CDFW (vegetated and unvegetated streambed, ditch/canal)	30.20	146,104
RWQCB-exclusive (basin, roadside ditch)	0.52	579
CDFW-exclusive (vegetated and unvegetated streambed bank, ditch/canal bank)	12.26	--*
NDEP (vegetated and unvegetated streambed and bank)	0.64	3,157
Total USACE Aquatic Resources in Segment 2	**30.20**	**146,104**
Total RWQCB Aquatic Resources in Segment 2	**30.72**	**146,683**
Total CDFW Aquatic Resources in Segment 2	**42.46**	**146,104**
Total NDEP Aquatic Resources in Segment 2	**0.64**	**3,157**
Total Aquatic Resources in Segment 2	**43.63**	**149,841**
GRAND TOTAL USACE AQUATIC RESOURCES (Segments 1 and 2)	**40.51**	**192,996**
GRAND TOTAL RWQCB AQUATIC RESOURCES (Segments 1 and 2)	**66.97**	**278,156**
GRAND TOTAL CDFW AQUATIC RESOURCES (Segments 1 and 2)	**70.41**	**192,996**
GRAND TOTAL NDEP AQUATIC RESOURCES (Segments 1 and 2)	**0.64**	**3,157**
GRAND TOTAL AQUATIC RESOURCES (Segments 1 and 2)	**86.05**	**281,314**

USACE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; NDEP = Nevada Department of Environmental Protection

[1] Each feature type is further defined in Section 5 Results: Description of All Wetlands and Other Non-wetland Waters

[2] All acreages and linear feet are rounded to the nearest hundredth (which may account for minor rounding error).

* Linear feet of this feature concurrent with and already included in Streambed.

1 INTRODUCTION

Artemis Environmental Services, Inc. (Artemis Environmental) was retained by Rincon Consultants, Inc. (Rincon) to perform an aquatic resources delineation on behalf of Southern California Edison (SCE) for the Lugo-Victorville 500-kilovolt (kV) Transmission Line Remedial Action Scheme Project (Project). A previous aquatic resource delineation was performed in 2019 by Environmental Intelligence, LLC (EI; 2019). The Project also received a prior verification of presence of waters of the U.S. and authorization under Nationwide Permit No. 18 (Minor Discharges) from the U.S. Army Corps of Engineers (USACE) on August 27, 2020 (SPL-2020-00130-VN; USACE 2020). Due to engineering design changes in the Project footprint, Artemis Environmental was retained to survey the areas not captured in the previous delineation effort and to update previous survey data.

The Project spans San Bernardino County, California and Clark County, Nevada, and includes two segments, Segment 1: Gale to Pisgah and Segment 2: Pisgah to Nipton (Appendix A, Figure 1: Regional). Primary project activities will consist of the following: Segment 1 includes the installation of telecommunication all-dielectric self-supporting (ADSS) cable line from SCE's Gale Substation near Barstow, California to SCE's Pisgah Substation near Ludlow, California for approximately 29 miles within the existing SCE right-of-way (ROW) along U.S. Route 66 and Interstate Highway 40. The ADSS cable would be attached overhead to existing wood poles, and 1.3 miles would be placed in underground conduits. Segment 2 includes the removal of the existing overhead ground wire (OHGW) and replacement with Optical Ground Wire (OPGW) along approximately 84 miles within the existing SCE ROW starting at SCE's Pisgah Substation and ending at transmission tower M152-T2 within Clark County, Nevada (near Nipton Road/Joshua Tree Highway). The aquatic resources delineation Survey Area (Survey Area) encompasses storage yards, material laydown yards, helicopter landing zones, pole work areas, tower work areas, underground work areas, pull sites, and entry zones. The Survey Area totals approximately 756.96 acres and intersects 344 Assessor Parcel Numbers (APNs) in California and three APNs in Nevada, which can be found in Appendix B.

This aquatic resources delineation report (ARDR) was prepared in general accordance with U.S. Army Corps of Engineers (USACE) Los Angeles District *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports* (USACE 2017), *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program* (USACE 2016a), and *Aquatic Resource Delineation Report Submittal Workshop* (USACE 2019).

1.1 PROJECT APPLICANT AND PROPERTY OWNER

Contact information for the Project applicant is:

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The Project applicant representative will accompany regulatory agencies to the Project site upon request. The Project is located on private land and federal land administered by the Bureau of Land Management (BLM), Department of Defense (DOD), California State Lands Commission (SLC), and National Park Service (Mojave National Preserve; MNP). All proposed work will be conducted within the existing ROW agreements.

1.2 Location and Directions

The Survey Area consists of two segments, Segment 1: Gale to Pisgah and Segment 2: Pisgah to Nipton. Segment 1 is located within an existing distribution line ROW adjacent to U.S. Route 66 and spans across primarily open space public lands including those administered by the BLM, DOD, and SLC in San Bernardino County, California (Appendix A, Figure 2: Project Vicinity). Segment 2 is located within primarily undisturbed desert scrub spanning lands administered by the BLM, DOD, MNP, SLC, and private landowners in San Bernardino County, California and Clark County, Nevada (Appendix A, Figure 2: Project Vicinity). The western edge of the Segment 1 Survey Area, at Gale Substation, is located at N34.858043, and W-116.866728 coordinates. Structure 30654S is located at N34.796278 and W-116.513713 coordinates. The Pisgah Substation is located at N34.782406, and W-116.384607 coordinates, and the eastern edge of the Segment 2 Survey Area, at Nipton Substation is located at N35.484861and W-115.187637 coordinates. The Survey Area is depicted on the following 19 United States Geological Survey (USGS) California 7.5-minute quadrangle maps: Crescent Peak, Nipton, Ivanpah, Joshua, Cima Dome, Cima, Marl Mountains, Indian Springs, Old Dad Mountain, Cowhole Mountain, Soda Lake South, Broadwell Mesa, West of Broadwell Mesa, Yermo, Sleeping Beauty, Hector, Troy Lake, Newberry Springs, and Minneola. Access to the Survey Area is via existing paved and unpaved roads. The specific Township, Range, and Section for each parcel within the Survey Area is included in the table in Appendix B.

Directions from Los Angeles: To access the western portion of the Project, take Interstate (I)-10 east toward San Bernardino for 40 miles. Merge onto I-15 north toward Barstow for 73 miles and take exit 184A to merge onto I-40 east toward Needles. Continue for 7.2 miles, then take exit 7 toward Daggett. In 0.3 mile, turn left on A Street toward Daggett. In 0.7 mile, turn right onto National Trails Highway (U.S. Route 66) and drive approximately 1.26 miles east until you reach the beginning of the alignment at Gale Substation.

1.3 Survey Area Site Description, Landscape Setting

A previous aquatic resource delineation was performed in 2019 by Environmental Intelligence, LLC (EI; 2019). Due to engineering design changes in the Project footprint, Artemis Environmental was retained to survey the areas not captured in the previous delineation effort (work areas). The aquatic resources delineation Survey Area totals 756.96 acres and encompasses a 25-foot buffer around each work area from the Gale Substation to Structure 30654S (304.34 acres), a 65-foot buffer from Structure 30654S to Pisgah Substation (125.95 acres), and a 50-foot buffer from the Pisgah Substation to the Nipton Substation (325.67 acres; Appendix A, Figure 3: Survey Area). Elevations vary from approximately 1,800 feet above mean sea level (amsl) to approximately 2,100 feet amsl within the Survey Area encompassing Segment 1 and from approximately 1,100 amsl to approximately 4,600 feet amsl within the Survey Area encompassing Segment 2. The Survey Area is located within the American Semidesert and Desert Province ecological region (322),

which encompasses the Mojave, Colorado, and Sonoran Deserts (USFS 2018). Specifically, the Survey Area is within the Mojave Desert section and ecoregion subsections: Mojave Valley-Granite Mountains, Bullion Mountains-Bristol Lake, Silurian Valley-Devil's Playground, Kingston Range-Valley Wells, Ivanpah Valley, Providence Mountains - Lanfair Valley (Walter-Feller 2020).

The Mojave Valley-Granite Mountains is approximately half upland (including pediments) and half alluvial plain with well-drained, thermic soil. This subsection has numerous mountain ranges as well as the Garlock Fault Zone in the northern area. The predominant natural plant community is creosote bush and Joshua tree series on pediments and fans. On higher elevations, black brush (*Coleogyne ramosissima*) series can be found, particularly in the Avawatz Mountains. Runoff is rapid from mountains and alluvial fans and slow from basin-fill. All drainage is internal, to closed basins in the Mojave Desert (Walter-Feller 2020).

Bullion Mountains-Bristol Lake is composed of gently-to-moderately sloping alluvial fans and volcanic flows, nearly level basin floor and dry lakebed, steep mountains, and moderately steep hills. The soils are well drained with thermic regimes on higher elevations and hyperthermic regimes on lower elevations. The most common natural plant communities are creosote bush (*Larrea tridentata*) series and creosote bush - white bursage (*Ambrosia dumosa*) series, along with mixed saltbush (*Atriplex* spp.) series on basin floors. Runoff is rapid from mountains and alluvial fans and slow from basin-fill. All drainage is internal, to closed basins in the subsection. Streams are dry most of each year. There is temporary ponding on playas, or dry lake beds (Walter-Feller 2020).

Silurian Valley-Devil's Playground is mainly on gently to moderately sloping alluvial fans, nearly level basin floor and dry lakebed, and sloping to steep sand dunes. The soils are well drained, except on poorly drained playas. Soil temperature regimes are hyperthermic; and soil moisture regimes are aridic. The predominant natural plant community is creosote bush series on hills and fans. Mixed saltbush series is common on basin floor and Iodine bush series and saltgrass (*Distichlis spicata*) series are present on wet basin-fill and lacustrine deposits. The desert sand-verbena (*Abronia villosa*) series is common on stabilized dunes. Runoff is rapid from mountains and alluvial fans and slow from basin-fill. Streams are dry most of each year. There is temporary ponding on playas, or dry lake beds (Walter-Feller 2020).

Kingston Range-Valley Wells includes mountains, hills, pediments, and high alluvial plains with a hot, arid climate that is moderated by elevation on the higher mountains. The soils are well drained, thermic temperature regimes, and aridic moisture regimes. The predominant natural plant communities are creosote bush and Joshua tree (*Yucca brevifolia*) series on fans and for higher elevations, the communities include shadscale (*Atriplex confertifolia*), singleleaf pinyon (*Pinus monophylla*), and white fir (*Abies concolor*) series. Runoff is rapid from mountains and alluvial fans and slow from basin-fill. There is temporary ponding on playas, or dry lake beds (Walter-Feller 2020).

Ivanpah Valley has very gently to moderately sloping alluvial fans, nearly level basin floor and dry lakebed. This subsection has a hot, arid climate. The soils are well drained, except on poorly drained playas. Soil temperature regimes are hyperthermic; and soil moisture regimes are aridic. The predominant natural plant community is creosote bush and Joshua tree series. Runoff is rapid from mountains and alluvial fans and slow from basin-fill. There is temporary ponding on playas, or dry lake beds (Walter-Feller 2020).

Providence Mountain-Lanfair Valley has various mountains and is about half upland and half alluvial plain. this subsection is on steep to very steep mountains, gently to moderately sloping pediments and alluvial fans, and nearly level basin floor. The soils are well drained. The soil temperature regimes are mostly thermic as well as aridic soil moisture regimes. The predominant natural plant communities are creosote bush series on fans and lower mountain slopes, singleleaf pinyon series on higher mountain slopes, and white fir series on the highest mountains. Joshua tree series is common on alluvial plains. Black brush series occurs on mountain slopes. Runoff is rapid from mountains and alluvial fans and slow from basin-fill. Streams are dry most of each year (Walter-Feller 2020).

The Survey Area encompasses primarily upland vegetation communities (Appendix A, Figure 4: Vegetation Communities) within and adjacent to alluvial washes. The National Wetlands Inventory (NWI; Appendix A, Figure 5: National Wetlands Inventory) and National Hydrography Dataset (NHD; Appendix A, Figure 6: National Hydrography Dataset/FEMA) mapped the following along many of the alluvial washes within the Survey Area: intermittently flooded, riverine intermittent streambeds; intermittently flooded, scrub-shrub, broad-leaved palustrine; and littoral, intermittently flooded lacustrine with unconsolidated shores.

2 INVESTIGATION METHODOLOGY

Data regarding aquatic resources present within the Survey Area were obtained through a review of pertinent literature and field reconnaissance, both of which are described below.

2.1 PRE-FIELD LITERATURE REVIEW AND DESKTOP ANALYSIS

The purpose of the literature review and desktop analysis is to obtain contextual information relevant to the site to be surveyed, which may not be evident from the ground during field surveys. The following sources were consulted to gain a better understanding of the physical and hydrologic setting of the Survey Area:

- 7.5-minute USGS topographic quadrangle maps,
- Aerial imagery of the Survey Area,
- The 2018 National Wetland Plant List (NWPL)-Arid West 2018 Regional Wetland Plant List (USACE 2018),
- The National Wetlands Inventory (NWI; USFWS 2021),
- The National Hydrography Dataset (NHD)/Watershed Boundary Dataset (WBD; USGS 2021),
- The FEMA Flood Map Service (FEMA 2021),
- The NRCS Web Soil Survey (NRCS 2021a),
- The NRCS Official Soils Series Descriptions (NRCS 2021b),
- The National List of Hydric Soils (NRCS 2021c),
- The NRCS Agricultural Applied Climate Information System (AgACIS; NOAA 2021), and
- Jurisdictional Delineation Report: Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project (EI 2019).
- Habitat and Resource Assessment: Lugo-Victorville 500-kV Transmission Line Remedial Action Scheme Project (EI 2016).

2.2 ON-SITE FIELD SURVEY

Eight Artemis Environmental biologists, including Ed Kentner, Antonette Gutierrez, Kyle Gunther, Jordan Zylstra, Onkar Singh, Margie Mulligan, Jason Brooks, and Justin Blachman conducted a formal aquatic resources delineation of the Survey Area in 2021 on March 18 - 20, March 23 - 26, March 29 – 31, April 6 – 9, and April 12 – 16. Mr. Kentner and Ms. Gutierrez led the delineation effort. The aquatic resources delineation included both Segment 1: Gale to Pisgah and Segment 2: Pisgah to Nipton (Appendix A, Figure 1: Regional).

2.2.1 Delineation of Federal Waters

On-site Wetland Investigation

Waters of the U.S. include those waters listed in 33 Code of Federal Regulations (CFR) 328.3 (Definitions of Waters of the United States). All potential waters of the U.S. were delineated to their jurisdictional limits as defined by 33 CFR 328.4 (Limits of Jurisdiction). Pre-field analysis confirmed the potential presence of both non-wetland waters and wetland waters of the U.S. Therefore, field surveys evaluated the potential for wetland waters of the U.S. pursuant to the three-parameter methods and according to the following:

(1) *Corps of Engineers Wetland Delineation Manual* (Manual; Environmental Laboratory 1987),

(2) *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0; Environmental Laboratory 2008), and

(3) Applicable USACE Regulatory Guidance Letters (RGLs).

If one of the three wetland parameters (i.e., dominance of hydrophytic vegetation) was not observed, no Wetland Determination Data Forms were completed and potential aquatic resources were evaluated for presence of an ordinary high water mark (OHWM), as described below.

On-site Non-wetland Waters and OHWM Investigation

Potential non-wetland waters of the U.S. were delineated based on field indicators to define and identify the lateral extent of the OHWM, as defined by 33 CFR 328.3(c)(7) and according to the following:

(1) *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual* (Lichvar and McColley 2008),

(2) *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Curtis and Lichvar 2010),

(3) *Distribution of Ordinary High Water Mark (OHWM) Indicators and their Reliability in Identifying the Limits of "Waters Of The United States" in Arid Southwestern Channels* (Lichvar *et al.* 2006),

(4) *Channel Classification across Arid West Landscapes in Support of OHW Delineation* (Lefebvre *et al.* 2013), and

(5) Applicable USACE RGLs.

Between the time of completing the field surveys and completing this report, recent changes in law have transpired relating to defining waters of the U.S. At the time of field surveys, the Navigable Waters Protection Rule (NWPR) was in effect beginning June 22, 2020. The NWPR classified federal waters of the U.S. as navigable waters and the core tributary systems that provide perennial or intermittent flow into them. Ephemeral features (defined in the Arid West as those that flow only in direct response to rainfall) were no longer classified as federal waters of the U.S. On June 9, 2021, the U.S. Environmental Protection Agency (EPA) and USACE announced their intention to start a new rulemaking process to redefine waters of the U.S. In the meantime, on August 30, 2021, a U.S. District Judge for the District of Arizona vacated and remanded the NWPR in the case of *Pascua Yaqui Tribe* v. *U.S. Environmental Protection Agency*, No. CV-20-00266-TUC-RM (D. Arizona Aug. 30, 2021). In light of this order, the U.S. EPA and USACE have halted

implementation of the NWPR and are interpreting waters of the U.S. consistent with the pre-2015 regulatory regime until further notice. The pre-2015 regulations require following the guidance developed in 2007 and 2008 for implementing the definition of waters of the U.S. following the *Rapanos v. United States*, and *Carabell v. United States* Supreme Court decisions. Under this guidance, the USACE jurisdiction will be determined as follows:

The agencies will assert jurisdiction over the following waters:

- Traditional navigable waters
- Wetlands adjacent to TNWs
- Non-navigable tributaries of TNWs that are relatively permanent (i.e., the tributaries typically flow year-round or have continuous flow at least seasonally)
- Wetlands that directly abut such tributaries

The agencies will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW:

- Non-navigable tributaries that do not typically flow year-round or have continuous flow at least seasonally
- Wetlands adjacent to such tributaries
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary

The agencies will apply the significant nexus evaluation as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if in combination they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters
- Significant nexus includes consideration of hydrologic and ecologic factors.

USACE is in the process of developing and implementing a Stream Duration Assessment Method (SDAM) for determining streamflow duration in the Arid West region, which should be used to distinguish intermittent and ephemeral features. However, the Arid West SDAM was not developed at the time the delineation field work was conducted for this ARDR. The SDAM has only recently been released in Beta version for the Arid West as of March 2021. The flow regime of features delineated as waters of the U.S. within the Survey Area is characterized as ephemeral based on absence of water flow and primary hydrology indicators during field visits conducted in February 2021 and August 2021.

2.2.2 Delineation of State Waters

Aquatic Features Under the Purview of RWQCB

Aquatic features under the purview of Regional Water Quality Control Board (RWQCB) were delineated pursuant to the federal methodology for federally defined wetland and non-wetland waters (see Section 5.3, above) *and* Section 13000 *et seq.* of the California Water Code (CWC; 1969 Porter-Cologne Water Quality Control Act). The term "Waters of the State" is defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (CWC § 13050[e]). Jurisdictional waters of the

State include those waters also under the jurisdiction of the federal government; however, the definition of waters of the State is broader than that for waters of the U.S. in that all waters are considered to be a water of the state regardless of circumstances or condition, including isolated waters pursuant to the California Porter-Cologne Act. However, waters of the State must still show wetland parameters (defined below) to be considered wetland waters or OWHM-indicators to be considered non-wetland waters.

