June 6, 2013

Jason Deters
Project Manager, California South Branch
U.S. Army Corps of Engineers
Sacramento District, Regulatory Division
1325 J Street, Room 1350

Re: Response to Comments on the Hydrogen Energy California Wetland Delineation

Dear Mr. Deters:

This letter is provided on behalf of Hydrogen Energy California, LLC (HECA) to respond to your comments transmitted via e-mail on May 9, 2013. Responses to each comment are provided below and in the enclosed attachments.

Comments and Responses

Comment 1

On pages 3-24 and 3-25 of your Delineation, you discussed Alkaline Soil Depressions that exhibited problematic soils, dominant hydrophytic vegetation, and surface soil cracks. You also stated that you discounted these features due to a lack of wetland hydrology, based on your note that 10 days after a 0.85 inch precipitation event, the pools were not ponded or saturated on the surface (no mention of saturation within 12 inches).

a) As stated in the protocol set forth by the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (Supplement), the presence of surface soil cracks is a Primary Wetland Hydrology Indicator, which means that these pools, as described, do meet the USACE criteria for wetlands.

We believe these features are likely isolated and not waters of the U.S. because they are not connected to, or in close proximity to tributaries of traditionally navigable waters. The alkaline soil depressions were delineated based on our interpretation of the "Cautions and User Notes" section of the Arid West Manual. Surface soil cracks are a primary hydrology indicator, beneficial for identifying wetland hydrology after the rainy season has ended. However, our determination was based on field observations of hydrology and discounted the surface soil cracks because these indicators can occur in temporary ponds and puddles of non-wetlands.

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Similar sodic soils in the Central Valley have been observed to pond briefly via episaturation, but the water does not penetrate the surface. We did not observe ponding or saturation in this area, but we did witness ponding within the unvegetated claypan depressions about one mile south of the referenced location. Precipitation was the only source of the hydrology of both systems. Therefore, the observed ponding in the claypan depressions led us to believe that ponding was possible, based on the amount of recent rainfall, in the Alkaline Soil Depressions. However, these features do not appear to pond or become saturated at the frequency or duration required to be considered jurisdictional waters. As stated in the Jurisdictional Delineation, the USACE required minimum number of days during the growing season of continuous surface saturation and/or inundation to the surface for this area is 16 days (5 percent of the growing season, which is 321 days at the Buttonwillow WETS station). This is unlikely to be met, even during a normal precipitation year, in this area.

b) On Page 65 of the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (Supplement), it states: "Even under normal rainfall conditions, some wetlands do not become inundated or saturated every year (i.e., wetlands are inundated or saturated at least 5 out of 10 years, or 50 percent or higher probability)." Your single, incomplete hydrology data point does not constitute the data required to determine whether or not the technical standard has been met. Unless you possess long-term data showing whether or not the soil in these locations was saturated within 12 inches of the surface for 14 days or longer during the growing season for the past 10 years, we must rely on hydrology indicators to make our determinations. The reason these indicators have been in use, since the introduction of the 1987 manual, is to avoid the time and expense required to collect the data that is required to make use of the technical standard.

As stated above, these features are likely isolated and not waters of the U.S. because they are not connected to, or in close proximity to tributaries of traditionally navigable waters. Surveys of the referenced sites were conducted in spring 2011 and spring 2012. Although the duration is only two years of observations, the absence of observed hydrology (no ponding, no saturation, no oxidized rhizospheres/reduction/mottling present) was consistent for both seasons.

Comment 2

Your Delineation includes maps at a scale of one inch to 2000 feet. Our Minimum Standards require that delineation maps not exceed one inch to 400 feet unless there are extenuating circumstances. Because of the scale of your delineation maps, it was impossible to accurately determine the exact boundaries of mapped features and the of the study area. This dramatically slows down our review process and may cause you to receive comments about features you intended to exclude from the study area. Please provide the geospatial data used to create your delineation maps. This can be given to us in ESRI Shapefile format, ESRI Geodatabase format, or as an ESRI Map Package. With this information, we will quickly be able to provide comments via email without wasting money printing and mailing intermediate versions of maps.