On April 2, 2019, the State Water Resources Control Board (SWRCB) adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Materials to Waters of the State (California Wetland Policy, SWRCB 2019). The California Wetland Policy became effective May 28, 2020 and stipulates additional procedures and requirements for obtaining approval from water boards for discharge of dredged or fill materials to state waters. The California Wetland Policy largely models the USACE guidance for defining a wetland, and includes areas with wetland hydrology, wetland soils, and wetland plants. However, the definition also includes unvegetated areas where wetland hydrology and hydric soils are present. Therefore, an area may be considered a state wetland even if it is unvegetated with the intent that vegetated and unvegetated wetlands will be regulated in the same manner. Nevertheless, this would not be applicable in most desert regions where the Survey Area is located.

Porter-Cologne authorizes the State Water Resources Control Board (SWRCB) to adopt, review, and revise policies for all waters of the State. It also directs the nine RWQCBs to develop and implement regional Basin Plans that recognize and are designed to maintain the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, maintaining water quality, and addressing the water quality problems of that region (CWC 13050[j]). According to implementation language in the Basin Plans, the RWQCB's authority to protect water quality from waste discharges is limited to the regulation of 'controllable water quality factors,' those actions, conditions, or circumstances resulting from human activities that may influence the quality of waters of the State and that may be reasonably controlled.
CWC Section 13170 also authorizes the SWRCB to adopt water-quality control plans on its own initiative.

Overall, RWQCB jurisdiction was based on the definition of waters of the State identified above, and the California Wetland Policy, but also considered whether resources present a 'beneficial use' as outlined in the Water Quality Control Plan for the Lahontan Region (Basin Plan) (RWQCB 1995 [as amended]). Aquatic resources were considered under the purview of RWQCB if it was determined that any type of aquatic and/or aquatic-related features occurring within the Survey Area with wetland parameters or OHWM-indicators would also present a 'beneficial use,' and therefore, be considered a substantial aquatic feature that persists at least seasonally rather than a short duration event occurring infrequently over spans of decades. In this case, aquatic feature would include all ephemeral washes, ditches, and basins but would exclude the 100-year floodplain or swale features because these features do not regularly convey surface water, present no distinguishable aquatic habitat, and would quickly infiltrate into the soil and/or abate into upland if active. Ditches and basins often present distinguishable aquatic habitat and those that convey water into larger riverine features are considered to present a beneficial use of actively conveying surface water with connectivity to streams and would be under the purview of RWQCB. Therefore, the delineation of RWQCB waters is concurrent with the lateral extent of the OHWM as described above for delineation of federal waters, but also would include ditches and basins determined to be isolated state waters that possess wetland parameters or OHWM-indicators. To be mapped as an isolated water, the basins and

ditches included OHWM-indicators such as water marks along edges and banks; changes in soil characteristics such as soil cracking; shelving; destruction of vegetation such as matted vegetation or lack of vegetation; or presence of litter and debris indicating flows.

Aquatic Features Under the Purview of CDFW

Aquatic features under the purview of California Department of Fish and Wildlife (CDFW) were delineated pursuant to Section 1600 *et seq*. of the California Fish and Game Code (CFGC). CDFW usually extends its jurisdictional limit to the top of a stream bank, the bank of a lake, or outer edge of the riparian vegetation, whichever is wider. Although this delineation did not map features using data forms from *Mapping Episodic Stream Activity Field Guide* (MESA; Brady and Vyverberg 2014, CEC 2014), the general guidance for mapping streams in desert aquatic regions was followed. MESA states that the "stream" definition in Title 14, California Code of Regulations (CCR), Section 1.72 (14 CCR 1.72) is not the definition to be used when determining CDFW jurisdiction over a stream in desert aquatic habitats. A *stream* may have more than one active channel or as is more often the case, secondary channels that receive water only during higher flow events. Where present, *low flow channels*, *active channels*, *banks* associated with these channels, *floodplains*, and stream-associated vegetation, all lie within the bounds of a single larger channel, designated as the watercourse channel to discriminate between it and similar but smaller secondary features that lie within its bounds (Brady and Vyverberg 2014). Thus, for this delineation, some locations were delineated as CDFW jurisdictional "streambed and bank" based on this definition. CDFW jurisdiction extends to areas mapped as low alluvial terrace formed by deposits adjacent to streambeds and channels, especially within the larger washes. Therefore, jurisdictional boundaries subject to California Fish and Game Code (CFGC) §§ 1600-1617 encompass an area that is greater than the lateral extent of the OHWM. Delineation of CDFW-exclusive jurisdictional waters were mapped to include the streambed and the lateral extent of the top of bank above the streambed, including low alluvial terraces of the active floodplain where applicable in larger washes. Adjacent riparian habitat, if present, was also mapped as CDFW-exclusive jurisdiction.

Aquatic Features Under the Purview of NDEP

The Nevada Division of Environmental Protection (NDEP) defines “Waters of the State” in the 2019 Nevada Revised Statutes (NRS) § 445A.415 as “all waters situated wholly or partly within or bordering upon this State, including but not limited to: 1. All streams, lakes, ponds, impounding reservoirs, marshes, water courses, waterways, wells, springs, irrigation systems and drainage systems; and 2. All bodies or accumulations of water, surface and underground, natural or artificial.” Aquatic features mapped in the State of Nevada were delineated pursuant to the federal methodology for federally defined wetland and non-wetland waters (see Section 5.3, above) and were also delineated to extend jurisdictional limits to the top of a stream bank, the bank of a lake, or outer edge of the riparian vegetation, whichever is wider, as is described for those aquatic features delineated for the CDFW. Only the easternmost portion of the Survey Area in Segment 2 (approximately 1.85 miles) occurs in Nevada and is under the purview of the NDEP.

2.2.3 Mapping Standards

Spatial and attribute data were populated using the Environmental Systems Research Institute (ESRI) Field Maps or Collector application for ArcGIS running on Android and iOS mobile devices loaded with the Survey Area boundary. Aquatic resources were mapped using a Juniper Systems Geode sub-meter-accuracy GPS receiver connected to the smartphones through a Bluetooth connection. Data collected in the field were imported into ArcMap software for post-field processing as described in Section 2.3 Post-field Data Processing and Quality Assurance/Control.

2.2.4 Photographs

Geotagged photographs documenting aquatic resources and current conditions were captured throughout the Survey Area. Only representative photographs for each feature type are included in Appendix D: Photos.

2.2.5 Agency Forms

No USACE Wetland Determination Data Forms were completed because no potential wetland areas were encountered during field work (see Section 5.0 Results). The 2010 Arid West Ephemeral and Intermittent Streams OHWM Datasheet (Curtis and Lichvar 2010) was completed at 16 representative locations: eight in Segment 1 and eight in Segment 2, to document transitions between low-flow channel, active floodplain, and low terrace landforms. All data forms are included in Appendix E: Data Forms. No OMBIL/Operations Regulatory Module (ORM) upload workbook was completed as there were no USACE jurisdictional waters delineated with the Survey Area; however, a comprehensive table of all aquatic resources by individual feature (totaling 5,049 features) can be provided upon request.

2.3 Post-field Data Processing and Quality Assurance/Control

After the field delineation was completed, all collected data including electronic data, photographs, and handwritten notes were compiled and evaluated to determine the location, type, and amount of aquatic resources. GPS collected spatial data were imported into ArcMap software. Spatial data errors were corrected, and discontinuous line work was edited to rectify discontinuous topology. Polygons were created from centerlines of mapped linear features based on the average width of OHWM collected where applicable. All acreage and linear distances were calculated using ArcMap.

3 Environmental Setting

This section describes the existing conditions in terms of vegetation, hydrology, and soils.

3.1 Vegetation

3.1.1 Vegetation Communities and Cover Types

Vegetation communities and land covers with aquatic resources occurring within the Survey Area were mapped by Artemis Environmental biologists during the Aquatic Resources Delineation and are shown below in Table 2 according to the respective Manual of California Vegetation (MCV; Sawyer et al. 2009) alliance naming conventions approved in the SCE schema. Four sensitive vegetation communities were mapped within the Survey Area, including Joshua tree woodland (*Yucca brevifolia* Woodland Alliance; CDFW rating G4, S3), big galleta shrub-steppe (*Pleuraphis rigida* Herbaceous Alliance; CDFW rating G3, S2), black-stem rabbitbrush scrub (*Ericameria paniculata* Shrubland Alliance; CDFW rating G4, S3), and Desert-willow – Smoketree wash woodland (*Chilopsis linearis – Psorothamnus spinosus* Woodland Alliance; CDFW rating G4, S3). Vegetation communities associated with aquatic resources evaluated in this ARDR are described below and are shown on Appendix A, Figure 4: Vegetation Communities.

Table 2.Vegetation Communities within the Aquatic Resources Delineation Survey Area

MCV Common Name [1]	MCV Alliance [1]	Acres[2]
Allscale scrub	*Atriplex polycarpa* Shrubland	60.81
Big galleta shrub-steppe*	*Pleuraphis rigida* Herbaceous	9.82
Black-stem rabbitbrush scrub*	*Ericameria paniculata* Shrubland	0.60
Brittle bush scrub	*Encelia farinosa* Shrubland	1.36
Bush seepweed scrub	*Suaeda moquinii* Shrubland	0.54
Catclaw acacia - desert lavender chuparos scrub	*Senegalia greggii - Hyptis emoryi - Justicia californica* Shrubland	1.14
Cheesebush - sweetbush scrub	*Ambrosia salsola - Bebbia juncea* Shrubland	2.44
Creosote bush scrub	*Larrea tridentata* Shrubland	57.48
Creosote bush - white burr sage scrub	*Larrea tridentata - Ambrosia Dumosa* Shrubland	238.88
Developed	Developed	286.60
Desert almond - Mexican bladdersage scrub	*Prunus fasciculata - Salazaria mexicana* Shrubland	0.23
Desert holly scrub	*Atriplex hymenelytra* Shrubland	0.002
Desert-willow - Smoketree wash woodland*	*Chilopsis linearis - Psorothamnus spinosus* Woodland	0.21
Dry lake/ Mudflats/ Playa	Dry Lake/ Mudflats/ Playa	1.58
Fourwing saltbush scrub	*Atriplex canescens* Shrubland	1.04
Joshua tree woodland*	*Yucca brevifolia* Woodland	61.29
Mojave-Sonoran desert dunes	*Dicoria canescens – Abronia villosa – Panicum urvilleanum* Herbaceous[3]	2.78
Mojave yucca scrub	*Yucca schidigera* Shrubland	22.83

MCV Common Name [1]	MCV Alliance [1]	Acres[2]
Nevada joint fir - Anderson's boxthorn - spiny hop sage scrub	*Ephedra nevadensis – Lycium andersonii – Grayia spinosa* Shrubland	0.27
Red brome or Mediterranean grass grasslands	*Bromus rubens - Schismus* (*arabicus, barbatus*) Herbaceous Semi-Natural	3.79
Shadscale scrub	*Atriplex confertifolia* Shrubland	3.09
Tamarisk thickets	*Tamarix* spp. Semi-natural Shrubland Stands	0.18
	TOTAL	756.96

[1] MCV vegetation categories are from Sawyer *et al.* (2009).
[2] All acreages are rounded to the nearest hundredth (which may account for minor rounding error).
[3] This report references all vegetation community alliance naming conventions approved in the SCE schema; the most current approved alliance naming convention for Mojave-Sonoran desert dunes is *Dicoria canescens – Abronia villosa – Panicum urvilleanum* Sparsely Vegetated Alliance (CNPS 2021).
* Sensitive.

Allscale Scrub (*Atriplex polycarpa* Alliance)

Allscale scrub (*Atriplex polycarpa* Shrubland Alliance) occurred throughout much of the Segment 1 Survey Area in, particularly in valley bottoms and near the edges of playas. This vegetation community is characterized as being dominated by allscale, and co-occurring species include white bursage (*Ambrosia dumosa*), cheesebush (*Ambrosia salsola*), fourwing saltbush (*Atriplex canescens*), red brome (*Bromus rubens*), and creosote bush (*Larrea tridentata*), among others.

Big galleta shrub-steppe (*Pleuraphis rigida* Herbaceous Alliance)

Stands of big galleta shrub-steppe (*Plesuraphis rigida* Herbaceous Alliance) were present immediately west of the MNP and within the western portion of the MNP. The perennial grass big galleta is dominant or codominant in these stands and other herbaceous species may include Indian ricegrass (*Achnatherum hymenoides*), red brome, sandpaper plant (*Petalonyx thurberi*), and desert globemallow (*Sphaeralcea ambigua*). Shrubs that may be present at low cover include white bursage, cheesebush, and creosote bush.

Black-stem Rabbitbrush Scrub (*Ericameria paniculata* Shrubland Alliance)

Black-stem rabbitbrush scrub (*Ericameria paniculata* Shrubland Alliance) is typically observed along ephemeral arroyos, channels, and washes in sandy, well-draining soils. Black-stem rabbitbrush is dominant or co-dominant in the shrub canopy, with other shrubs such as cheesebush, woolly brickelbush (*Brickellia incana*), brittlebush (*Encelia farinosa*), and desert sage (*Salvia dorrii*), often present. This vegetation community is found in a very small portion of the Survey Area within the MNP.

Brittle Bush Scrub (*Encelia farinosa* Shrubland Alliance)

Brittle bush scrub (*Encelia farinosa* Shrubland Alliance) is found on alluvial fans, bajadas, rocky hillsides, and on the slopes of washes. Brittlebush is either dominant or co-dominant with white bursage. The cactus species Engelmann's hedgehog cactus (*Echinocereus engelmannii*), and barrel cactus (*Ferocactus cylindraceus*) are sometimes present. This alliance was associated with a small portion of the Survey Area.

Bush Seepweed scrub (*Suaeda moquinii* Shrubland Alliance)

Bush seepweed scrub (*Suaeda moquinii* Shrubland Alliance) typically occurs on flat valley bottoms, playas, and adjacent to alluvial fans and bajadas. Bush seepweed is dominant or co-dominant in the shrub canopy with fourwing saltbush, and allscale, among others. This vegetation community is found in the Survey Area on or near the playas of Segment 1.

Catclaw Acacia – Desert Lavender – Chuparosa scrub (*Senegalia greggii – Hyptis emoryi – Justicia californica* Shrubland Alliance)

Catclaw acacia – desert lavender – chuparosa scrub (*Senegalia greggii – Hyptis emoryi – Justicia californica* Shrubland Alliance) can be found within washes, arroyos, seeps, valleys, and on canyon walls. Either shrub can be the dominant or co-dominant layer, and other species include cheesbush, sweetbush (*Bebbia juncea*), buckhorn cholla (*Cylindropuntia acanthocarpa*), creosote bush, desert mistletoe (*Phoradendron californicum*), and spiny senna (*Senna armata*), among others. Small portions of the Survey Area on Segment 2 were associated with this vegetation community, primarily areas in or near large washes.

Cheesebush – Sweetbush Scrub (*Ambrosia salsola – Bebbia juncea* Shrubland Alliance)

Cheesebush – sweetbush scrub (*Ambrosia salsola – Bebbia juncea* Shrubland Alliance) typically occupies naturally disturbed areas such as ephemeral channels, arroyos, and washes, as well as valley and flats. Cheesebush, sweetbush, woolly brickelbush, and spiny senna can be dominant or co-dominant, with a sparse-to-seasonal herbaceous layer.

Creosote Bush Scrub (*Larrea tridentata* Shrubland Alliance)

Creosote bush scrub (*Larrea tridentata* Shrubland Alliance) occupies large portions of the Survey Area and are strongly dominated by creosote bush at low cover. Other shrub species are typically sparse and infrequent and may include brittlebush, white bursage, white ratany (*Krameria bicolor*), buckhorn cholla, and beavertail cactus (*Opuntia basilaris*). The herbaceous layer consists of annual grasses and forbs (most of which were dry during the surveys) and included the introduced species Mediterranean grass (*Schismus barbatus*), among others.

Creosote Bush – White Bursage Scrub (*Larrea tridentata – Ambrosia dumosa* Shrubland Alliance)

Creosote bush – white bursage scrub (*Larrea tridentata – Ambrosia dumosa* Shrubland Alliance) occupies the Survey Area throughout and is strongly dominated by creosote bush and white bursage at low cover. Other shrub species are typically sparse and infrequent and may include cheesebush, brittlebush, buckhorn cholla, *Ephedra* spp., ratany (*Krameria bicolor* and *K. erecta*), and spiny senna.

Desert Almond – Mexican Bladdersage Scrub (*Prunus fasciculata – Salazaria mexicana* Shrubland Alliance)

The desert almond – Mexican bladdersage scrub (*Prunus fasciculata – Salazaria mexicana* Shrubland Alliance) can typically be found in washes, canyons, arroyos, and in disturbed sites typically occupying alluvial soils. Desert almond (*Prunus fasciculata*), bladdersage (*Salazaria mexicanca*), and desert sage can

either dominate or co-dominate the community, which mostly occurs with a lower coverage of cheesebush, silver cholla (*Cylindropuntia echinocarpa*), creosote bush, and Mojave yucca (*Yucca schidigera*) in the Survey Area. This vegetation community was restricted to a small portion of the Survey Area.

Desert Holly Scrub (*Atriplex hymenelytra* Shrubland Alliance)

Desert holly scrub (*Atriplex hymenelytra* Shrubland Alliance) can be found in alluvial fans, washes, areas of relatively recent lava flow, on the shores of alkaline dry lake beds, and on desert pavement. Cheesebush and creosote bush may also occur in low cover, and only a small portion of the Survey Area contained this vegetation community.

Desert- Willow – Smoketree Wash woodland (*Chilopsis linearis – Psorothamnus spinosus* Woodland Alliance)

Several stands of desert – willow – smoke tree wash woodland (*Chilopsis linearis – Psorothamnus spinosus* Woodland Alliance) were mapped within the Survey Area immediately west of the MNP. Although stands of this alliance may be dominated or co-dominated by either of these species alone, or both species may be present, within the Survey Area, the majority of stands were characterized by smoke tree and lacked desert willow. Other shrubs that may occur at low cover include creosote bush and cheesebush.

Developed

Developed habitat occurred throughout the Survey Area and included the alignment roads (primarily U.S. Route 66 and Powerline Road), Pisgah Substation, tower pads, spur roads, residential homes, and various intersecting unpaved roads.

Dry Lake/ Mudflats/ Playa

Dry lake beds, also referred to as playa, are basins where water once stood but has since evaporated, often leaving behind precipitate such as salts and alkaline compounds, along with dry, cracked soils. A small amount of dry lake occurs along Segment 1, between the Newberry Springs exit and Mountain View Road on Pioneer Road, as well as portions along U.S. Route 66, between Madrona Lane and Utah Drive. These areas most often unvegetated, but may contain small patches of allscale scrub, fourwing saltbush scrub, and bush seepweed scrub in silty alkaline soils with prominent cracking.

Fourwing Saltbush Scrub (*Atriplex canescens* Shrubland Alliance)

Fourwing saltbush scrub (*Atriplex canescens* Shrubland Alliance) is typically observed along playas, lake deposits, dissected alluvial fans, rolling hills or channel beds in alkaline soils. Fourwing saltbush is dominant or co-dominant in the shrub canopy with white bursage, cheesebush, and creosote bush, among others. This vegetation community is found in the Survey Area along Segment 1, intermixed with and bordering the dry lakebed.

Joshua Tree woodland (*Yucca brevifolia* Woodland Alliance)

Joshua trees (*Yucca brevifolia*) generally occur at moderate elevations in the Mojave Desert between creosote bush scrub (a low elevation vegetation community) and pinyon-juniper woodlands (a high

elevation vegetation community). Stands of Joshua tree woodland (*Yucca brevifolia* Woodland Alliance) are found in Section 2 within the MNP and are characterized as open woodlands of widely scattered Joshua trees with a low to relatively dense community of broad-leaved evergreen and deciduous shrubs. Co-occurring species within the project area include Mojave yucca, banana yucca (*Yucca baccata*), blackbrush (*Coleogyne ramosissima*), and buckhorn cholla.

Mojave – Sonoran Desert Dunes (*Dicoria canescens – Abronia villosa – Panicum urvilleanum* Herbaceous Alliance)

The Mojave – Sonoran Desert dunes (*Dicoria canescens – Abronia villosa – Panicum urvilleanum* Herbaceous Alliance) of herbs and subshrubs can typically be found on active-to-stabilized dunes and sand fields and is characterized by the presence of desert sand-verbena (*Abronia villosa*), desert twinbugs (*Dicoria canescens*), and/or desert panicgrass (*Panicum urvilleanum*). Other species found at sparse cover may include Indian ricegrass, popcorn flowers (*Cryptantha* ssp.), desert sunflower (*Geraea canescens*), big galleta, Mediterranean grass (*Schismus* spp.), and sandpaper plant. This vegetation community was mostly restricted to a small portion of Segment 2 between Kelso Road and the western MNP boundary along Powerline Road.

Mojave Yucca Scrub (*Yucca schidigera* Shrubland Alliance)

Stands of Mojave yucca scrub (*Yucca schidigera* Shrubland Alliance) were mapped within the Survey Area in higher alluvial fans and rocky hillsides, mainly on Segment 2, west of Rainbow Wells and adjacent to stands of Joshua Tree Woodland. Other characteristic species of this community within the Survey Area include white bursage, blackbrush, buckhorn cholla, California buckwheat (*Eriogonum fasciculatum*), creosote bush, big galleta, and Joshua trees at low cover of.

Nevada Joint Fir – Anderson's Boxthorn – Spiny Hop Sage Scrub (Ephedra nevadensis – Lycium andersonii – Grayia spinosa Shrubland Alliance)

Open to continuous shrub layers of Nevada joint fir – Anderson's boxthorn – spiny hop sage Scrub (*Ephedra nevadensis – Lycium andersonii – Grayia spinosa* Shrubland Alliance) can be found on dry, open areas, with Nevada joint fir (*Ephedra nevadensis*), Anderson's boxthorn (*Lycium andersonii*), and spiny hop sage (*Grayia spinosa*) being dominant or co-dominant. Other low cover, characteristic species within the Survey Area include cheesebush, shadscale (*Atriplex confertifolia*), California buckwheat, and spiny menodora (*Menodora spinescens*). Only a very small portion of this community was mapped within the Survey Area.

Red brome or Mediterranean grass grasslands (*Bromus rubens – Schismus* [*arabicus, barbatus*] Herbaceous Semi-Natural Alliance)

Red brome or Mediterranean grass grasslands (*Bromus rubens – Schismus* [*arabicus, barbatus*] Herbaceous Semi-Natural Alliance) are characterized by the presence of the non-native grass species red brome or Mediterranean grass at greater than 80% relative cover. There are no specific topographic or edaphic conditions for this vegetation community to occur, and a small portion of the Survey Area was associated with it in the far western portion of the MNP.

SHADSCALE SCRUB (*ATRIPLEX CONFERTIFOLIA* SHRUBLAND ALLIANCE)

A few acres of the Survey Area contained shadscale scrub (*Atriplex confertifolia* Shrubland Alliance), a shrub canopy dominated by shadscale in bajadas and naturally disturbed areas such as eroding hillsides, washes, and the edges of playas. Other characteristic shrubs of this vegetation type seen in the Survey Area include white bursage, allscale, fourwing saltbush, and creosote bush.

TAMARISK THICKETS (*TAMARIX* SPP. SEMI-NATURAL SHRUBLAND STANDS)

Stands of tamarisk thickets (*Tamarix* spp. Semi-natural Shrubland Stands) can typically be found on the margins of arroyos, washes, and other watercourses, or in planted hedgerows. A small portion of the Survey Area was associated with tamarisk thickets, mostly near residential areas and railroad berms.

3.1.2 HYDROPHYTIC AND WASH-ASSOCIATED VEGETATION

Hydrophytic and wash-associated plant species associated with the vegetation communities identified in Section 3.1.1 are reported in Table 3. Only plant species with NWPL (USACE 2018) hydrophytic indicators of Obligate (OBL), Facultative Wetland (FACW), and Facultative (FAC) will be considered for the definition of wetlands to meet the hydrophytic plant community wetland parameter (Environmental Laboratory 1987). Many of the species typical of ephemeral desert washes and associated with areas mapped as CDFW riparian habitat and vegetated streambed are rated as Facultative Upland (FACU) and Upland (UPL) indicators and are not necessarily restricted to watercourses.

Table 3.Wash-Associated and Xeroriparian Plant Species within the Survey Area

Scientific Name	Common Name	NWPL Indicator Status
Atriplex canescens	fourwing saltbush	UPL
Atriplex confertifolia	shadscale saltbush	UPL
Bebbia juncea var. aspera	sweetbush	UPL
Chilopsis linearis subsp. arcuata	desert willow	FAC
Encelia virginensis	Virgin River brittlebush	UPL
Ericameria paniculata	black band rabbit brush	UPL
Hymenoclea salsola	burrobrush	UPL
Psorothamnus spinosus	smoketree	UPL
Senegalia greggii	catclaw acacia	FACU
Senna armata	desert senna	UPL
Suaeda nigra	Mojave seablite	OBL
Scutellaria mexicana	Mexican bladdersage	UPL

Source: USACE 2018, NWPL website list available at: http://wetland-plants.usace.army.mil/

3.2 HYDROLOGY

3.2.1 SURFACE WATER

The Survey Area is located within three Hydrologic Units (HU): Ivanpah (HU 612.00), Mojave (HU 628.00), and Broadwell (HU 629.00); and spans two watersheds: the Mojave Watershed (HU Code [HUC] 18090208)

and Ivanpah-Pahrump Valleys Watershed (HUC 16060015). Although portions of these watersheds have been previously determined isolated by USACE (USACE 2012, 2013, and 2016b), this Project has received a verification from USACE confirming jurisdiction over the aquatic resources in the Survey Area (USACE 2020). USGS watersheds and hydrologic subunits are identified in Appendix A, Figure 6: National Hydrography Dataset. Water drains generally to the north across the eastern portion of the Survey Area, flowing from the New York Mountains in the south to the Ivanpah Valley and Ivanpah Dry Lake north of the Survey Area. Ivanpah Dry Lake is an interstate (a[2]) water of the U.S. For the central portion of the Survey Area, the Kelso Mountains in the south drain north to the Cinder Cone Lava Beds across the Survey Area. Major washes within the Survey Area include Kelso Wash, Cedar Wash, and Willow Wash. Washes in the central part of the Survey Area terminate at Soda Dry Lake. Washes in the eastern part of the Survey Area terminate at Troy Dry Lake.

The Mojave River, which begins southwest of the Survey Area and flows northwest of the Survey Area, is the primary geographic and hydrologic feature of the Mojave Watershed. The river is ephemeral with surface channels that remain dry most of the time, except for the headwaters and reaches in Victorville and near Helendale. The river is unique because water flows below ground for most of its length, and instead of flowing toward the ocean, the river flows inland, terminating in the middle of the desert. The river conveys surface flow only during rare flash flood events. Headwaters of the Mojave River are located in the San Bernardino Mountains, within National Forest lands, southwest of the Survey Area. The river flows 110 miles and terminates in the desert south of Soda Lake near Baker, California.

The Ivanpah-Pahrump Valleys Watershed contains drainages from the surrounding mountains and alluvial fans that convey flows to closed basins in the Ivanpah Valley. Streams, washes, and playas are dry most of the year, with surface water only present in response to storm events. The dry lakes, including Ivanpah Dry Lake, in this watershed are internally drained basins (i.e., have no outlet), and are not considered TNWs; however, Ivanpah Dry Lake crosses the California and Nevada border, and therefore, is an interstate (a[2]) water of the U.S..

Beneficial Uses

The Survey Area is located in the RWQCB Region 6 (Lahontan) jurisdiction. According to the *Water Quality Control Plan for the Lahontan Region* (RWQCB 1995), local consumptive municipal and agricultural use of the water supply is relatively low in the Lahontan area, due to the low resident population and because agriculture use generally focuses on livestock rather that crops. In fact, large volumes of the water are exported out of the Lahontan area for consumptive use. However, a major beneficial use in the area is recreational use of the surface waters, which represents an important segment of the Region's economy.

Existing or potential beneficial uses of surface waters in the watershed where the Survey Area is located are provided in Table 4. In Table 4, beneficial use abbreviations are defined as follows:

- MUN (Municipal and Domestic Supply)
- AGR (agricultural supply),
- GWR (ground water recharge),
- FRSH (freshwater habitat),

- POW (hydropower generation), and
- REC1 (contact water recreation),
- REC2 (non-contact water recreation),
- COMM (Commercial and Sportfishing)
- WARM (warm freshwater habitat),
- COLD (cold freshwater habitat),
- WILD (wildlife habitat),
- RARE (rare, threatened, and endangered species)
- WQE (Water Quality Enhancement)
- FLD (Flood Peak Attenuation/Flood Water Storage)

Table 4.Existing or Potential Beneficial Uses of Surface Waters Within Survey Area Watershed

Waterbody	Beneficial Uses													
	MUN	AGR	GWR	FRSH	POW	REC1	REC2	COMM	WARM	COLD	WILD	RARE	WQE	FLD
Lower Mojave Hydrologic Area														
Mojave River	x	x	x			x	x	x	x	x	x			
Minor Surface Waters	x	x	x			x	x		x	x	x			
Minor Wetlands	x	x	x	x		x	x		x	x	x	x	x	x
Troy Valley Hydrologic Subarea														
Minor Surface Waters	x	x	x			x	x		x	x	x			
Minor Wetlands	x	x	x	x		x	x		x	x	x	x	x	x
Soda Lake Hydrologic Subarea														
Soda Lake	x	x	x			x	x	x	x	x	x		x	
Zyzyx Spring	x	x	x			x	x	x	x	x	x			
Mojave River	x	x				x	x		x	x	x			
Indian Spring	x	x	x	x		x	x		x	x	x			
Cane Spring	x	x	x	x		x	x		x	x	x			
Granite Spring	x	x	x	x		x	x		x	x	x			
Henry Spring	x	x	x	x		x	x		x	x	x			
Mesquite Springs	x	x	x			x	x		x	x	x		x	
Minor Surface Waters	x	x	x			x	x		x	x	x			
Minor Wetlands	x	x	x	x		x	x		x	x	x		x	x
Kelso Hydrologic Area														
Tough Nut Spring	x	x	x	x		x	x	x	x	x	x		x	

Waterbody	Beneficial Uses													
	MUN	AGR	GWR	FRSH	POW	REC1	REC2	COMM	WARM	COLD	WILD	RARE	WQE	FLD
Broadwell Hydrologic Unit														
Minor Wetlands	x	x	x	x		x	x		x	x	x		x	x
Minor Surface Waters	x	x	x			x	x	x	x	x	x			
Ivanpah Hydrologic Unit														
Ivanpah Lake	x	x	x			x	x		x	x	x		x	x
Ivanpah Springs	x	x	x	x		x	x		x	x	x		x	
Willow Spring	x	x	x	x		x	x		x	x	x		x	
Mineral Spring	x	x	x	x		x	x		x	x	x		x	
Wheaton Spring	x	x	x	x		x	x		x	x	x		x	
Cliff Canyon Spring	x	x	x	x		x	x		x	x	x		x	
Slaughterhouse Spring	x	x	x	x		x	x		x	x	x		x	
Sacaton Spring	x	x	x	x		x	x		x	x	x		x	
China Springs	x	x	x	x		x	x		x	x	x		x	
Hardrock Queen Spring	x	x	x	x		x	x		x	x	x		x	
Groaner Spring	x	x	x	x		x	x		x	x	x		x	
Juniper Spring	x	x	x	x		x	x		x	x	x	x	x	
Willow Spring	x	x	x	x		x	x		x	x	x	x	x	
Dove Spring	x	x	x	x		x	x		x	x	x	x	x	
Cottonwood Spring	x	x	x	x		x	x		x	x	x		x	
Live Oak Spring	x	x	x	x		x	x		x	x	x		x	
Cabin Spring	x	x	x	x		x	x		x	x	x		x	
Minor Surface Waters	x	x	x			x	x	x	x	x	x			
Minor Wetlands	x	x	x	x		x	x		x	x	x		x	x

IMPAIRED WATERBODIES

Clean Water Act (CWA) Section 303(d)(1)(A) requires states to identify surface waters impaired by pollution (*i.e.*, do not meet water quality standards), and to establish total maximum daily loads (TMDLs) for pollutants causing the impairments. The numerous ephemeral washes located throughout the Survey Area have not been evaluated for impairment; therefore, no impaired waters have been documented within the Survey Area.

3.2.2 FEMA FLOODPLAIN

According to the Federal Emergency Management Agency (FEMA) Flood Hazard maps, the Survey Area is widely unmapped and designated as Flood Zone D (FEMA 2021). Zone D areas are areas of undetermined, but possible, flood hazards.

3.3 SOILS

The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) Web Soil Survey and State Soil Geographic Data Base (STATSGO) were consulted to determine which soil types were present within the Survey Area (NRCS 2021a). Soils within and near the Survey Area are displayed on Appendix A, Figure 7: Soils. Fifteen soil series types occur within the Survey Area. A summary of each soil series is provided below based on the NRCS *Official Soil Series Descriptions* (NRCS 2021b). Playas is the only soil listed as hydric by the NRCS (NRCS 2021c). Table 5 reports the total area for each soil series type within the Survey Area.

Table 5. Soils within the Survey Area

Soil Series	Listed as Hydric by NRCS	Area (Acres)
Cajon-Arizo	No	38.50
Cajon-Bitterwater-Bitter-Badland	No	0.15
Dedas-Cave-Canutio-Armpup-Arizo	No	16.30
Nickel-Bitter-Arizo	No	103.98
Norob-Halloran-Cajon-Bryman	No	209.43
Playas	Yes	33.13
Rock Outcrop-Lithic Torriorthents	No	6.81
Rositas-Carrizo	No	100.88
Rositas-Dune land-Carsitas	No	20.84
Skyhaven-Rillito-Mead-McCullough-Ireteba-Bluepoint	No	70.38
St. Thomas-Rock outcrop	No	4.04
Tecopa-Rock outcrop-Lithic Torriorthents	No	19.04
Trigger-Rock outcrop-Calvista	No	17.34
Upspring-Sparkhule-Rock Outcrop	No	55.18
Wasco-Rosamond-Cajon	No	60.94
TOTAL		**756.94**

CAJON-ARIZO SERIES

Cajon-Arizo soil series is observed in the eastern portion of the Survey Area. The Cajon series is a member of mixed, thermic family of Typic Typic Torripsamments. Typically, Cajon series have a light brownish gray, moderately alkaline, soft, friable sand A horizons, and light gray, moderately alkaline, sand C horizons. The mean annual soil temperature is 59 to 72 degrees Fahrenheit (°F). Cajon is generally located on alluvial fans, fan aprons, fan skirts, inset fans and river terraces that are very deep, and somewhat excessively drained. Slope ranges from 0 to 15 percent. The Arizo series is a member of the sandy-skeletal, mixed, hyperthermic family of Typic Torriorthents. Typically, Arizo soils have dark grayish brown, moderately

alkaline, very gravelly fine sand A horizons and dark grayish brown, moderately alkaline, extremely gravelly sand B horizons. The mean annual temperature is about 59 to 71°F and slope ranges from 0 to 15 percent. The Arizo series consists of very deep, excessively drained soils that formed in mixed alluvium on recent alluvial fans, inset fans, fan apron, fan skirts, stream terraces, floodplains of intermittent streams and channels. The Cajon-Arizo series is not listed as hydric (NRCS 2021c).

Cajon-Bitterwater-Bitter-Badland Series

Soils representing the Cajon-Bitterwater-Bitter-Badland series can be found in the western portion of the Survey Area. A description of the Cajon soil series has already been addressed in the Cajon-Arizo series description. Bitterwater soil consists of coarse-loamy, mixed, superactive, calcareous, thermic Typic Torriorthents which are deep, well drained soils formed in material weathered from sandstone on hills. The soil has slopes of 9 to 75 percent with a mean annual soil temperature of 65 degrees to 69°F. The soil has pale brown, moderately alkaline, loam A horizons and light yellowish brown and very pale brown, moderately alkaline, sandy loam C horizons. Bitter series is a loamy-skeletal, mixed, superactive, thermic Typic Haplargid that consist of deep, well drained soils formed in material weathered in dissected fan terraces. The slope ranges from 2 to 20 percent and a mean annual soil temperature is 59 to 68°F. Bitter soils have dark brown, moderately alkaline, extremely to very gravelly sandy loam A horizons; reddish yellow, moderately alkaline, very gravelly sandy clay loam B horizons; and pinkish gray, moderately alkaline, very gravelly loamy sand C horizons. Badland is not a type of soil but rather dry geological formations formed from the erosion of softer clays and rocks by wind and water. The Cajon-Bitterwater-Bitter-Badland series is not listed as hydric (NRCS 2021c).

Dedas-Cave-Canutio-Armpup-Arizo Series

The Dedas-Cave-Canutio-Armpup-Arizo series is observed in the western portion of the Survey Area. The Dedas soil series is a loamy-skeletal, mixed, superactive, thermic, shallow Typic Argidurids. This soil series consists of shallow, well drained soils over a duripan underlain by bedrock on summits and side-slopes of rock pediment remnants. Slopes are 4 to 50 percent and the mean annual soil temperature is about 57 to 61°F. Dedas soils has pale brown and light brown, moderately alkaline, very gravelly sandy loam A horizons; and very-pale brown, moderately alkaline, very gravelly sandy loam or indurated duripan B horizons. The Cave soil series is a loamy, mixed, superactive, thermic, shallow Typic Petrocalcids. This soil series typically has shallow to hardpan, well drained soils formed in mixed alluvium on fan remnants and piedmonts, as well as stream terraces. The slopes range from 0 to 35 percent and the mean annual soil temperature ranges from 59 to 72°F. Cave soils have pale brown, slightly and moderately alkaline, gravelly sandy loam A horizons; and varying pink and white, moderately alkaline, gravelly loam and hardened calcium carbonate B horizons. The Canutio soil series is a loamy-skeletal, mixed, superactive, calcareous, thermic Typic Torriorthents. The soil series consists of very deep, well drained, moderately rapidly permeable soils formed in gently sloping to steep soils on alluvial fans, fan piedmonts, and on valley floors in mountainous areas. The soil slope ranges from 1 to 30 percent and the mean annual temperature is 66 to 71°F. The Canutio soils have pale brown, moderately alkaline, gravelly sandy loam A horizons and pale brown and light brown, moderately alkaline, extremely gravelly sandy loam B horizons. The Armpup soil series is a fine, clay, thermic Typic Natrargids and consists of deep, well drained soils formed in alluvium on pediment remnants and

ballena toe slopes. The slopes are 2 to 8 percent and the mean annual temperature is 62 to 70°F. Armpup soils have very pale brown, very strongly alkaline, gravelly sandy clay loam A horizons; and yellowish brown to brown, very strongly alkaline, gravelly clay and extremely gravelly clay B horizons. A description of the Arizo soil series has already been addressed for the Cajon-Arizo series description. Dedas-Cave-Canutio-Armpup-Arizo series is not listed as hydric (NRCS 2021c).