Revised figures are attached for your use. The revised maps have been produced at a scale of one inch equals 400 feet. The electronic files for the delineation and the study area boundaries are also being provided to you on the enclosed disk.

Comment 3

On pages 3-23 and 3-24 of your Delineation, you stated that 53 features were seasonally ponded, but were not vegetated. While there are completely unvegetated features visible in aerial photographs (and Photographs 4 and 5 of your Delineation), many other features seen in aerials display wetland signatures around their borders, which is typical of many playas, clay pans, and saline wetlands found in this region. Furthermore, many features seen in aerials have patchy vegetation in excess of the required 5% absolute plant cover required to be considered vegetated. Pages 88-90 of the Supplement discuss procedures for delineating in difficult wetland situations in the Arid West, including areas where there is sparse and patchy vegetation. Please review this information and re-evaluate the relevant areas. The locations of these areas are provided in the attached Google Earth KMZ file, titled "USACE Areas of Concern."

As recommended in Comment 5, the size of the study area for the wetland delineation has been reduced to more accurately represent the potential areas of impact. As a result, some of the features identified in the Google Earth KMZ file transmitted in your comments did not need to be addressed. Based on your comment, we have reviewed our field notes and conducted a field review of the areas identified in the KMZ file that are still located within our study area.

All of the seasonally ponded claypan depressions along the railroad right-of-way are likely isolated and not waters of the U.S. because they are not connected or in close proximity to tributaries of traditionally navigable waters. No wetland vegetation was observed around the margins of the seasonally ponded claypan depressions during the March 2012 surveys or during the May 2013 field review, with the exception of the feature identified as Wetland 1. Despite multiple site visits to this area in 2012, no wetland vegetation was observed surrounding the features where ponding was observed. While some patches of upland scrub was observed along the edges of the roadways or on higher ground above the depressions, the topographic depressions along the railway right of ways have consistently lacked hydrophytic vegetation.

Comment 4

There are many features within your study area that exhibit a wetland aerial signature, yet these areas have no data points associated with them. The attached USACE Areas of Concern .kmz shows all of the areas for which we do not have enough information. Please provide additional information at each of the points indicated on this map, and survey for ordinary high water mark indicators for each of the potential waters shown on the map. We realize that we are requesting a large amount of additional information, but that is to be expected when we receive delineation, for over a thousand

acres, that only includes four data sheets. Aerial images depicting the reason for requiring additional information for these features are included in the attached zip file.

As stated above, HECA has reduced the study area limits for the wetland delineation to more accurately represent the potential areas of impact where construction activities will occur or where equipment and/or materials will be staged. Each of the features identified in the KMZ file that are within the reduced study area boundary were evaluated based on our previous observations as well as observations during a field visit on May 30, 2013. Please see photos and notes in Attachment 1 for clarification of all USACE Areas of Concern in the HECA Project study area. Features identified within the OEHI Project study area are described in Attachment 2 and are based on a detailed field analysis conducted by Stantec Consulting from May 29 through 31, 2013.

Comment 5

You can eliminate the need to delineate many of the indicated areas requiring additional investigation by narrowing your study area to include only the areas where construction activities will occur or where equipment and/or materials will be staged. Please ignore any requested data points corresponding to features that are completely outside of your survey area. Since we had only a large-scale map, the delineation review was performed on a very rough sketch of your survey area onto Google Earth.

As requested, we have reduced the study area to more accurately represent the potential areas of impact. The updated table showing acreages of all delineated features within the revised study area is attached (see Table A) and supersedes the table in Appendix E of the February 2013 Preliminary Jurisdictional Delineation report. Updated Table 3-1, Table 3-2 and Table 3-3 are provided below.

Updated Table 3-1
Nonjurisdictional Waters of the United States in the Revised Study Area

Feature	Number of Features	Square Feet	Acres
West Side Canal (NJ 01)	1	2,247,865	51.60
East Side Canal (NJ 54)	1	29,978	0.69
Drainage Ditches	51	1,018,210	23.37
Retention/Detention Basins	8	23,837	0.55
Total	**61**	**3,319,890**	**76.21**

Updated Table 3-2
Area of Potentially Jurisdictional Wetlands in the Revised Study Area

Feature	Number of Features	Square Feet	Acres
WL1*	1	51	0.00**

* Pending review by the USACE, these features may be determined to be isolated and not jurisdictional.

** Acreage totals are rounded from square feet. Totals less than 0.005 are rounded to 0.00.

Updated Table 3-3
Area of Potentially Jurisdictional Other Waters in the Revised Study Area

Feature	Number of Features	Square Feet	Acres
Seasonally Ponded Depressions (SR 58)*	22	63,260	1.45
Seasonally Ponded Depressions (WUS 63-64)*	2	137	0.00**
California Aqueduct (WUS 53)	1	20,219	0.46
Kern River Flood Control Channel (WUS 54)	1	11,826	0.27
Total	**26**	**95,442**	**2.18**

Notes:

* Pending review by the USACE, these features may be determined to be isolated and not jurisdictional.

** Acreage totals are rounded from square feet. Totals less than 0.005 are rounded to 0.00.

SR = State Route
WUS = Other/nonwetland Water of the United States

Comment 6

For each feature, or complex of features, please provide a discussion of the hydrology source (subsurface or surface, including potential irrigation influence and drainage gradients), as well a discussion of the connectivity, if any, that the feature(s) have with traditionally navigable waters or tributaries to traditionally navigable waters.

All features labeled as NJ represent non-jurisdictional features. All of these features are artificial structures constructed in uplands that convey water for agricultural cultivation. Water from the Kern River or the California Aqueduct is diverted into these features and the water is conveyed to agricultural fields.

One WL feature and 51 WUS features (WUS 1-51) are located between California State Route 58 and the adjacent railroad tracks, in a topographic depression created by excavation of soil that was used to construct the railroad embankment. Precipitation and local surface runoff are the only sources of the observed hydrology at these features. These features are also considered isolated but were labeled as jurisdictional because ponding and saturation was observed at each of these locations during the 2012 delineation.

WUS 63-64 are ponded depressions within a dirt road located within an undeveloped parcel. These features receive water from precipitation. These features are also considered isolated but were labeled as jurisdictional because ponding and saturation was observed at each of these locations during the 2012 delineation.

WUS 53 represents the California Aqueduct. Its source of water is the California Delta.

WUS 54 represents the Kern River Flood Control Channel. It conveys overflow from the Kern River, which is identified by USACE as a traditional navigable water.

Comment 7

Section 2.1, Reference Materials, of your Delineation states that you made use of the National List of Vascular Plant Species that Occur in Wetlands (USFWS, 1996). However, the currently accepted plant list is the Arid West 2012 Final Regional Wetland Plant List (Lichvar, R.W., 2012). Please ensure that all species indicator status determinations are made using the 2012 plant list.

The plant list referenced in the delineation had been updated for consistency with the 2012 plant list, as noted in the references section. However, the methods section had inadvertently not been updated to reference the 2012 plant list.

Comment 8

There is a potential connection point between the Kern River Flood Channel and West Side Canal that requires investigation. It is located at Latitude 35.630804, Longitude -119.650693. The location of this feature can also be found in the attached USACE Areas of Concern.kmz. Please provide photographs and a description of this area so that we can determine whether or not a connection exists.

At the referenced location, the KRFCC is a narrow winding channel meandering northward. The West Side Canal (WSC), which is an irrigation water conveyance facility constructed on dry land, parallels the KRFCC

for more than 25 miles. The WSC, which is utilized by the Buena Vista Water Storage District (BVWSD) to deliver irrigation water to farmers, terminates at the location of interest identified in your comment.