Nickel-Bitter-Arizo series

The Nickel-Bitter-Arizo series is observed in the eastern and central portion of the Survey Area. The Nickle series is a member of the loamy-skeletal, mixed, superactive, thermic Typic Haplocalcids. This soil series consists of very deep, well drained soils formed in alluvium from mixed rock sources on fan remnants. The slope ranges from 0 to 35 percent and the mean annual soil temperature is 59 to 71°F. Nickel soils have light or dark yellowish brown, strongly alkaline, gravelly very fine sandy loam A horizons; and yellowish-brown, moderately alkaline, extremely gravelly sandy loam B horizons. A description of the Bitter soil series has already been addressed in the Cajon-Bitterwash-Bitter-Badland series description. A description of the Arizo soil series has already been addressed in the Cajon-Arizo series description. The Nickel-Bitter-Arizo series is not listed as hydric (NRCS 2021c).

Norob-Halloran-Cajon-Bryman Series

The Norob-Halloran-Cajon-Bryman series found north of the eastern portion of the Survey Area. The Norob soil series is a fine-loamy, mixed, superactive, thermic Typic Natrargids consisting of very deep, well-drained soils formed on alluvial plains and alluvial flats in the Mojave Desert. The slopes are 0 to 5 percent and the mean annual soil temperature is 62 to 66°F. Norob soils have light yellowish brown, moderately alkaline, sand A horizons; and dark brown, yellowish brown or brown, strongly, or moderately alkaline, sandy clay loam B horizons. The Halloran soil series is a member of coarse-loamy, mixed, superactive, thermic Typic Natrargids and consists of deep, moderately well drained soils formed in mixed alluvium dominantly from granitic sources on old alluvial terraces and depressional areas. The mean annual soil temperature is about 65°F, and the slopes range from 0 to 2 percent. The Halloran series typically has very pale brown, moderately alkaline, sand A horizons; reddish brown or reddish yellow, strongly alkaline, heavy sandy loam or sandy loam B horizons; yellow, brown, yellowish brown, or mixed yellow, moderately alkaline, sandy loam C horizons. A description of the Cajon soil series has already been addressed in the Cajon-Arizo series description. The Bryman series is a member of the fine-loamy, mixed, superactive, thermic family of the Typic Haplargids. Typically, Bryman soils have pale brown to light yellowish brown, moderately alkaline, loamy fine sand A horizons and brown to reddish brown, moderately alkaline, sandy loam or sandy clay loam in the B horizons. Slope ranges from 0 to 15 percent and the mean annual soil temperature is 61 to 65°F. This soil series are generally located on terraces and older alluvial fans that are deep and well drained. The Norob-Halloran-Cajon-Bryman series is not listed as hydric (NRCS 2021c).

Playas

There is no official description for this map unit. Playas are dry lakebeds lacking in vegetation and are found in intermountain basins throughout the arid southwestern United States (Stoffer 2004). These geologic

formations are composed of either clay, sand, or silt and often include soluble salts. Playas are listed as hydric and can act as ephemeral lakes during wet periods (NRCS 2021c).

Rock Outcrop-Lithic Torriorthents series

The Rock Outcrop-Lithic Torriorthents series is observed in the eastern portion of the Survey Area. Rock outcrops are not soil series but are rock formations that extend above the surface of the surrounding land. Lithic Torriorthents is a soil subgroup characterized by loamy-skeletal, mixed, superactive, calcareous, thermic, alluvial soils found in valleys and deltas of rivers, especially those with high sediment load where periodic floods occur. This soils series is not listed as hydric (NRCS 2021c).

Rositas-Carrizo series

The Rositas-Carrizo series is observed in the eastern-central portion of the Survey Area. The Rositas series is mixed, hyperthermic Typic Torripsamments. Rositas soil consists of very deep, somewhat excessively drained soils formed in sandy eolian material on dunes and sand sheets. This soil can be found on lope ranges from 0 to 30 percent with hummocky or dune micro relief and have a temperature of 72 to 80°F. The Rositas series has reddish yellow, moderately alkaline, fine sand C horizons. The Carrizo series is sandy-skeletal, mixed, hyperthermic Typic Torriorthents. The Carrizo series consists of very deep, excessively drained soils formed in mixed igneous alluvium on flood plains, fan piedmonts and bolson floors with slopes range from 0 to 15 percent. The annual soil temperature is 72 to 77°F. The Carrizo soil is pale brown, moderately alkaline, extremely gravelly sand A horizons, and pale brown, moderately alkaline, stratified extremely gravelly C horizons. This soils series is not listed as hydric (NRCS 2021c).

Rositas-Dune land-Carsitas Series

The Rositas-Dune land-Carsitas series is observed in the eastern-central portion of the Survey Area. A description of the Rositas soil series has already been addressed in the Rositas-Carrizo series description. Dune Land is not characterized as a soil series. It is composed of aeolian sands and can be found on hills. Typical texture is fine sand. The Carsitas soil series is mixed, hyperthermic Typic Torripsamments that consists of very deep and well drained soils on alluvial fans, fan aprons, valley fills, dissected remnants of alluvial fans and in drainageways. The slopes are 0 to 30 percent and the mean annual soil temperature is mean annual soil temperature less than 72°F. Typically Carsitas soils have light olive gray, moderately alkaline, gravelly sand or coarse gravelly sand B horizons. This soils series is not listed as hydric (NRCS 2021c).

Skyhaven-Rillito-Mead-McCullough-Ireteba-Bluepoint Series

The Skyhaven-Rillito-Mead-McCullough-Ireteba-Bluepoint series is observed in the eastern portion of the Survey Area. The Skyhaven series is considered fine-loamy, carbonatic, thermic Argic Petrocalcids and has well drained soils that are moderately deep to a limestone hardpan in mixed alluvium on basin floors and alluvial flats. Slopes range from 0 to 4 percent and the mean annual soil temperature ranges from 66 to 70°F. Skyhaven soils typically have pink, moderately alkaline, very fine sandy loam A horizons; and light brown clay loam/gravelly clay loam, white very gravelly loam, or pinkish white gravelly silty clay loam, severely/moderately alkaline B horizons. The Rillito series is a member of the coarse-loamy, mixed,

superactive, hyperthermic Typic Haplocalcids. Typically, Rillito series consists of very deep, somewhat excessively drained soils that formed in mixed alluvium on fan terraces or stream terraces. Slopes are dominantly 0 to 5 percent, but range to 40 percent. The mean annual soil temperature is between 72 to 77°F. Rillito soils have light yellowish gravelly sandy loam A horizons, moderately alkaline, gravelly sandy loam and sandy loam B horizons that is light brown, pink, or very pale brown, and pinkish gray, moderately alkaline, sandy loam C horizons. The Mead soil series is a member of the fine, mixed, superactive, thermic Typic Aquisalids and consists of very deep poorly drained soils formed in mixed alluvium alluvial fans. This soil series is on slopes from O to 2 percent and mean annual temperatures ranging from 63 to 70°F. Mead soils have brown, highly alkaline clay A horizons and reddish brown, moderately alkaline gravelly clay C horizons. The McCullough soil series is a coarse-loamy, mixed, superactive, calcareous, thermic Typic Torriorthent and has very deep, well-drained soil. The soil is formed in alluvium on inset fans, fan skirts and alluvial flats. This soil series is on slopes from O to 8 percent and mean annual temperatures ranging from 62 to 68°F. McCullough soils have pink, moderately alkaline, fine sandy loam A horizons; light brown, moderately alkaline, gravelly sandy loam B horizons; and pink, moderately to strongly alkaline, loam and fine sand C horizons. The Ireteba is a member of the coarse-loamy, mixed, superactive, calcareous, thermic Typic Torrifluvents. This soil series pale brown, moderately alkaline, loam A horizons; and light brown to very pale brown fine sandy loam C horizons. The Bluepoint soil series is a member of the mixed, thermic Typic Torripsamments and consists of very deep, somewhat excessively drained soils formed in eolian materials on dunes and sand sheets. Slope ranges from 0 to 50 percent and the mean annual soil temperature ranges from 65 to 72°F. Bluepoint soils have very pale brown, moderately alkaline, fine sand A horizons; and very pale brown, slightly to moderately alkaline, fine sand C horizons. The Skyhaven-Rillito-Mead-McCullough-Ireteba-Bluepoint is not listed as hydric (NRCS 2021c).

St. Thomas-Rock Outcrop Series

The St. Thomas-Rock Outcrop series is observed in the central portion of the Survey Area. The St. Thomas series is loamy-skeletal, carbonatic, thermic Lithic Torriorthents. It is very shallow and shallow, well drained soils that formed in residuum and colluvium derived from limestone and dolomite. The St. Thomas soils are on hills and mountains, with slope ranges from 2 to 75 percent. This soil series has a mean annual soil temperature of 67 to 72°F. St. Thomas soils have very pale brown, moderately alkaline very cobbly loam A horizons, and very pale brown, moderately alkaline extremely cobbly loam B Horizons. Rock outcrops are described in the Rock Outcrop-Lithic Torriorthents series description. The St. Thomas-Rock Outcrop series is not listed as hydric (NRCS 2021c).

Tecopa-Rock outcrop-Lithic Torriorthents Series

The Tecopa-Rock Outcrop-Lithic Torriorthents series is observed in the western two-thirds of the Survey Area. Tecopa soil series is a member of the loamy-skeletal, mixed, superactive, calcareous, thermic Lithic Torriorthents and consists of very shallow soils formed in residuum on low hills and low mountain side slopes. The mean annual soil temperature is 59 to 72°F and slopes with a range from 15 to 75 percent. The Tecopa soil have very pale brown, moderately alkaline, very cobbly loam A horizons and very pale brown to light yellowish brown, moderately alkaline, very gravelly sandy loam C horizons. Rock outcrops and Lithic

Torriorthents are described in the Rock Outcrop-Lithic Torriorthents series description. Tecopa-Rock Outcrop-Lithic Torriorthents series is not listed as hydric (NRCS 2021c).

TRIGGER-ROCK OUTCROP-CALVISTA SERIES

The Trigger-Rock outcrop-Calvista series is observed throughout the entire Survey Area. The Trigger soil series is loamy, mixed, superactive, calcareous, thermic Lithic Torriorthents. It consists of shallow, well drained soils that formed in material weathered from hard sedimentary rocks on uplands and have slopes of 5 to 50 percent. The mean annual soil temperature is 62 to 67°F. Trigger soils have very pale brown, moderately alkaline, very gravelly sandy loam A horizons, and essentially hard, fractured rock with sandy loam and violently effervescent with disseminated lime in fracture joints C horizons. Rock outcrops are described in the Rock Outcrop-Lithic Torriorthents series description. The Calvista series is loamy, mixed, superactive, thermic Lithic Haplocalcids and consists of shallow, well drained soils that formed in material from granitic rock that has seams of calcite on mountains ridges on slopes of 2 to 30 percent slopes. The mean temperature is about 62 to 67°F. Calvista soils are pale brown, moderately alkaline, sandy loam A horizons and light yellowish brown, moderately alkaline, heavy sandy loam B horizons. The Trigger-Rock outcrop-Calvista series is not listed as hydric (NRCS 2021c).

UPSPRING-SPARKHULE-ROCK OUTCROP SERIES

The Upspring-Sparkhule-Rock Outcrop series is observed throughout the Survey Area line. Upspring soil is a member of loamy-skeletal, mixed, superactive, calcareous, thermic Lithic Torriorthents. The Upspring series consists of very shallow and shallow, somewhat excessively drained soils formed in material weathered from extrusive basic igneous rocks and some pyroclastic material on hills, mountains, and plateaus. The soil has slopes of 8 to 75 percent and the mean annual soil temperature is 68°F. This soil series has light gray, moderately alkaline, very stony loam A horizons and very pale brown, moderately alkaline, very gravelly sandy loam B horizons. Sparkhule soil is a member of loamy, mixed, superactive, thermic Lithic Haplargids. The Sparkhule series consists of shallow to rock, well drained soils that formed in residuum from volcanic or granitic rocks. Sparkhule soils are on rock pediments and hills and have slopes of 5 to 50 percent. This soil series has very pale brown, slightly alkaline, gravelly sandy loam A horizons, and reddish yellow and strong brown, slightly alkaline to neutral, gravelly sandy clay loam B horizons. Rock outcrops are described in the Rock Outcrop-Lithic Torriorthents series description. The Upspring-Sparkhule-Rock Outcrop series is not listed as hydric (NRCS 2021c).

WASCO-ROSAMOND-CAJON SERIES

The Wasco-Rosamond-Cajon series is observed in the western portion of the Survey Area. Wasco soil is coarse-loamy, mixed, superactive, nonacid, thermic Typic Torriorthents. The Wasco series consists of very deep, well drained soils on recent alluvial fans and flood plains in mixed alluvium derived mainly from igneous and/or sedimentary rock sources. The Slope is 0 to 5 percent slopes and the mean annual soil temperature is 62 degrees to 67°F. Wasco soil has brown and yellowish brown, slightly acidic and neutral, sandy loam A horizons as well as brown and pale brown, moderately alkaline and neutral, sandy loam C horizons. The Rosamond series is a member of the fine-loamy, mixed, superactive, calcareous, thermic family of the Typic Torrifluvents and is geographically associated with the Herperia and Cajon Series that

also occur within the Survey Area. Typically, Rosamond soils have pale brown to light brownish gray to pale brown, slightly alkaline, fine loamy sand C horizons. The mean annual soil temperature is 61 to 65°F. The map units within this soil series are generally located on the lower margin of the alluvial fans between the sloping fans and the playas that are deep and well drained. Slope ranges from 0 to 2 percent. A description of the Cajon soil series has already been addressed in the Cajon-Arizo series description. The Wasco-Rosamond-Cajon series is not listed as hydric (NRCS 2021c).

4 Precipitation and Climate Data Analysis

In the Survey Area, the temperature typically varies from 35.5°F to 104.2°F over the course of the year. (Western Regional Climate Center [WRCC] 2021). The rainy period of the year lasts for approximately 10 months, from July to April (WRCC 2021).

According to the NRCS AgACIS, the nearest weather station to the Survey Area collecting climate and precipitation data with 20 years of data available is the Barstow-Daggett Airport, CA. In the three months prior to the field surveys (performed on March 18 - 20, 2021; March 23 - 26, 2021; March 29 – 31, 2021; April 6 – 9, 2021; April 12 – 16, 2021), there was approximately 0.53 inch of rainfall as reported in Table 6 (NOAA 2021). The average monthly precipitation data for the past 20 years (2001 through 2021) for the Barstow-Daggett Airport station is provided in Appendix C, Climatological Data: WETS Table (NOAA 2021). Overall, total rainfall in 2020 totaled 3.35 inches and is slightly above the 20-year annual average total rainfall of 3.33 inches (NOAA 2021).

Table 6. Observed Precipitation Near Survey Area During the Three Months Preceding Field Survey

Weather Station	Date	Rainfall (inches)
Barstow-Daggett Airport, CA	December 1 - 31, 2020	0.14
Barstow-Daggett Airport, CA	January 1 – 31, 2021	0.37
Barstow-Daggett Airport, CA	February 1 – 28, 2021	0.02

Source: AgACIS (NOAA 2021)

The Antecedent Precipitation Tool (APT; Version 1.0.19) was used to evaluate climatic conditions of a representative watershed in the Survey Area: the Mohave Watershed (HUC 18090208). The APT Watershed Sampling Summary provided in Appendix C summarizes precipitation and climatic data for 239 sampling points within HUC 18090208 for the 3 months prior to the first delineation field work date of March 18, 2021. Sampling results are reported in Table 7. These data determine that 50 percent of those 239 sampling points exhibited precipitation and climate below the normal range of conditions recorded within HUC 18090208. The average Antecedent Precipitation Score (derived from the Antecedent Condition Calculation of the three prior months) of 9.82 indicates that climatic conditions were drier than normal despite that 49 percent of those 239 sampling points exhibited normal precipitation and climate conditions and 1 percent of wetter than normal conditions. Regardless, the corresponding drought index (PDSI; based on data from NOAA) indicated extreme and severe drought. Additionally, rainfall in December through February were below the 20-year average precipitation amount for those months (NOAA 2021).

Table 7. Antecedent Precipitation Tool Sampling Results for HUC 18090208 on 3/18/2021

No. of Sampling Points	PDSI Value	PDSI Class	Season	ARC Score	Antecedent Precip Condition
1	-4.1	Extreme Drought	Dry Season	16	Wetter than Normal
2	-4.1	Extreme Drought	Wet Season	16	Wetter than Normal
5	-4.1	Extreme Drought	Dry Season	14	Normal Conditions
4	-4.1	Extreme Drought	Dry Season	13	Normal Conditions
6	-4.1	Extreme Drought	Dry Season	12	Normal Conditions
28	-4.1	Extreme Drought	Dry Season	11	Normal Conditions
20	-4.1	Extreme Drought	Wet Season	10	Normal Conditions
53	-4.1	Extreme Drought	Dry Season	10	Normal Conditions
19	-4.1	Extreme Drought	Wet Season	9	Drier than Normal
93	-4.1	Extreme Drought	Dry Season	9	Drier than Normal
11	-4.1	Extreme Drought	Dry Season	8	Drier than Normal
1	-4.1	Extreme Drought	Wet Season	8	Drier than Normal
1	-3.28	Severe Drought	Wet Season	8	Drier than Normal
239	**Total**		**Average**	**9.82**	**Drier than Normal**

Source: Antecedent Precipitation Tool (v.1.0.19), generated on 5/4/2021

5 Results: Description of All Wetlands and Other Non-wetland Waters

All USACE-defined aquatic resources (waters of the U.S.) supporting an OHWM that were observed within the Survey Area are mapped on Figure 8: USACE and RWQCB Aquatic Resources Survey Results (Appendix A). RWQCB aquatic resources (waters of the State) are also mapped on Figure 8. CDFW aquatic resources (streambeds under the purview of the CDFW) are mapped on Figure 9: CDFW Aquatic Resources Survey Results (Appendix A) and include those mapped for the RWQCB but also include streams from top of bank to top of bank. NDEP aquatic resources (waters of the state of Nevada) are mapped on Figure 10: NDEP Aquatic Resource Survey Results (Appendix A). Representative photographs of delineated waters are provided in Appendix D: Photos. Corresponding photograph points with orientation are provided in Figures 8, 9, and 10. Table 8 presents a listing of all the aquatic resources within the Survey Area.