According to the BVWSD, the potential connection identified by the USACE is an unused culvert with a slide gate structure that was constructed in the 1970s by a third party. At this location, the bed of the KRFCC lies at a higher elevation than the invert of the WSC. The slide gate controls movement of water through a culvert between the KRFCC and an impoundment adjacent to the WSC that is separated from the WSC by an earthen berm (Photos 2&3). Existing BVWSD employees do not recall this connection being utilized to divert water to or from the KRFCC. It should also be noted that the former connection point is the terminus of the WSC. Water flowing northward in the WSC is routed easterly through two culverts into a ditch known as the Cross Canal.

The photographs requested in Comment 8 are provided below. These photographs illustrate the point of interest at the northern terminus of the West Side Canal adjacent to the Kern River Flood Control Channel.

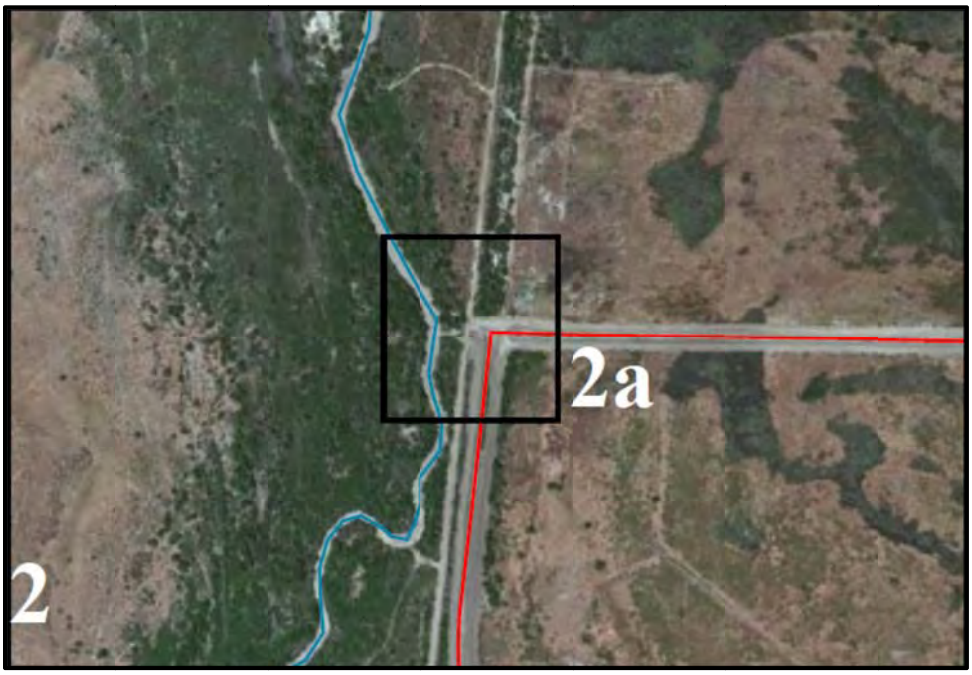


Photo 1. The location of the historic connection between the Kern River Flood Control Channel and the West Side Canal.

Photo 2. Looking east from the Kern River Flood Control Channel slide gate culvert. Note the earthen berm that separates the culvert outlet and the West Side Canal (located on the far-side of the earthen dam). The two culverts in the center of the picture connect the West Side Canal to the Cross Canal.

Photo 3. Looking north at the slide gate that controls diversion of water from the Kern River Flood Control Channel to the West Side Canal/Cross Canal location shown in Photo 2.

If you have any further questions, please contact Steve Leach at 510-874-3205 or Jan Novak at 510-874-1733.

Sincerely,

URS Corporation

Dale Shileikis
Vice President, Project Manager

Attachments:

Table A. Area of Delineated Features within the Revised Study Area
Mapped Wetlands and Other Waters of the United States within the Study Area
Attachment 1 – USACE Requested Information for Data Points Identified in the HECA Study Area
Attachment 2 – USACE Requested Information for Data Points Identified in the OEHI Study Area

Table A
Area of Delineated Features within the Revised Study Area

Feature ID	Feature Area (square feet)	Feature Area (acre**)
WL 1*	51	0.00
Wetland Area Subtotal	**51**	**0.00**
WUS 01*	5	0.00
WUS 05*	892	0.02
WUS 06*	2,140	0.05
WUS 07*	1,105	0.03
WUS 24*	1,096	0.03
WUS 25*	5,530	0.13
WUS 26*	842	0.02
WUS 27*	373	0.01
WUS 28*	648	0.01
WUS 29*	4,521	0.10
WUS 30*	743	0.02
WUS 31*	4,552	0.10
WUS 32*	2,619	0.06
WUS 33*	4,407	0.10
WUS 34*	291	0.01
WUS 35*	8,918	0.20
WUS 36*	5,334	0.12
WUS 37*	1,724	0.04
WUS 38*	12,083	0.28
WUS 39*	3,169	0.07
WUS 40*	1,608	0.04
WUS 41*	660	0.02
WUS 53 (California Aqueduct)	20,219	0.46
WUS 54 (Kern River, Flood Control Channel)	11,826	0.27
WUS 63*	5	0.00
WUS 64*	132	0.00
Other Waters of the U.S. Subtotal	**95,442**	**2.19**
TOTAL POTENTIAL WATERS OF U.S.	**95,493**	**2.19**
NJ 01 (Westside Canal)	2,247,865	51.60
NJ 02	1,135	0.03
NJ 05	734	0.02
NJ 07	726	0.02

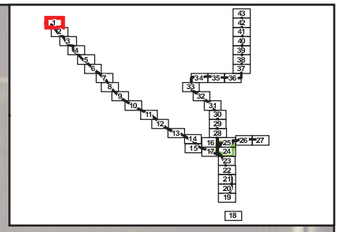
Feature ID	Feature Area (square feet)	Feature Area (acre**)
NJ 08	1,517	0.03
NJ 09	1,369	0.03
NJ 10	2,352	0.05
NJ 11	22,484	0.52
NJ 12	1,808	0.04
NJ 13	16,654	0.38
NJ 14	29,049	0.67
NJ 15	2,940	0.07
NJ 16	551	0.01
NJ 17	2,346	0.05
NJ 18	15,714	0.36
NJ 19	9,173	0.21
NJ 20	14,014	0.32
NJ 21	10,032	0.23
NJ 22	13,731	0.32
NJ 23	1,359	0.03
NJ 24	13,601	0.31
NJ 25	63,222	1.45
NJ 26	16,889	0.39
NJ 27	3,635	0.08
NJ 28 (Outlet Canal)	207,865	4.77
NJ 29	31,771	0.73
NJ 30	46,857	1.08
NJ 31	78,742	1.81
NJ 32	122,443	2.81
NJ 33	34,970	0.80
NJ 34	30,703	0.70
NJ 35	7,754	0.18
NJ 36	832	0.02
NJ 37	17,057	0.39
NJ 38	2,202	0.05
NJ 39	61,703	1.42
NJ 40	8,696	0.20
NJ 41	30,523	0.70
NJ 42	1,592	0.04
NJ 43	8,304	0.19
NJ 44	5,516	0.13
NJ 45	100	0.00
NJ 46	1,887	0.04