Overall, aquatic resources totaled 86.05 acres (281,314 linear feet) within the Survey Area, including 42.42 acres (131,473 linear feet) in Segment 1: Gale-Pisgah and 43.63 acres (149,841 linear feet) in Segment 2: Pisgah to Nipton. Aquatic resources under the purview of USACE total 40.51 acres (192,996 linear feet) within the Survey Area, including 10.31 acres (46,892 linear feet) in the Segment 1: Gale-Pisgah and 30.20 (146,104 linear feet) in Segment 2: Pisgah to Nipton. Aquatic resources under the purview of RWQCB total 66.97 acres (278,156 linear feet) within the Survey Area, including 36.25 acres (131,473 linear feet) in the Segment 1: Gale-Pisgah and 30.72 (146,683 linear feet) in Segment 2: Pisgah to Nipton. Aquatic resources under the purview of CDFW total 70.41 acres (192,996 linear feet) within the Survey Area, including 27.95 acres (46,892 linear feet) in Segment 1: Gale-Pisgah and 42.46 acres (146,104linear feet) in Segment 2: Pisgah to Nipton. Aquatic resources under the purview of NDEP total 0.64 acre (3,157 linear feet) within the Survey Area in Segment 2: Pisgah to Nipton.

Table 8. Aquatic Resources within the Survey Area

Aquatic Resource Type	Amount[1]		Width (feet)[2]		Dominant Vegetation Communities[3]
	Acres	Linear feet	OHWM	TOB	
Segment 1: Gale-Pisgah					
Non-wetland Waters of the U.S. and State (USACE/RWQCB/CDFW)					
Ditch/Canal	3.02	10,196	4-29	10-40	creosote bush scrub; allscale scrub
Streambed, Unvegetated	1.34	29,803	0.5-20	1-30	creosote bush scrub; allscale scrub
Streambed, Vegetated	5.95	6,893	2-3	4	creosote bush scrub
Subtotal Waters of the State (RWQCB/CDFW)	*10.31*	*46,892*			
Non-wetland Waters of the State (RWQCB/CDFW)					
Basin (connected)	0.52	--	--	--	creosote bush scrub
Playa	10.98	--	--	--	playa; fourwing saltbush scrub
Subtotal Waters of the State (RWQCB/CDFW)	*11.49*	--			
Non-wetland Waters of the State (RWQCB-exclusive)					
Basin (isolated)	10.47	--	--	--	allscale scrub; creosote bush scrub
Excavated Diversion Ditch	0.16	471	12-15	12-15	creosote bush scrub
Roadside Ditch	3.82	83,833	0.5-2	2-6	creosote bush scrub; developed/disturbed
Subtotal Waters of the State (RWQCB)	*14.45*	*84,304*			
Non-wetland Waters of the State (CDFW-exclusive)					
Ditch/Canal Bank	1.13	--*	4- 29	8-50	creosote bush scrub; allscale scrub; fourwing saltbush scrub
Streambed, Unvegetated Bank	1.53	--*	0.5-20	1-30	allscale scrub; creosote bush scrub
Streambed, Vegetated Bank	3.49	--*	--	--	creosote bush scrub
Subtotal Waters of State (CDFW-exclusive)	*6.15*	--*			
Total USACE Aquatic Resources in Segment 1: Gale-Pisgah	**10.31**	**46,892**			
Total RWQCB Aquatic Resources in Segment 1: Gale-Pisgah	**36.25**	**131,473**			
Total CDFW Aquatic Resources in Segment 1: Gale-Pisgah	**27.95**	**46,892**			
Total Aquatic Resources in Segment 1: Gale-Pisgah	**42.42**	**131,473**			
Segment 2: Pisgah to Nipton					
Non-wetland Waters of the U.S. and State (USACE/RWQCB/CDFW)					
Ditch/Canal	0.02	322	0.5-3	2-7	Joshua tree woodland
Streambed, Unvegetated	6.64	127,894	0.25-30	1-40	creosote bush scrub

Aquatic Resource Type	Amount[1]		Width (feet)[2]		Dominant Vegetation Communities[3]
	Acres	Linear feet	OHWM	TOB	
Streambed, Vegetated	23.54	17,888	1	3-6	creosote bush scrub
Subtotal Waters of the State (RWQCB/CDFW)	*30.20*	*146,104*			
Non-wetland Waters of the State (RWQCB-exclusive)					
Basin	0.51	--*	--	--	creosote bush scrub
Roadside Ditch	0.01	579	1-2	3	Joshua tree woodland
Subtotal Waters of the State (RWQCB-exclusive)	*0.52*	*579*			
Non-wetland Waters of the State (CDFW-exclusive)					
Ditch/Canal Bank	0.03	--*	--	--	Joshua tree woodland
Streambed, Unvegetated Bank	5.95	--*	0.25-30	1-40	creosote bush scrub
Streambed, Vegetated Bank	6.28	--*	--	--	creosote bush scrub
Subtotal Waters of State (CDFW-exclusive)	*12.26*	--*			
Non-wetland Waters of the State (NDEP-exclusive)					
Streambed, Unvegetated	0.17	2,999	0.5-22	1-24	catclaw acacia thorn scrub
Streambed, Unvegetated Bank	0.16	--*	--	--	creosote bush scrub
Streambed, Vegetated	0.12	158	--	--	creosote bush scrub
Streambed, Vegetated Bank	0.19	--*	--	--	creosote bush scrub
Subtotal Waters of State (NDEP-exclusive)	*0.64*	*3,157*			
Total USACE Aquatic Resources in Segment 2: Pisgah to Nipton	**30.20**	**146,104**			
Total RWQCB Aquatic Resources in Segment 2: Pisgah to Nipton	**30.72**	**146,683**			
Total CDFW Aquatic Resources in Segment 2: Pisgah to Nipton	**42.46**	**146,104**			
Total NDEP Aquatic Resources in Segment 2: Pisgah to Nipton	**0.64**	**3,157**			
Total Aquatic Resources in Segment 2: Pisgah to Nipton	**43.63**	**149,841**			
GRAND TOTAL USACE AQUATIC RESOURCES (Segments 1 and 2)	**40.51**	**192,996**			
GRAND TOTAL RWQCB AQUATIC RESOURCES (Segments 1 and 2)	**66.97**	**278,156**			
GRAND TOTAL CDFW AQUATIC RESOURCES (Segments 1 and 2)	**70.41**	**192,996**			
GRAND TOTAL NDEP AQUATIC RESOURCES (Segments 1 and 2)	**0.64**	**3,157**			
GRAND TOTAL AQUATIC RESOURCES (Segments 1 and 2)	**86.05**	**281,314**			

USACE = U.S. Army Corps of Engineers; RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife; NDEP = Nevada Department of Environmental Protection

[1]All acreages and linear feet are rounded to the nearest hundredth (which may account for minor rounding error).

[2] OHWM = ordinary high water mark; TOB = top of bank.

[3] Dominant vegetation communities listed for each feature type are those >25% of the total area mapped for that feature type.

* Linear feet of this feature concurrent with and already included in Streambed.

5.1 Federal Aquatic Resources

5.1.1 Wetland Waters

No areas potentially meeting the federal wetland definition were identified within the Survey Area. No wetland plant species (those rated as OBL, FACW, or FAC by the NWPL; USACE 2018) were observed in the densities or assemblages that would normally indicate the presence of a hydrophytic plant community. Plant species within the larger washes included plant species characterized as wash-dependent (i.e., catclaw acacia), but are not wetland species. Hydrology indicators including cracked mud, drift deposits, and drainage patterns observed within the Survey Area. However, because the observed hydrology indicators did not co-occur with hydrophytic vegetation communities, subsurface soils investigations were not conducted, and no USACE Wetland Determination Data Forms were completed.

5.1.2 Non-wetland Waters

Non-wetland waters of the U.S. included ephemeral streambed features and ditches/canals supporting OHWM. Predominant indicators of OHWM (Lichvar and McColley 2008) within the Survey Area included break in slope as well as changes in vegetation cover and average sediment texture. Indicators of hydrology within the ephemeral washes included presence of bed and bank, presence of drift and/or debris, vegetation and/or sediment barriers, wrack lines, channel bank erosion, local bed scour, break in slope, surface relief, change in particle size distribution, and occasionally also included ripples in the sand or dry cracked soils. Cross section drawings for the OHWM Datasheet locations are provided in Appendix E: Data Forms.

5.2 State Aquatic Resources

5.2.1 Wetland/Riparian Habitat

For the same reasons described in Section 5.1.1 Wetland Waters, no wetland waters of the State under the jurisdiction of the RWQCB and NDEP were delineated in either Segment 1 or Segment 2 of the Survey Area. Additionally, no CDFW riparian habitat was mapped within the Survey Area.

5.2.2 Non-wetland/Basin

Natural basins (including isolated basins) are included under RWQCB jurisdiction under the California Porter-Cologne Act, and also because they present OHWM-indicators and the water that pools and accumulates in them are considered to present a beneficial use to the surrounding floodplain. Additionally, several basins that intersect or directly connect with other jurisdictional aquatic resources that provide potential aquatic habitat are also included under CDFW jurisdiction. These features were delineated in both Segments 1 and 2 (excluding Nevada) of the Survey Area, where they were typically associated with flat, relic playa areas in residential zones, or in Segment 1 there were primarily natural basins associated with a large volcanic flow area.

5.2.3 Non-wetland/Ditch/Canal

Ditch/canal are excavated ditches or disturbance areas included under RWQCB jurisdiction because they convey flow to and from other jurisdictional aquatic resources. Many ditch/canal features were given CDFW jurisdiction due to the clear presence of bed and bank. These features were delineated in both Segments 1 and 2 of the Survey Area.

5.2.4 Non-wetland/Playa

Playas were mapped within Segment 1 of the Survey Area and are regulated by CDFW and RWQCB due to their association with historic lake beds; see also Appendix A, Figure 5: National Wetland Inventory. These shallow, dry lake features are ephemeral where typically the presence of water is associated with spring rainstorms, although some playas may be fed from underground aquifers. Playas can also occasionally be known to support fairy shrimp (*Triops* sp.) and waterfowl species when water is present, and therefore, are considered to provide a beneficial use. Playas were delineated in Segment 1 of the Survey Area but were not present within Segment 2.

5.2.5 Non-wetland/Streambed and Bank (Unvegetated and Vegetated)

Non-wetland waters of the State included ephemeral streambed features supporting OHWM as described under Section 5.1.2. Additionally, CDFW and NDEP jurisdiction extends to the top of bank above the OHWM and includes areas mapped as low alluvial terrace formed by deposits adjacent to streambeds, especially within the larger washes. These features were delineated in both Segments 1 and 2 of the Survey Area.

5.2.6 Non-wetland/Excavated Diversion Ditch

Excavated diversion ditches, also known as water turnouts or wing ditches, provide an exit to disperse flows away from the road and are under the jurisdiction of the RWQCB. These features were delineated in Segment 1 of the Survey Area but were not present within Segment 2.

5.2.7 Non-wetland/Roadside Ditch

Roadside ditches are artificially created features created to convey road stormwater flows and are under the jurisdiction of the RWQCB. These features were delineated in primarily Segment 1, as they were primarily associated with shoulders of paved roads where grading likely creates artificial channels that convey water to a storm drain.

5.3 Non-Jurisdictional Features

5.3.1 Erosional Features

Non-jurisdictional erosional features are isolated soil disturbance features that are often visible along areas of topographic change, and do not function in conveying flows or runoff. Rills, large soil cracks, soil calving, and minor landslides are all examples of non-jurisdictional erosional features. Those potentially mapped in the Survey Area primarily include erosional rills that were observed draining to the roads as opposed to a natural streambed or wash.

5.4 Deviation from NWI

As shown in comparison to Appendix A, Figure 5: National Wetland Inventory and Figure 6: National Hydrography Dataset/FEMA, the aquatic resources identified and mapped in this ARDR are more numerous than those mapped in the NWI and NHD. Within the Survey Area, the aquatic resources mapped in the NWI correspond with most of the larger washes and some of the distinct tributaries to those and delineate the path of water flow as opposed to encompassing the multiple low-flow channels within the associated alluvial fans. Further, the NWI intersects several dry lakes in the Survey Area, which are the playa features delineated in Segment 1. Differences between those aquatic resources mapped in both this ARDR and the NWI would be the result of the changing flow patterns over time and variability in widths of stream complexes.

6 Discussion and Conclusions

6.1 Recommendations

This ARDR provides the necessary data to support a jurisdictional determination from USACE, RWQCB, and CDFW. Additionally, based on the design and construction activities associated with implementation of the Project, this ARDR provides the necessary data to determine whether a regulated activity triggers the need for aquatic resources permits. Authorizations from USACE, RWQCB, CDFW, and NDEP may be required for implementation of the Project if it will involve alteration of or impacts to potentially jurisdictional aquatic resources identified in the Survey Area.

6.1.1 USACE Section 404 Permit

The Project received a prior verification of presence of waters of the U.S. and Nationwide Permit (NWP) No. 18 (Minor Discharges) pursuant to Section 404 from the U.S. Army Corps of Engineers (USACE) on August 27, 2020 (SPL-2020-00130-VN; USACE 2020). See Attachment F. This ARDR can be used to support a request for an amended verification/NWP or a separate Preliminary Jurisdictional Determination to confirm USACE jurisdiction over aquatic resources identified and mapped in the Survey Area. RWQCB Section 401 Water Quality Certification and Waste Discharge Requirements

Because a Section 404 permit is required, a Section 401 Water Quality Certification from the RWQCB also will be required in addition to authorization under Waste Discharge Requirements (WDRs) for isolated features. The Survey Area is located in RWQCB Region 6, Lahontan. Construction activities within jurisdictional features should be avoided where practical. A Section 401 Certification/WDR will be required if construction activities will result in discharge of dredged or fill materials into waters of the State. The process for Section 401 Water Quality Certifications/WDRs can take up to one year. RWQCB issuance of a permit is considered a discretionary action as defined in Title 14 of the California Code of Regulations, Section 15357, and therefore requires environmental review under the California Environmental Quality Act (CEQA). Therefore, RWQCB will not issue a permit until CEQA compliance has been completed.

6.1.2 CDFW Section 1600 Lake or Streambed Alteration Agreement

Construction activities within jurisdictional aquatic features should be avoided where practical. If construction activities will result in diversion, obstruction, or changes to CDFW-jurisdictional aquatic resources, a Notification of Lake or Streambed Alteration ("notification") should be submitted to CDFW. CDFW has 30 days after notification is submitted to determine if the notification is complete. Once the notification is determined completed, CDFW has 60 days to issue a Streambed Alteration Agreement (SAA) if deemed necessary by CDFW. The Project will include construction activities within state jurisdictional washes; therefore, an SAA is likely to be required. CDFW's issuance of an SAA is considered a discretionary action as defined in Title 14 of the California Code of Regulations, Section 15357, and requires environmental review under CEQA. Therefore, CDFW will not issue a permit until CEQA compliance has been completed.

6.1.3 NDEP Temporary Discharge/Working in Waterways Permit

Permits for impacts to Nevada Waters of the State are issued by the NDEP. The Nevada Revised Statutes (NRS) § 445A provides that it is unlawful to discharge any pollutant into any waters of the State, for both surface and groundwaters, of which pollutants may include the discharge of dredged or fill materials (NDEP 2017). Construction activities within waters of the State should be avoided where practical. Discharges that may impact subsurface waters, and other waters of the state of Nevada may require a Working in Waterways Temporary Permit, which covers temporary working or routine maintenance in surface waters of the State such as channel clearing and minor repairs to structures. The permit is required before operating earthmoving equipment in any water of the State.

6.2 Disclaimer Statement

The findings and conclusions presented in this report, including the location and extent of aquatic resource areas subject to regulatory jurisdiction, represent the professional opinion of Artemis Environmental Services. These findings and conclusions should be considered preliminary and at final discretion of the applicable resource agency. Verification of this ARDR and a jurisdictional determination must be made solely by USACE, RWQCB, CDFW and NDEP.

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APPENDIX A

Figures

Figure 1

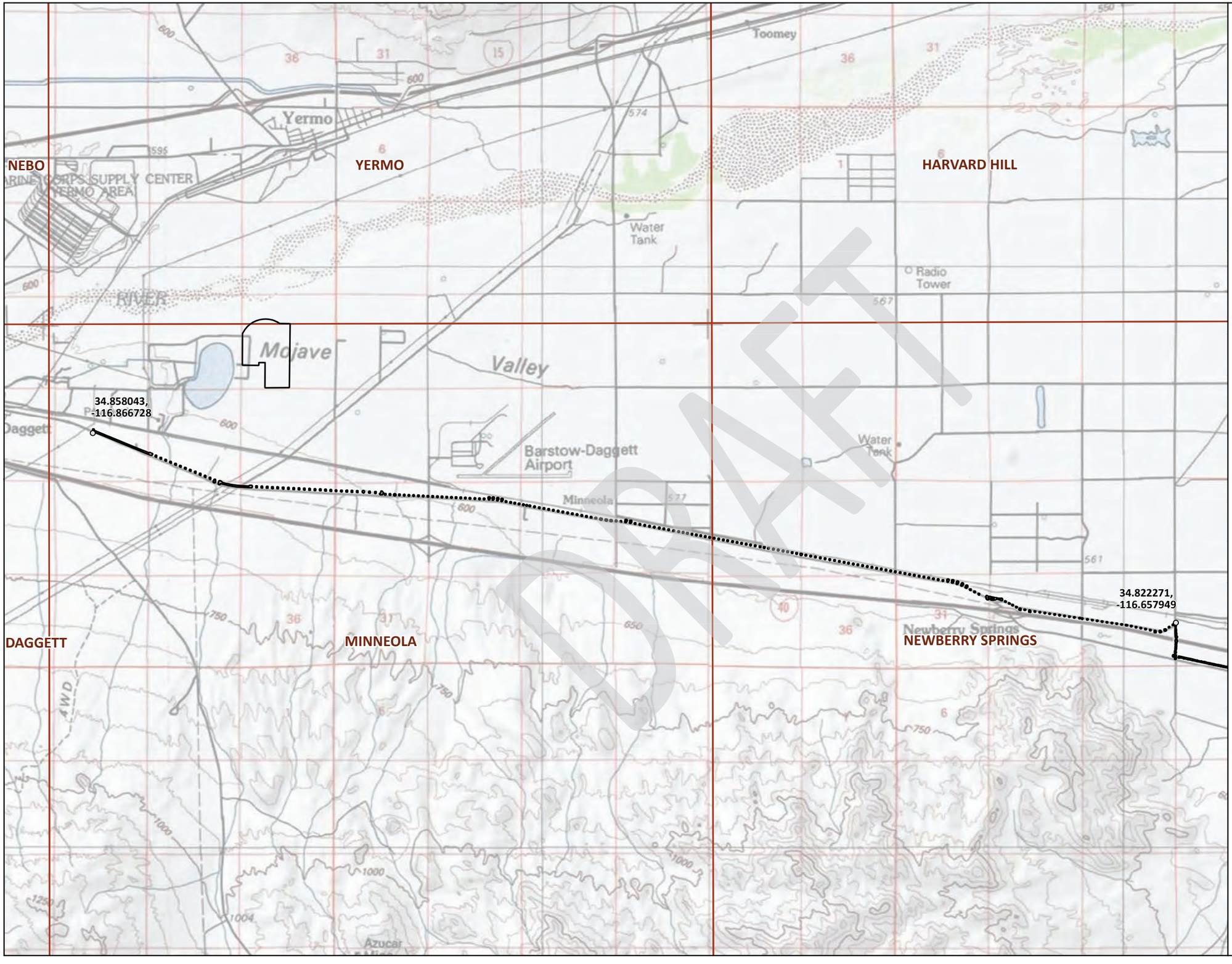
Regional

LUGO-VICTORVILLE 500-KV TRANSMISSION LINE
REMEDIAL ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

Artemis Environmental Services, Inc.