Feature ID	Feature Area (square feet)	Feature Area (acre**)
NJ 47	1,660	0.04
NJ 50	4,558	0.10
NJ 51	841	0.02
NJ 52	1,727	0.04
NJ 54 (Eastside Canal)	29,978	0.69
NJ 55	17,123	0.39
NJ 56	9,052	0.21
NJ 60	10,881	0.25
NJ 62	38,672	0.89
NJ 63	180	0.00
NJ 64	107	0.00
NJ 65	464	0.01
NJ 66	4,624	0.11
NJ 67	3,213	0.07
NJ 68	354	0.01
NJ 69	2,108	0.05
NJ 70	1,121	0.03
NJ 71	810	0.02
Total Area of assumed non-jurisdictional waters not regulated under the federal Clean Water Act	**3,319,890**	**76.21**

Notes:

* Pending review by the USACE, these features may be determined to be isolated and not jurisdictional.

** Acreage totals are rounded from square feet. Totals less than 0.005 are rounded to 0.00.



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NJ 2

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NJ 1 (WESTSIDE CANAL)

Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N

0 200 400 FEET

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

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SHEET 1 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

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HDD Entry/Exit Pits
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Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
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SHEET 2 OF 43

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NJ 1 (WESTSIDE CANAL)
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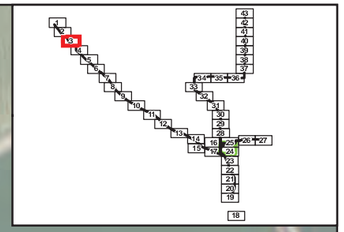

- Revised Jurisdictional Delineation Study Area
- Project Site
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- Controlled Area
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Areas Identified by USACE for Further Investigation
- Potential Data Points
- Potential Waters

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Kern County, California

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SHEET 3 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

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Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

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SHEET 4 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

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N

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Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

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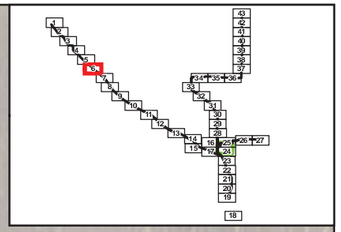
SHEET 5 OF 43



NJ 1 (WESTSIDE CANAL)

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NJ 7

NJ 7

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dp45
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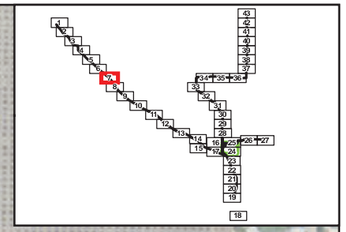
NJ 7
NJ 7
dp46
dp43
58 HWY
CORN CAMP RD
dp11
dp10
NJ 1 (WESTSIDE CANAL)



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SHEET 7 OF 43

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BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N

0 200 400 FEET

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 8 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

I:\GIS\HECA\Projects\HECA_2012\Wetland_Delineation\Wetlands_and_Waters\the-US_4800_scale.mxd 6/5/2013 4:20:13 PM

- Revised Jurisdictional Delineation Study Area
- Project Site
- Construction Staging Area
- Controlled Area
- BVWSD Well Field
- HDD Entry/Exit Pits
- PG&E Switching Station
- EOR Processing Facility
- EOR Satellite Gathering Station
- Carbon Dioxide
- Natural Gas
- Potable Water
- Process Water
- Railroad
- Transmission

Waters
- Wetland (WL)
- Other Waters of the U.S. (WUS)
- Non-Jurisdictional Waters of the U.S. (NJ)
- Area Not Surveyed

Areas Identified by USACE for Further Investigation
- Potential Data Points
- Potential Waters

N

0 200 400 FEET

Source: Aerial Imagery, USDA, NAIP, 2012.

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 9 OF 43

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Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N
0 200 400 FEET

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 10 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

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Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N
0 200 400 FEET

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 11 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

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Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N

0 200 400 FEET

Source: Aerial Imagery, USDA, NAIP, 2012.

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

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SHEET 12 OF 43

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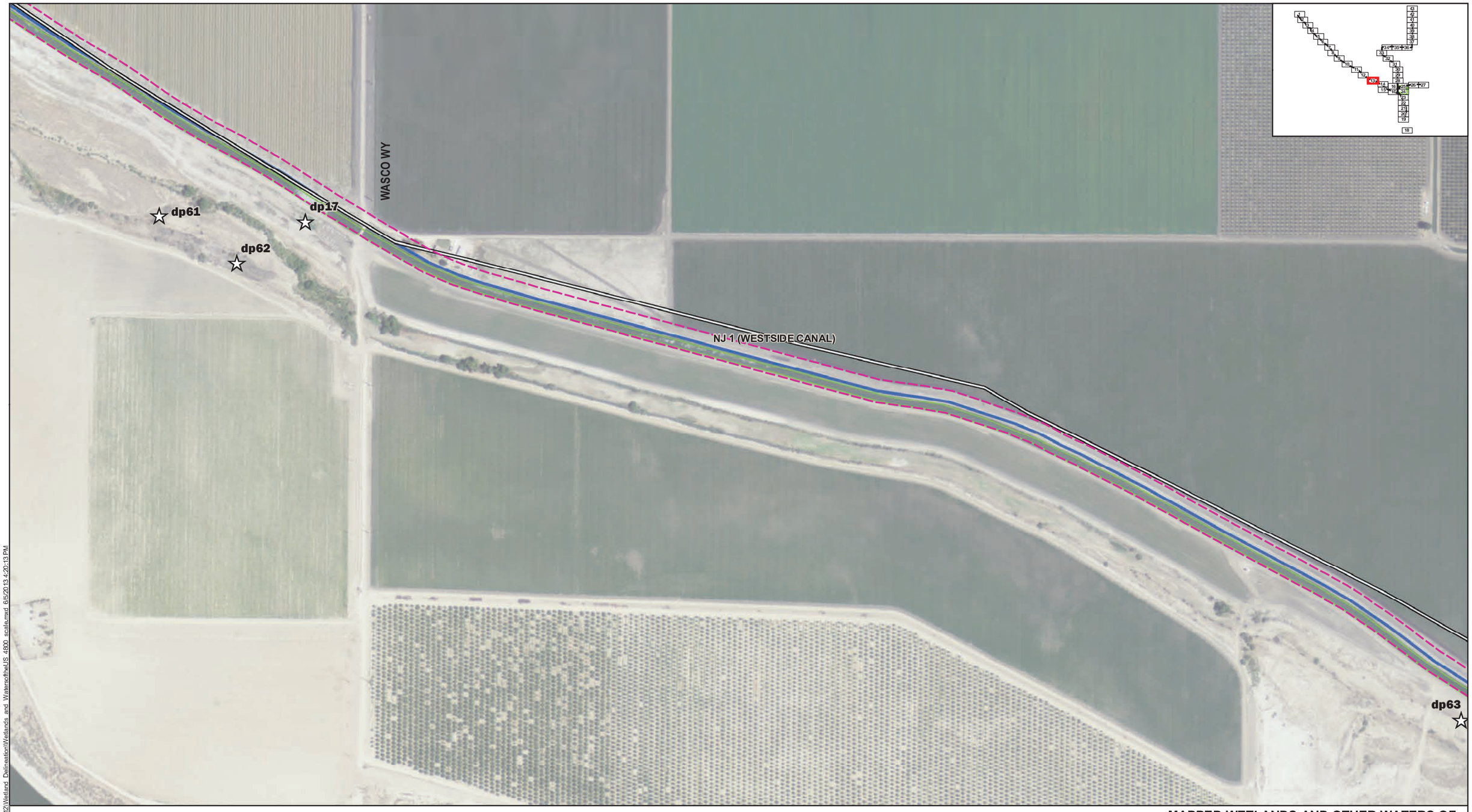


Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N

0 200 400 FEET

Source: Aerial Imagery, USDA, NAIP, 2012.