N

0 20 Miles



Survey Area

USGS 7.5' Quadrangles

Figure 2, Page 1 of 8

Vicinity Map

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 1 Mile

Artemis Environmental Services, Inc.

HARVARD HILL

MANIX

HIDDEN VALLEY WEST

NEWBERRY SPRINGS

TROY LAKE

HECTOR

CAMP ROCK MINE

SILVER BELL MINE

SUNSHINE PEAK

34.822271,
-116.657949

34.785446,
-116.436392

Troy Lake

Talc Mine

Hector

LAVA

Survey Area

USGS 7.5' Quadrangles

Figure 2, Page 2 of 8

Vicinity Map

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 1 Mile

Artemis Environmental Services, Inc.

HIDDEN VALLEY WEST

HIDDEN VALLEY EAST

WEST OF BROADWELL MESA

34.895731,
-116.211179

MOUNTAINS

Old Dominion Mine

4WD

4WD

HECTOR

SLEEPING BEAUTY

BROADWELL LAKE

Black Butte Mine

Preston Mine

34.785446,
-116.436392

Pisgah

Lavic Mine

Survey Area

USGS 7.5' Quadrangles

Figure 2, Page 3 of 8

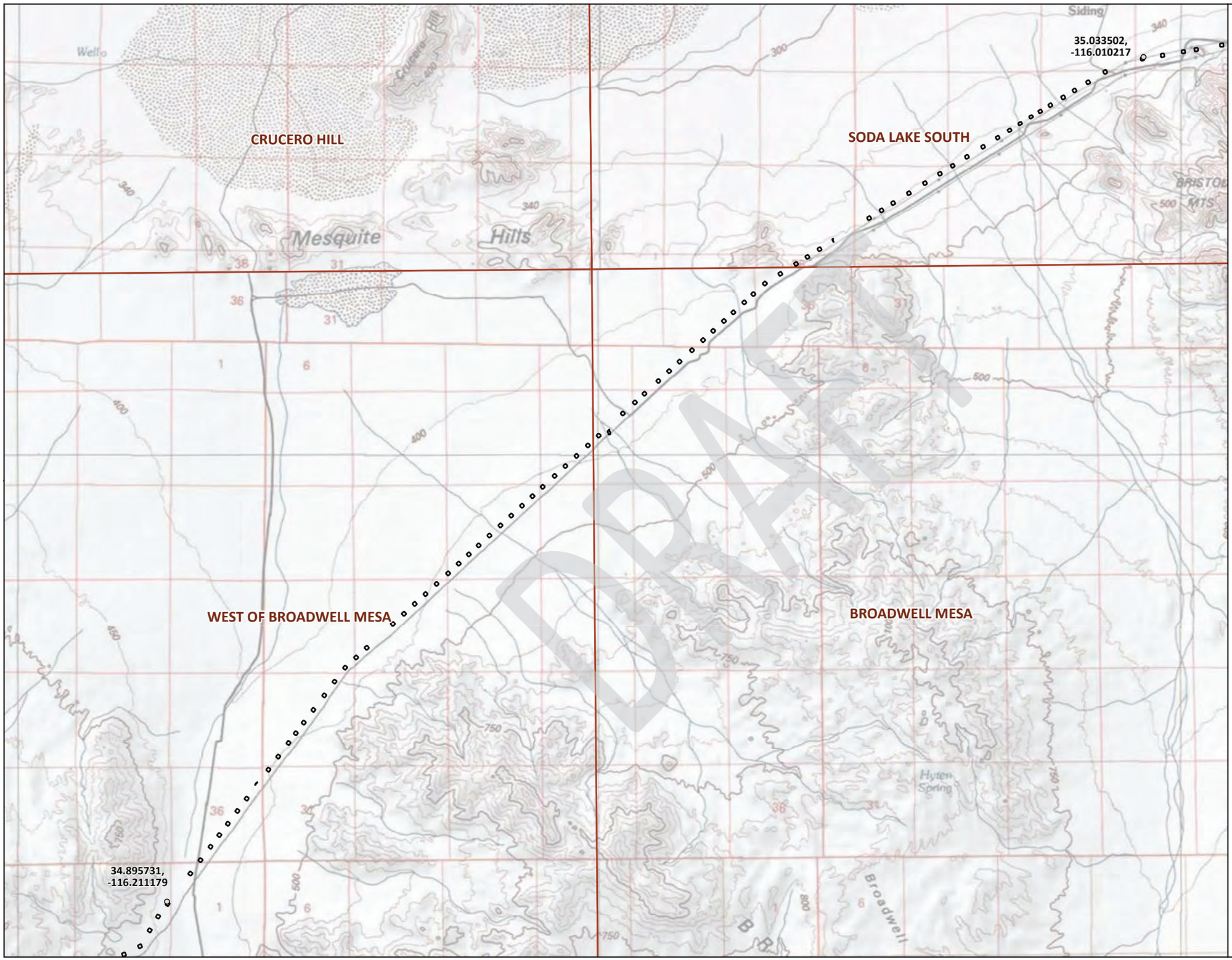
Vicinity Map

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 1 Mile

Artemis Environmental Services, Inc.



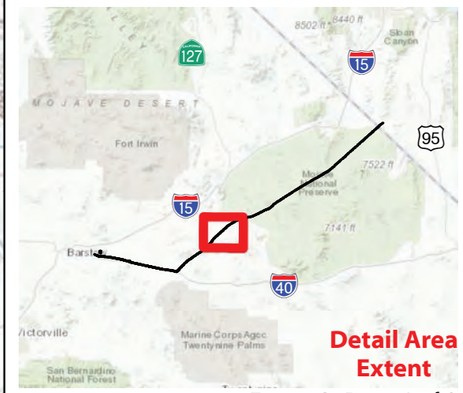


Figure 2, Page 4 of 8

Vicinity Map

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N
0 1 Mile

Artemis Environmental Services, Inc.

SODA LAKE NORTH

SEVENTEENMILE POINT

INDIAN SPRING

SODA LAKE SOUTH

COWHOLE MOUNTAIN

OLD DAD MTN.

35.117578,
-115.793099

35.033502,
-116.010217

Survey Area

USGS 7.5' Quadrangles

Figure 2, Page 5 of 8

Vicinity Map

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 1 Mile

Artemis Environmental Services, Inc.

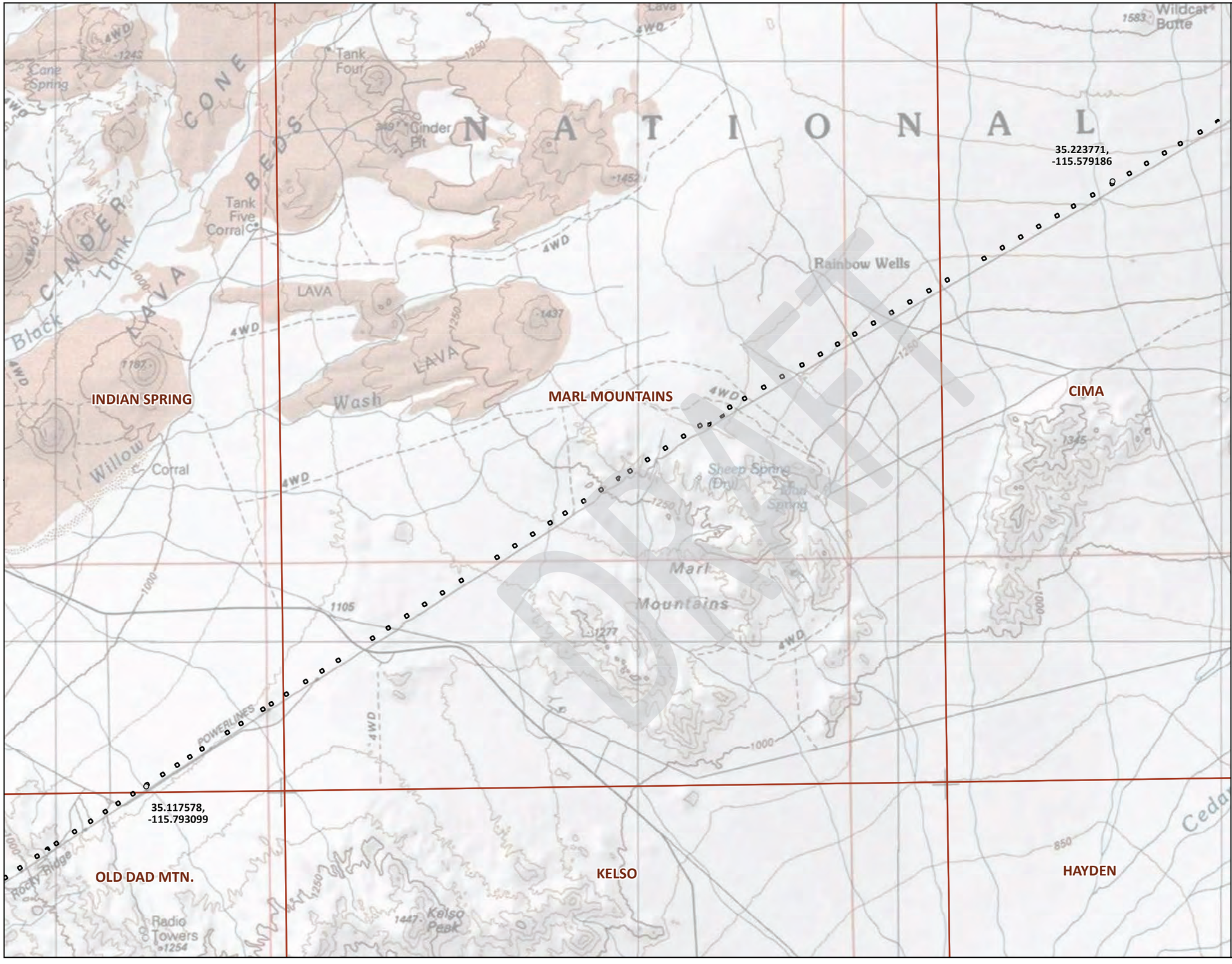


Figure 2, Page 6 of 8

Vicinity Map

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 1 Mile

Artemis Environmental Services, Inc.

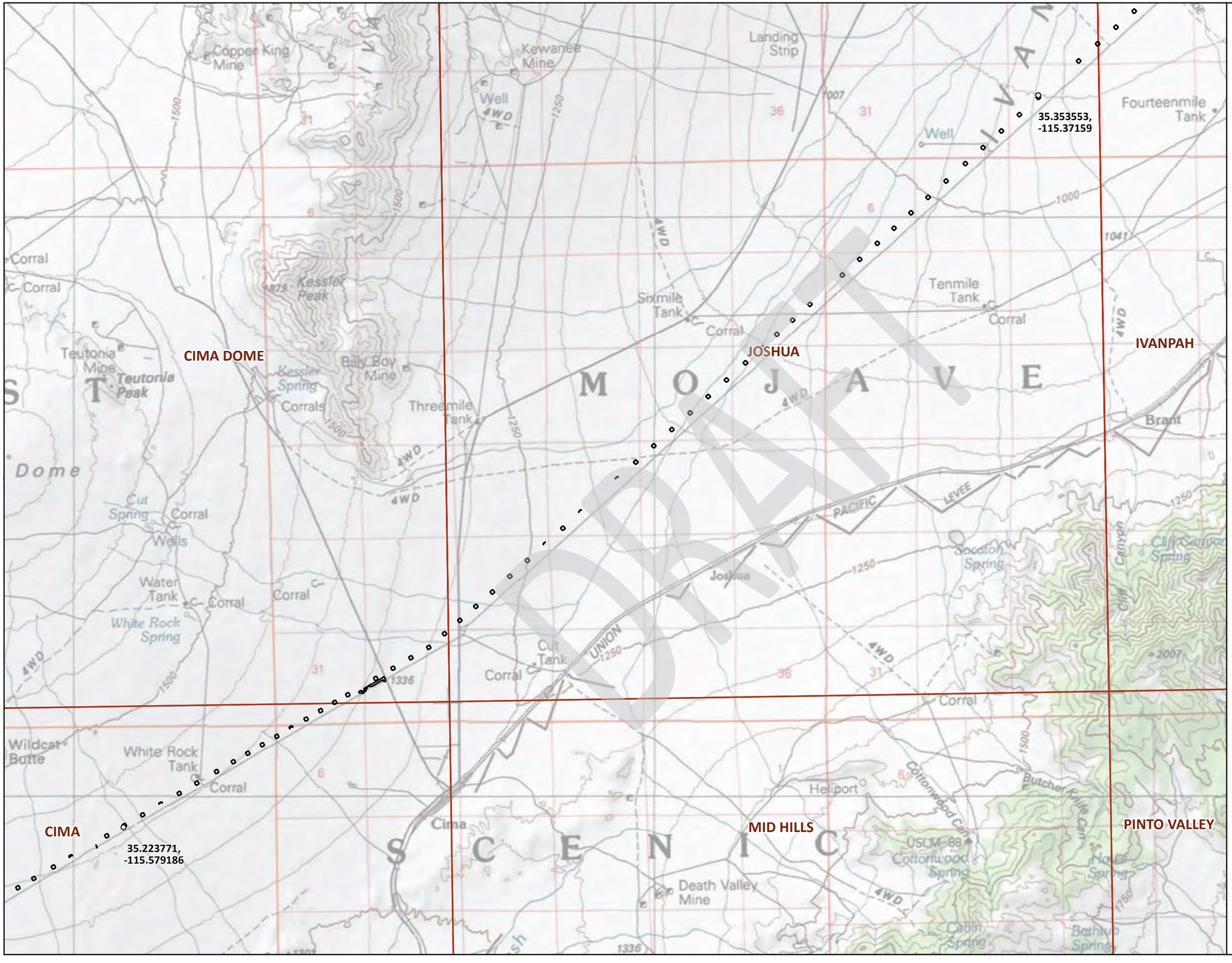


Figure 2, Page 7 of 8

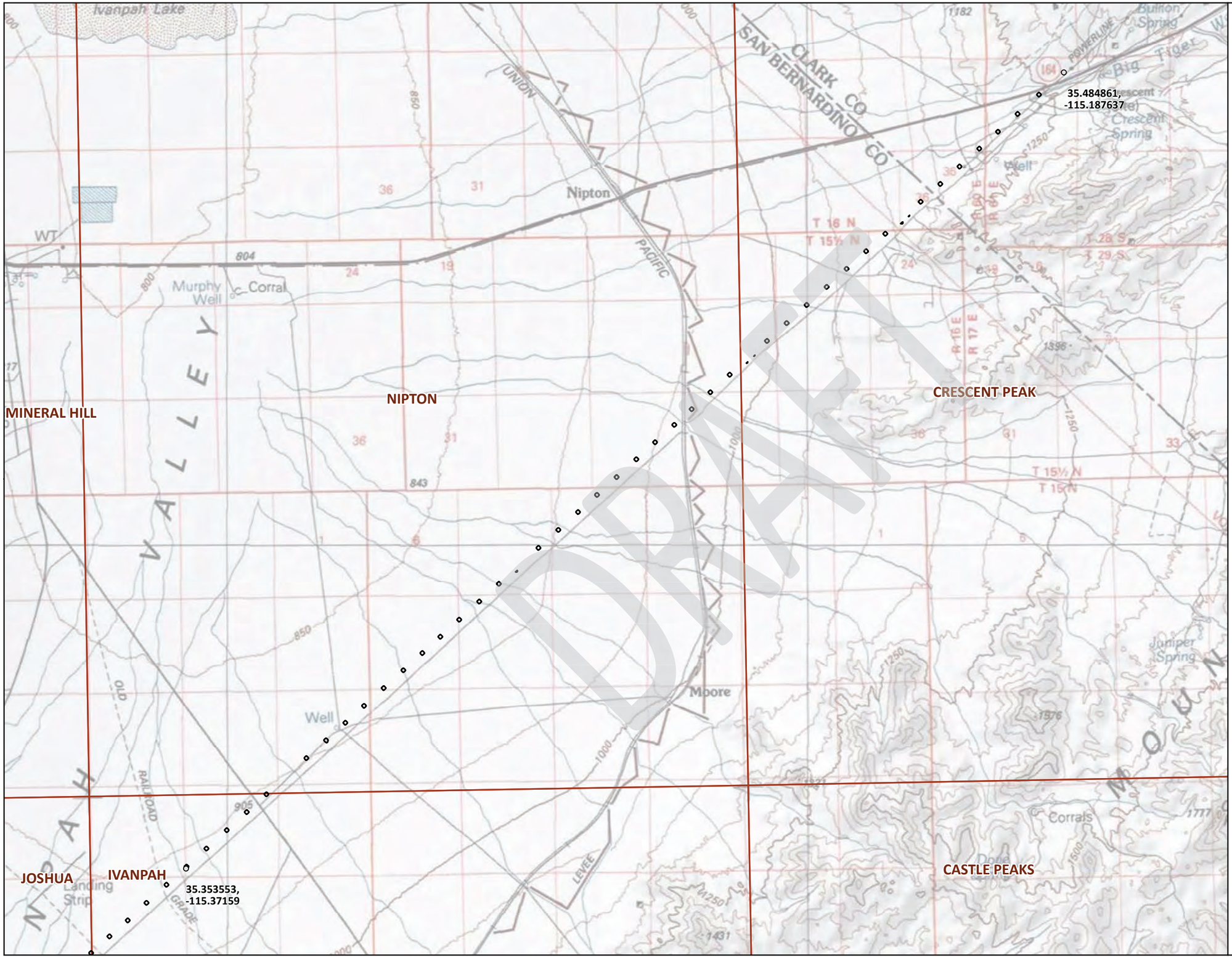
Vicinity Map

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 1 Mile

Artemis Environmental Services, Inc.



Survey Area

USGS 7.5' Quadrangles

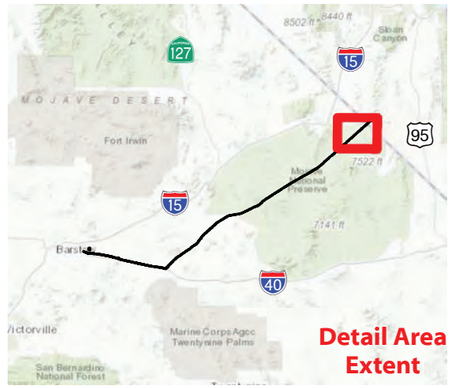


Figure 2, Page 8 of 8

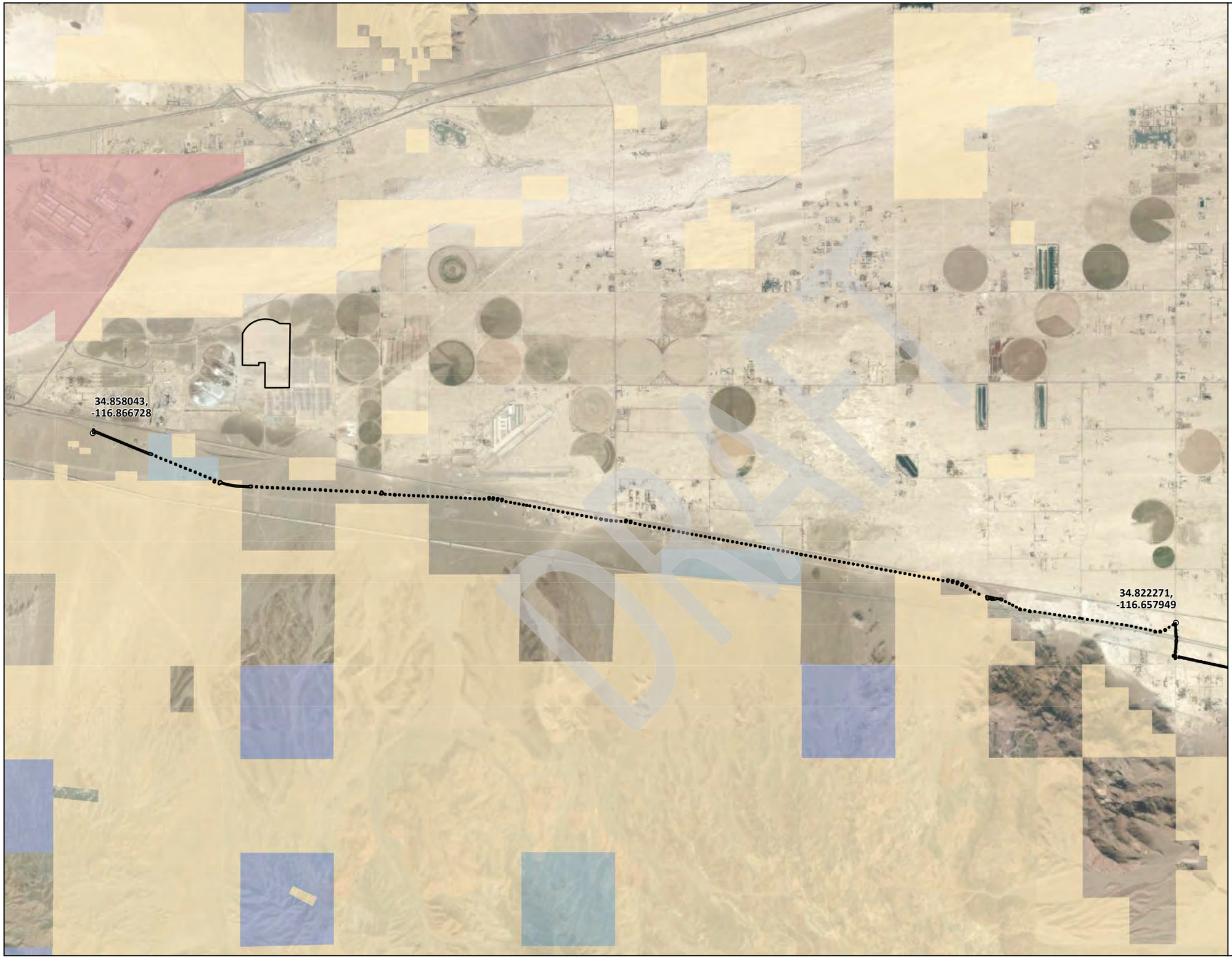
Vicinity Map

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 1 Mile

Artemis Environmental Services, Inc.



Survey Area

Public Lands

- Bureau of Land Management
- Department of Defense
- State of California
- United States Marine Corps

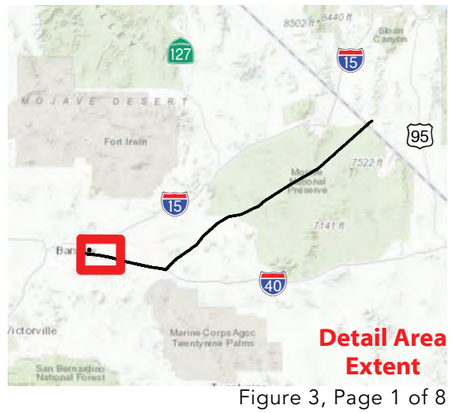


Figure 3, Page 1 of 8

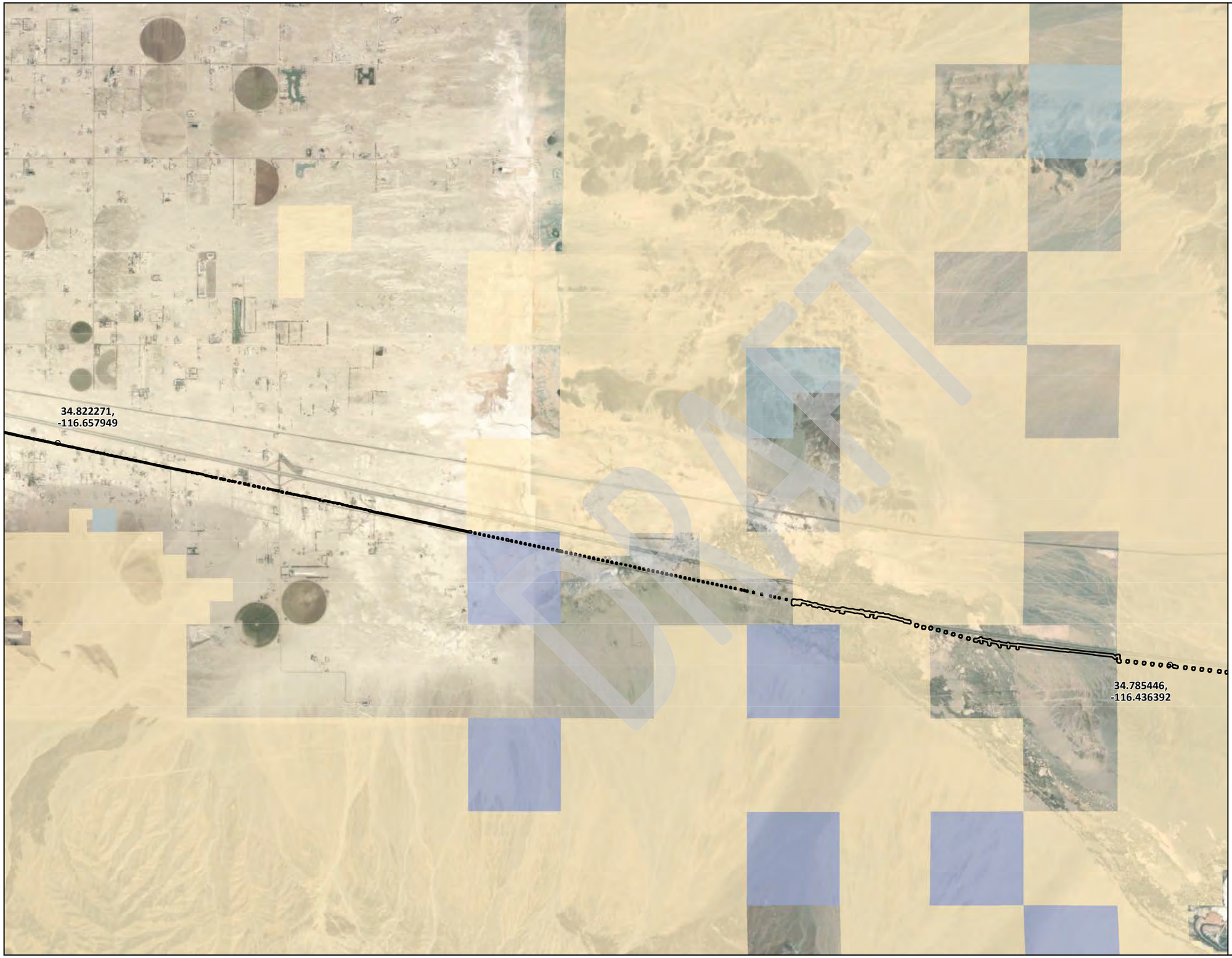
Survey Area

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 1 Mile

Artemis Environmental Services, Inc.



Survey Area

Public Lands

Bureau of Land Management

Department of Defense

State of California

Figure 3, Page 2 of 8

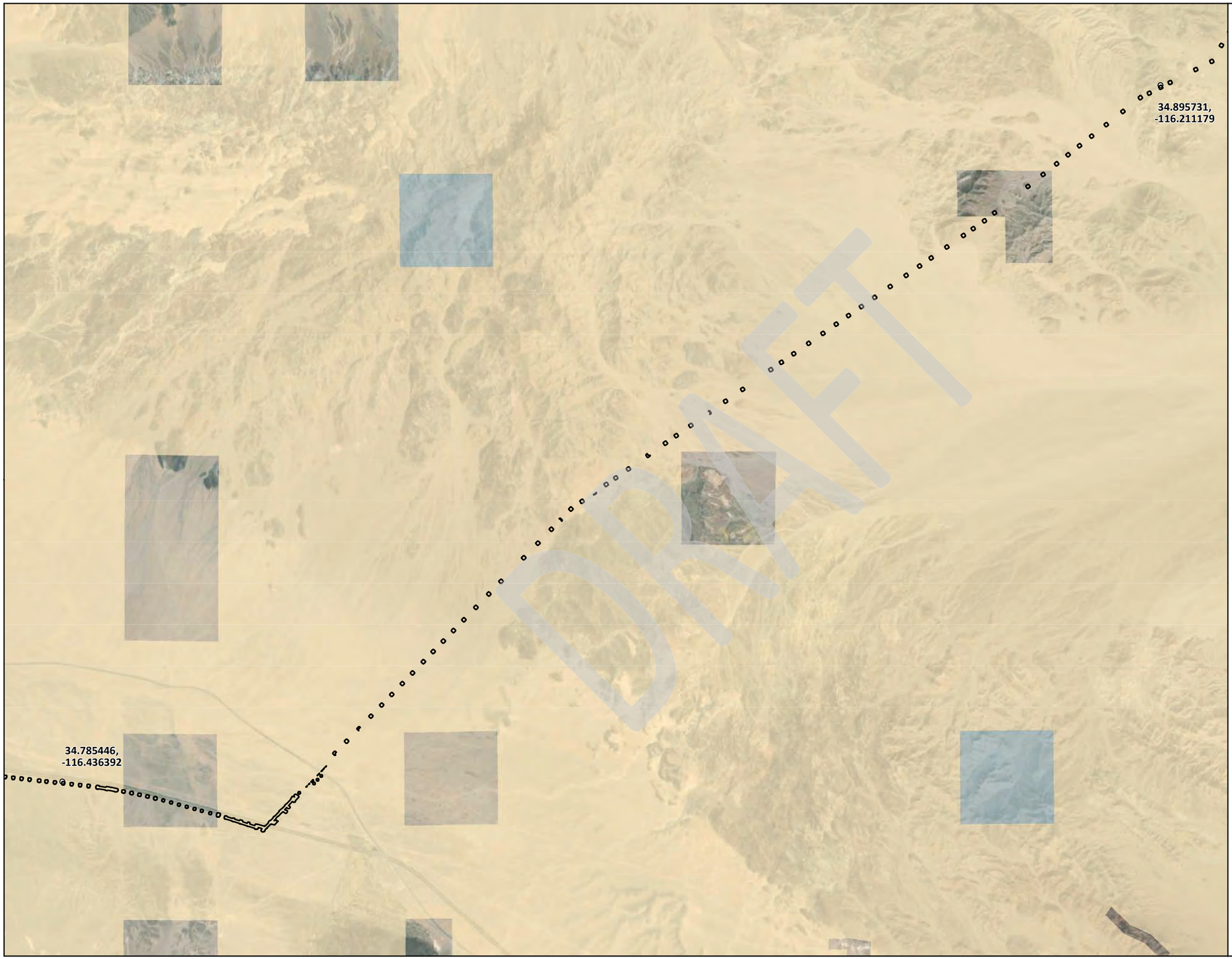
Survey Area

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 1 Mile

Artemis Environmental Services, Inc.



Survey Area

Public Lands

Bureau of Land Management

State of California

Figure 3, Page 3 of 8

Survey Area

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 1 Mile

Artemis Environmental Services, Inc.

35.033502,
-116.010217

34.895731,
-116.211179

Survey Area

Public Lands

Bureau of Land Management

State of California

Figure 3, Page 4 of 8

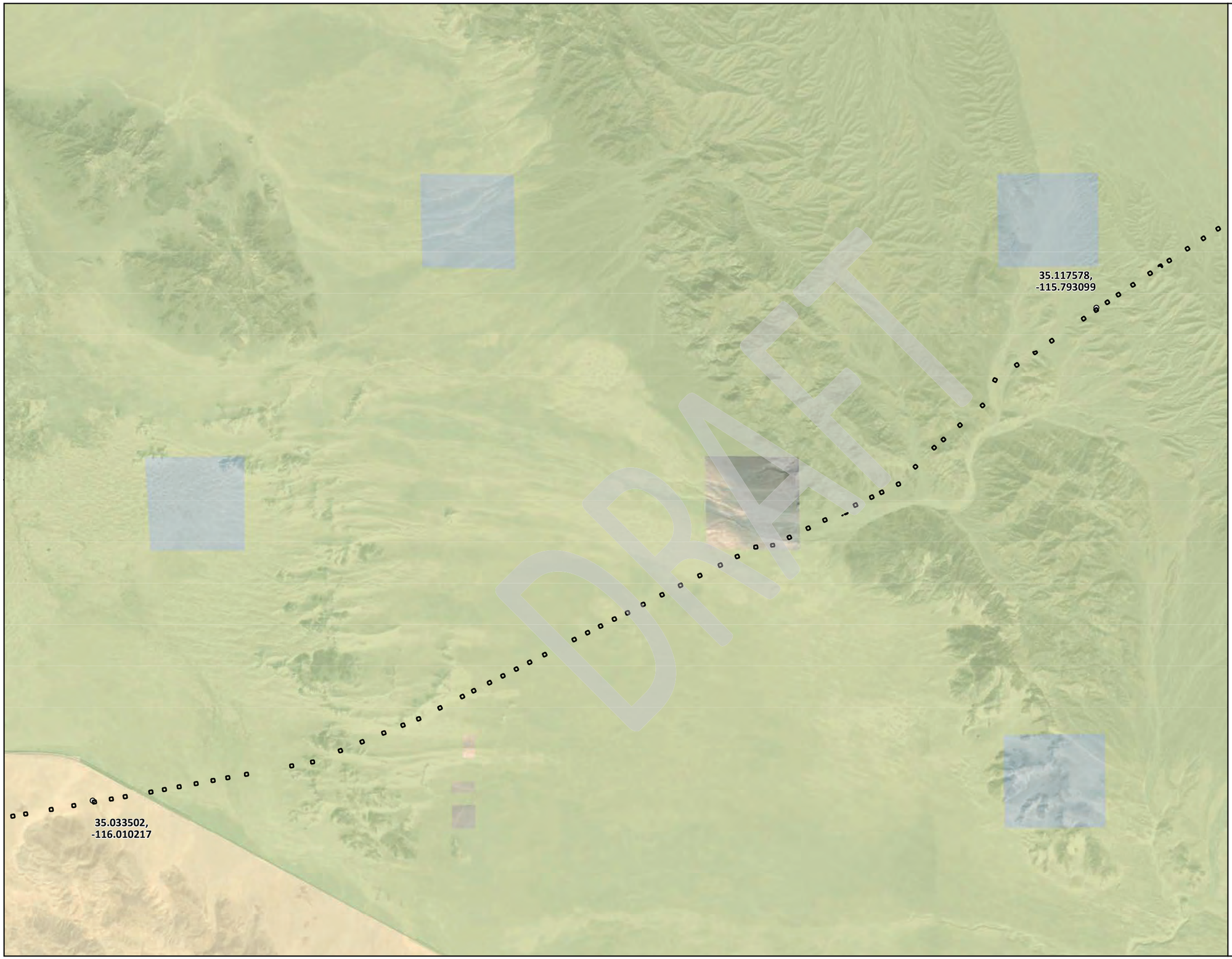
Survey Area

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 1 Mile

Artemis Environmental Services, Inc.



Survey Area

Public Lands

Bureau of Land Management

National Park Service

State of California

Figure 3, Page 5 of 8

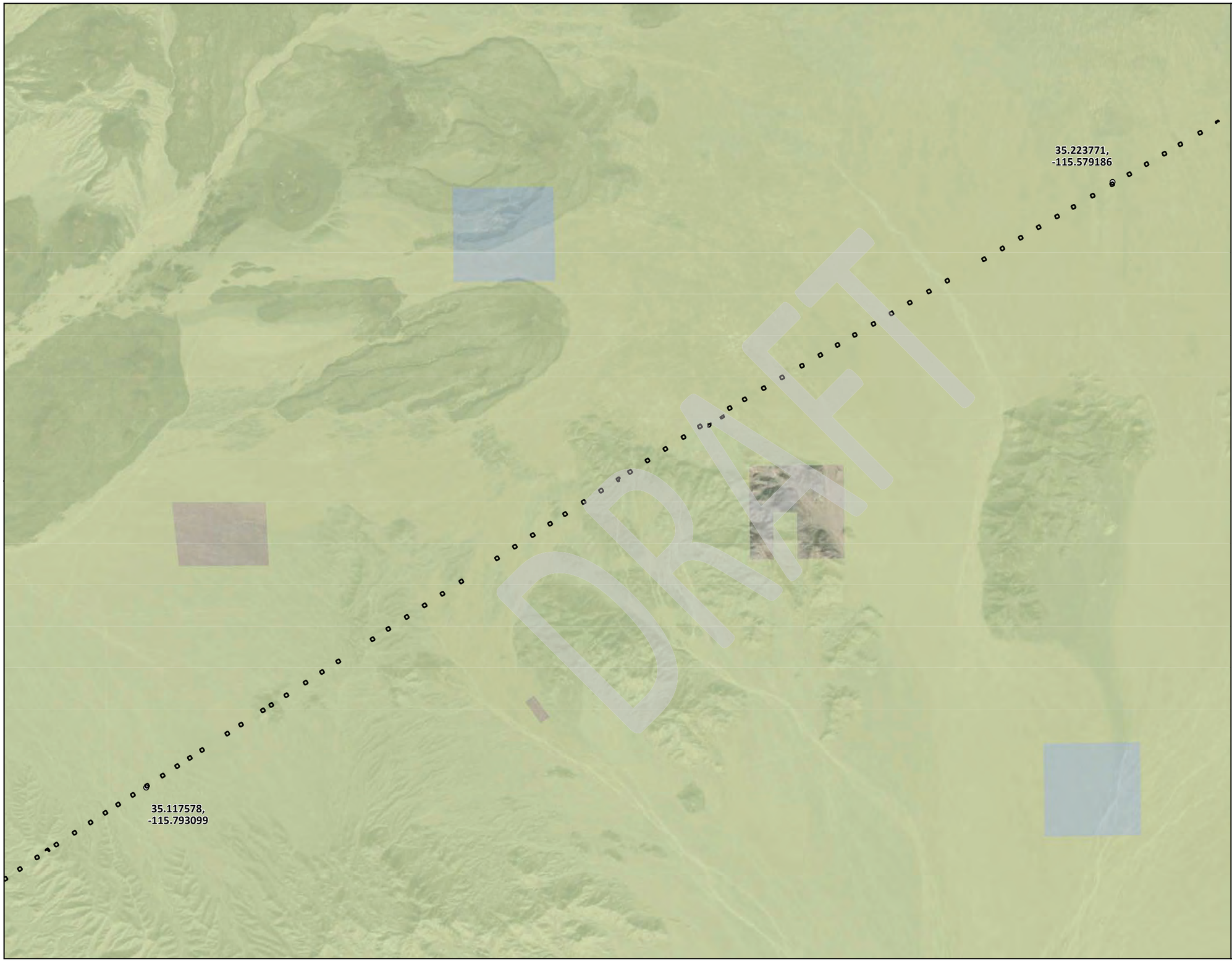
Survey Area

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 1 Mile

Artemis Environmental Services, Inc.



Survey Area

Public Lands

National Park Service

State of California

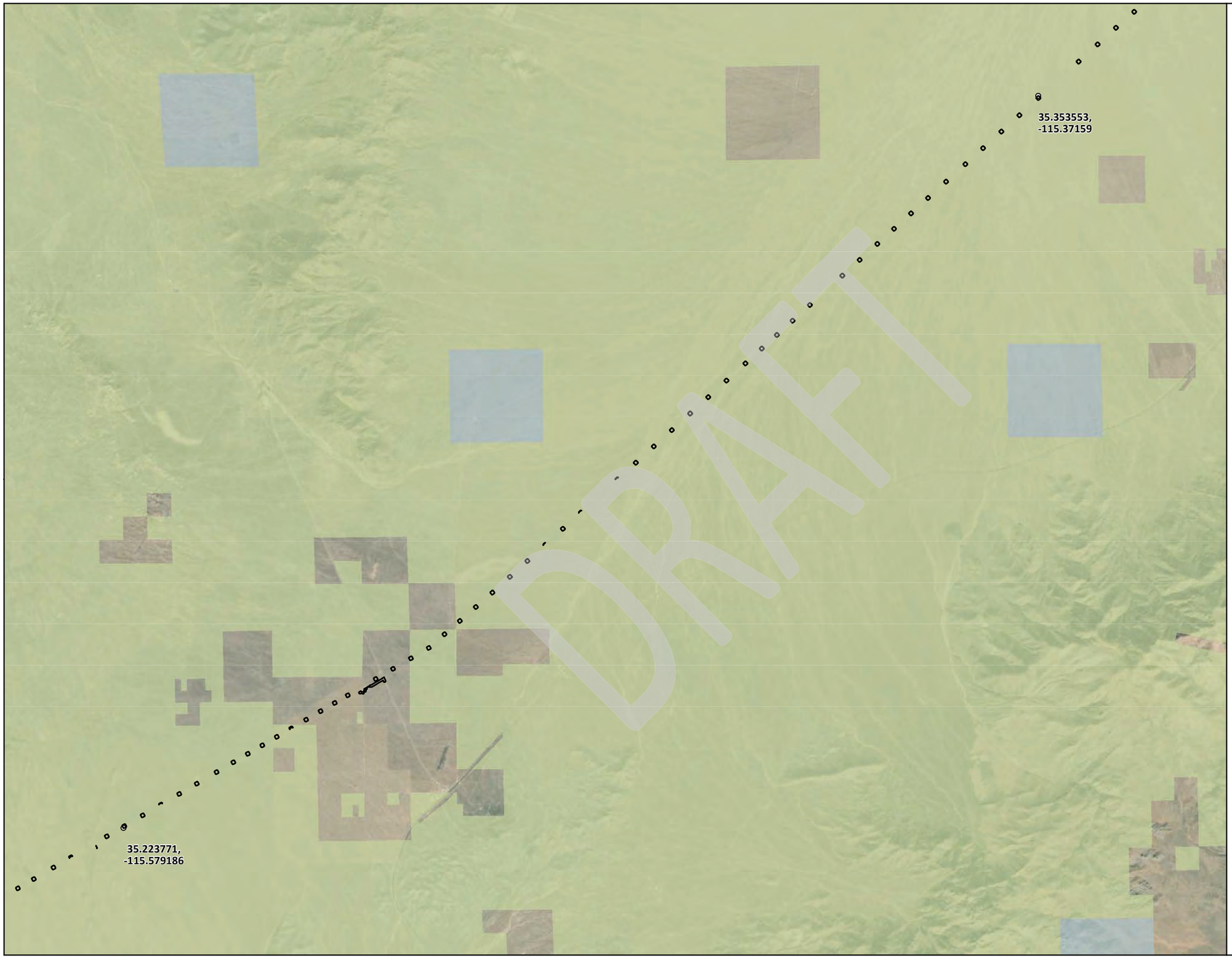
Survey Area

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 1 Mile

Artemis Environmental Services, Inc.



Survey Area

Public Lands

National Park Service

State of California

Figure 3, Page 7 of 8

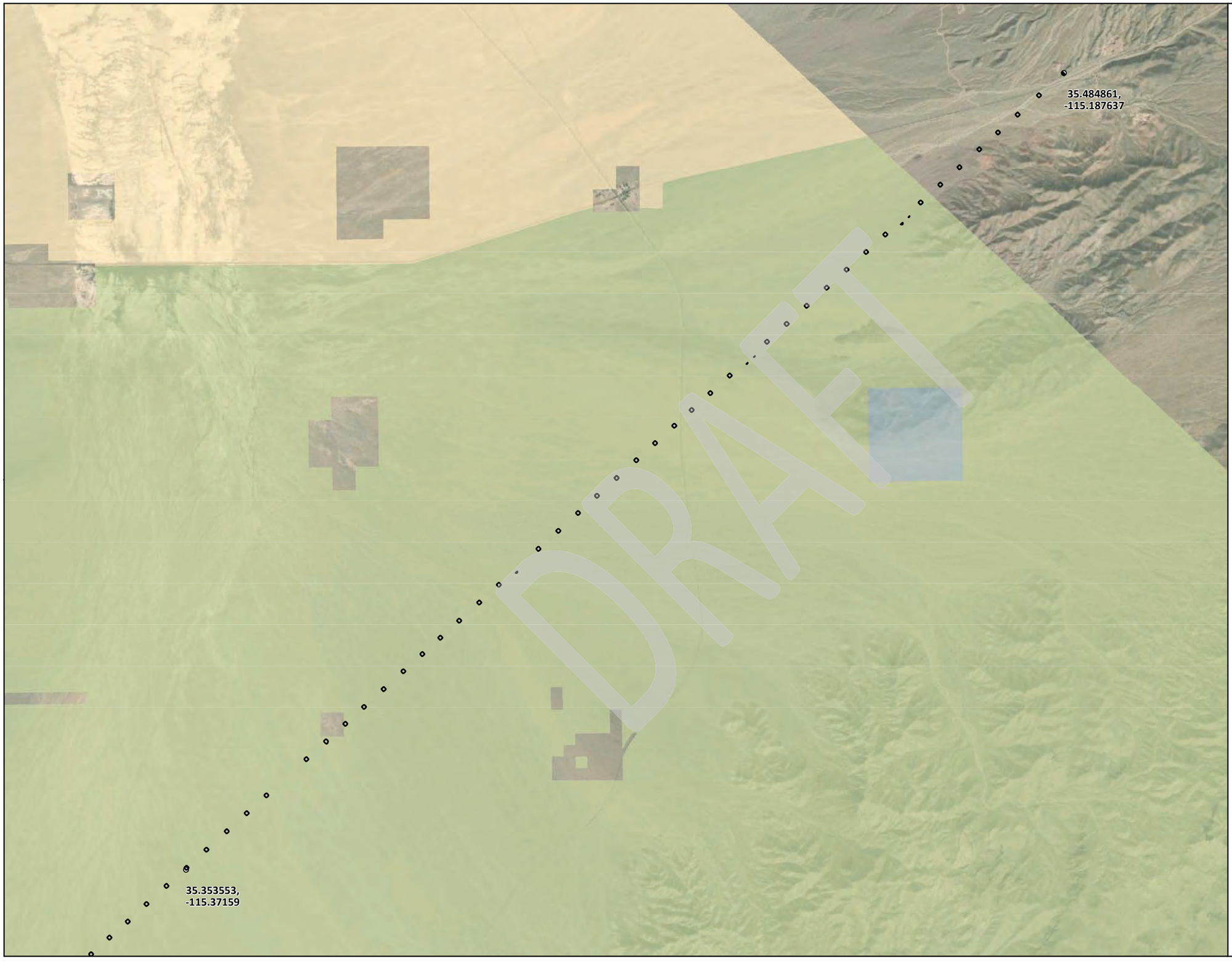
Survey Area

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 1 Mile

Artemis Environmental Services, Inc.



Survey Area

Public Lands

Bureau of Land Management

National Park Service

State of California

Figure 3, Page 8 of 8

Survey Area

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 1 Mile

Artemis Environmental Services, Inc.

Survey Area

Vegetation Communities

Developed

Larrea tridentata - Ambrosia dumosa Shrubland

Vegetation Communitites

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 200 Feet

Artemis Environmental Services, Inc.

Survey Area

Vegetation Communities

Developed

Larrea tridentata - Ambrosia dumosa Shrubland

Figure 4, Page 2 of 192

Vegetation Communitites

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 200 Feet

Artemis Environmental Services, Inc.

Survey Area

Vegetation Communities

Developed

Larrea tridentata - Ambrosia dumosa Shrubland

Figure 4, Page 3 of 192

Vegetation Communitites

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 200 Feet

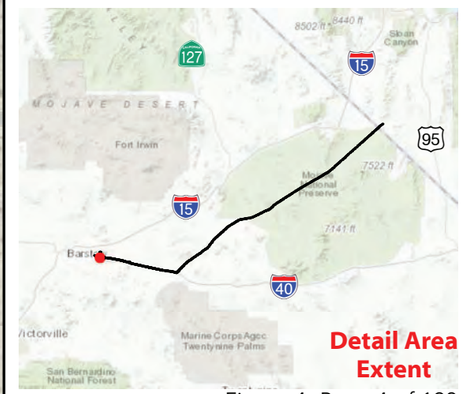
Artemis Environmental Services, Inc.

Survey Area

Vegetation Communities

Developed

Larrea tridentata - Ambrosia dumosa Shrubland



Vegetation Communitites

LUGO-VICTORVILLE 500-KV TRANSMISSION LINE REMEDIAL ACTION SCHEME PROJECT AQUATIC RESOURCES DELINEATION

N

0 200 Feet

Artemis Environmental Services, Inc.

Survey Area

Vegetation Communities

Developed

Larrea tridentata - Ambrosia dumosa Shrubland

Vegetation Communitites

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 200 Feet

Artemis Environmental Services, Inc.

Survey Area

Vegetation Communities

Developed

Larrea tridentata - Ambrosia dumosa Shrubland

Vegetation Communitites

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 200 Feet

Artemis Environmental Services, Inc.

Survey Area

Vegetation Communities

Developed

Larrea tridentata - Ambrosia dumosa Shrubland

Vegetation Communitites

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 200 Feet

Artemis Environmental Services, Inc.

Survey Area

Vegetation Communities

Developed

Larrea tridentata - Ambrosia dumosa Shrubland

Vegetation Communitites

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 200 Feet

Artemis Environmental Services, Inc.

Survey Area

Vegetation Communities

- Developed
- Larrea tridentata Shrubland
- Larrea tridentata - Ambrosia dumosa Shrubland

Vegetation Communitites

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

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AQUATIC RESOURCES DELINEATION

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Survey Area

Vegetation Communities

Developed

Larrea tridentata Shrubland

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Vegetation Communitites

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 200 Feet

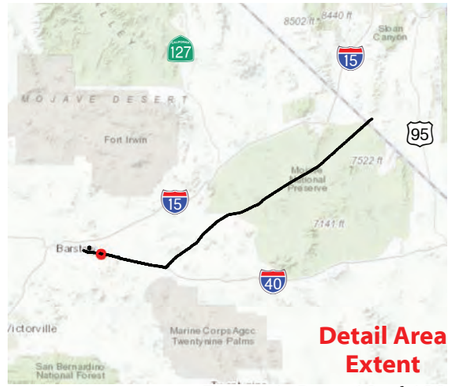
Artemis Environmental Services, Inc.

Survey Area

Vegetation Communities

Developed

Larrea tridentata Shrubland



Vegetation Communitites

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 200 Feet

Artemis Environmental Services, Inc.

Survey Area

Vegetation Communities

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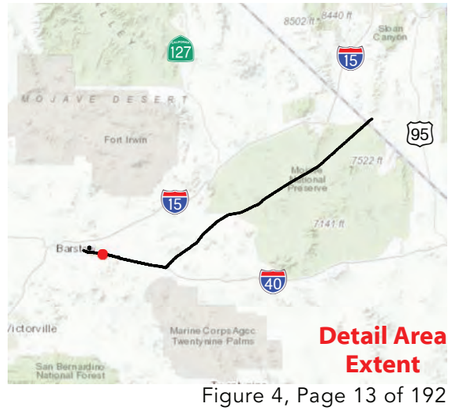
Larrea tridentata Shrubland



Vegetation Communitites

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 200 Feet

Artemis Environmental Services, Inc.

Survey Area

Vegetation Communities

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Larrea tridentata Shrubland

Vegetation Communitites

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

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Survey Area

Vegetation Communities

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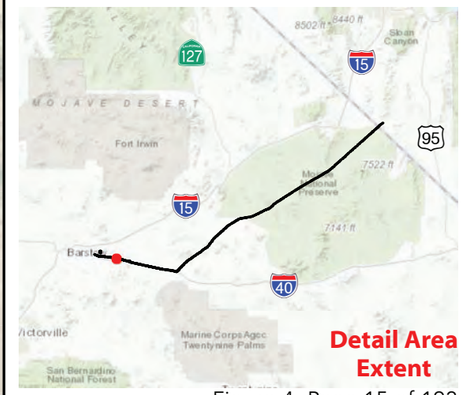
Larrea tridentata Shrubland



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Vegetation Communitites

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 200 Feet

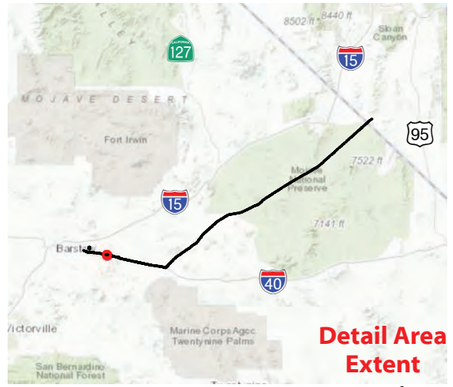
Artemis Environmental Services, Inc.

Survey Area

Vegetation Communities

Developed

Larrea tridentata Shrubland



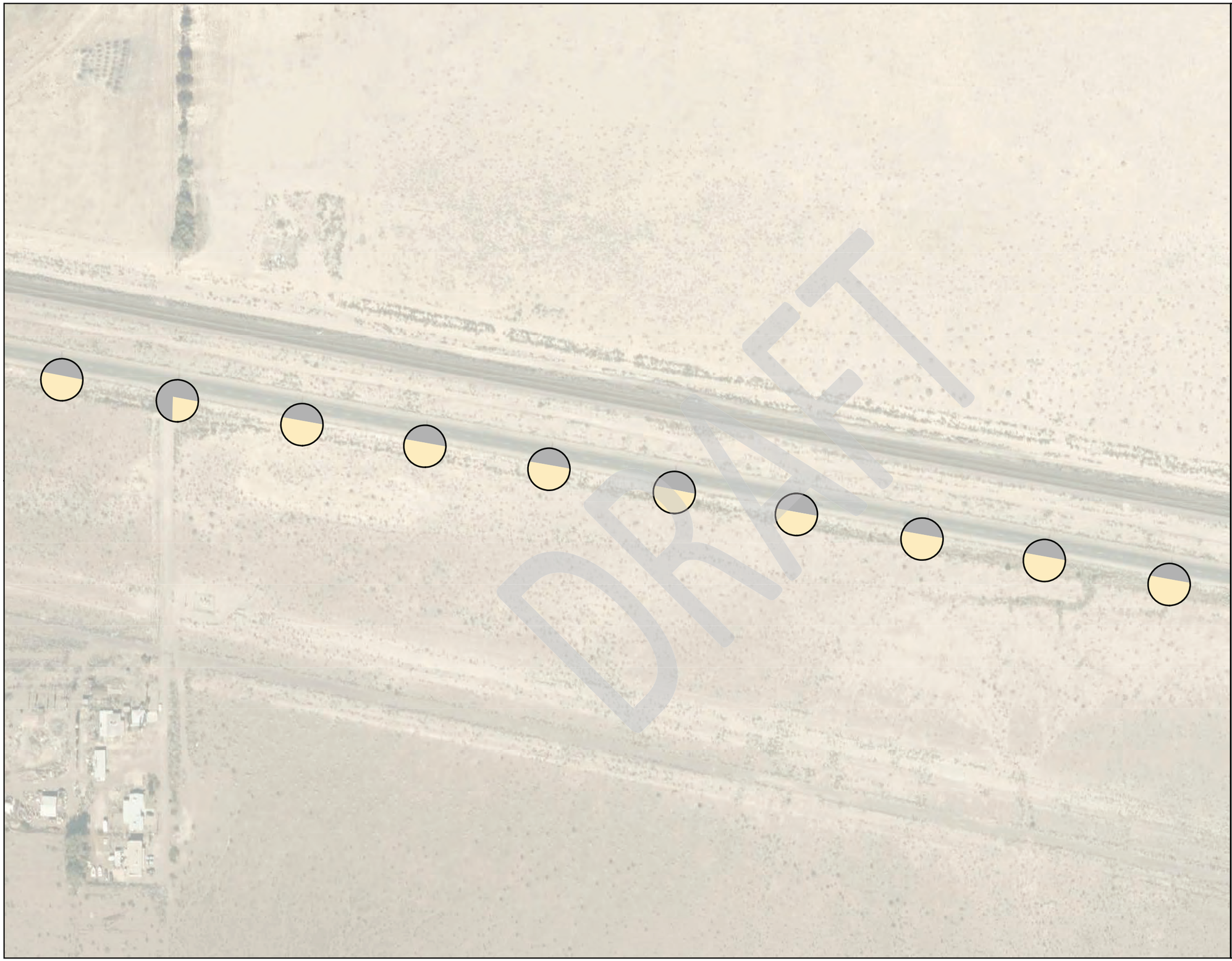
Vegetation Communitites

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 200 Feet

Artemis Environmental Services, Inc.

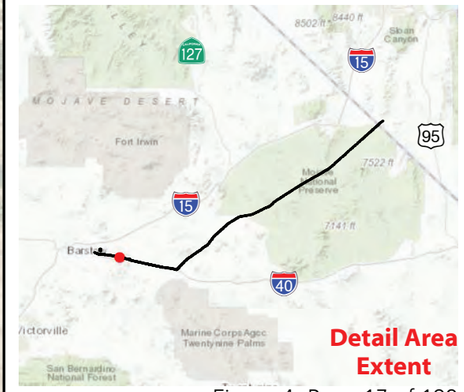


Survey Area

Vegetation Communities

Developed

Larrea tridentata Shrubland



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Vegetation Communitites

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
AQUATIC RESOURCES DELINEATION

N

0 200 Feet

Artemis Environmental Services, Inc.

Survey Area

Vegetation Communities

- Atriplex polycarpa Shrubland
- Developed
- Larrea tridentata Shrubland

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Vegetation Communitites

LUGO-VICTORVILLE 500-KV
TRANSMISSION LINE REMEDIAL
ACTION SCHEME PROJECT
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Vegetation Communities

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Vegetation Communitites

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