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 13 OF 43

Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N
0 200 400 FEET

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

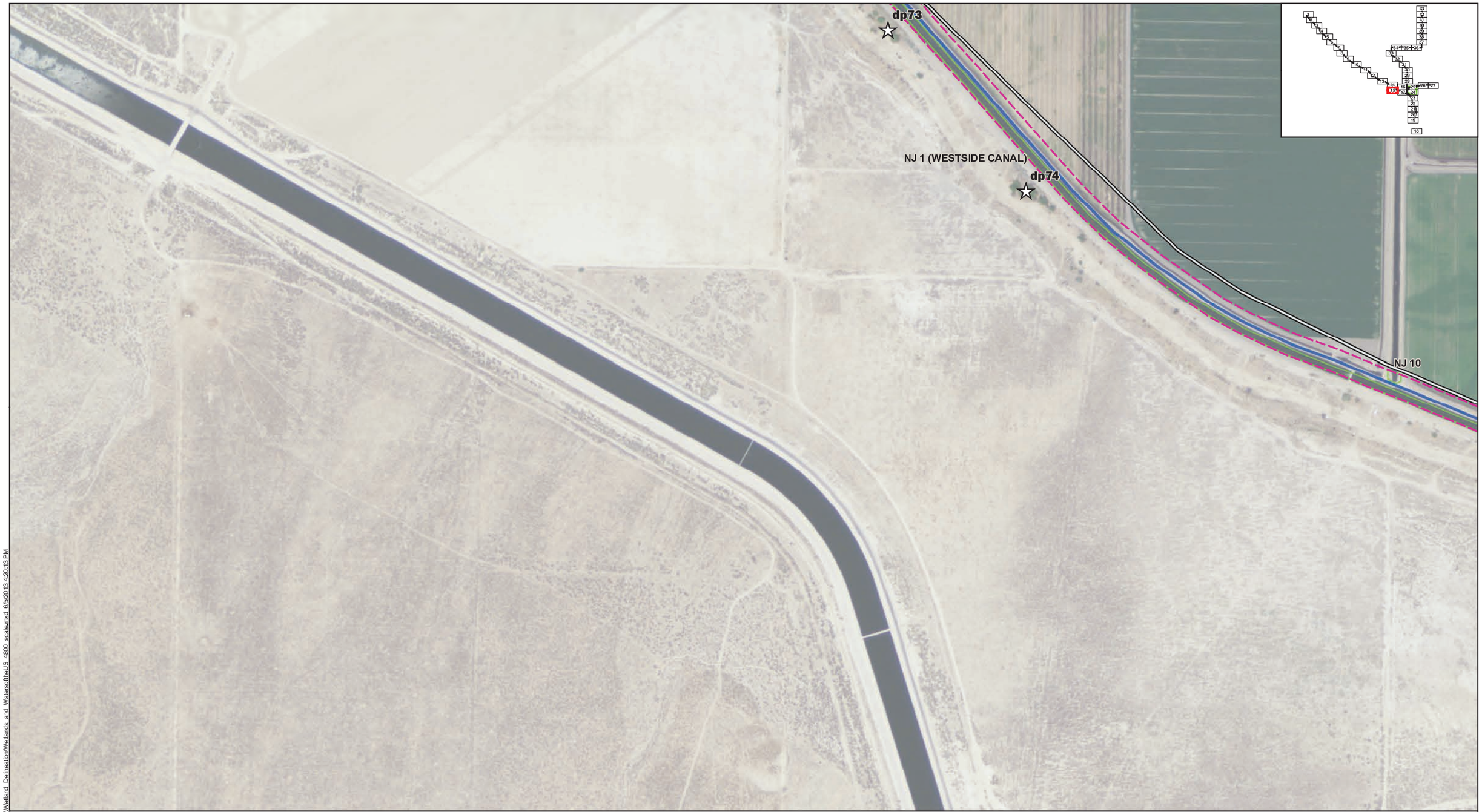
Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 14 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.



Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N

0 200 400 FEET

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 15 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

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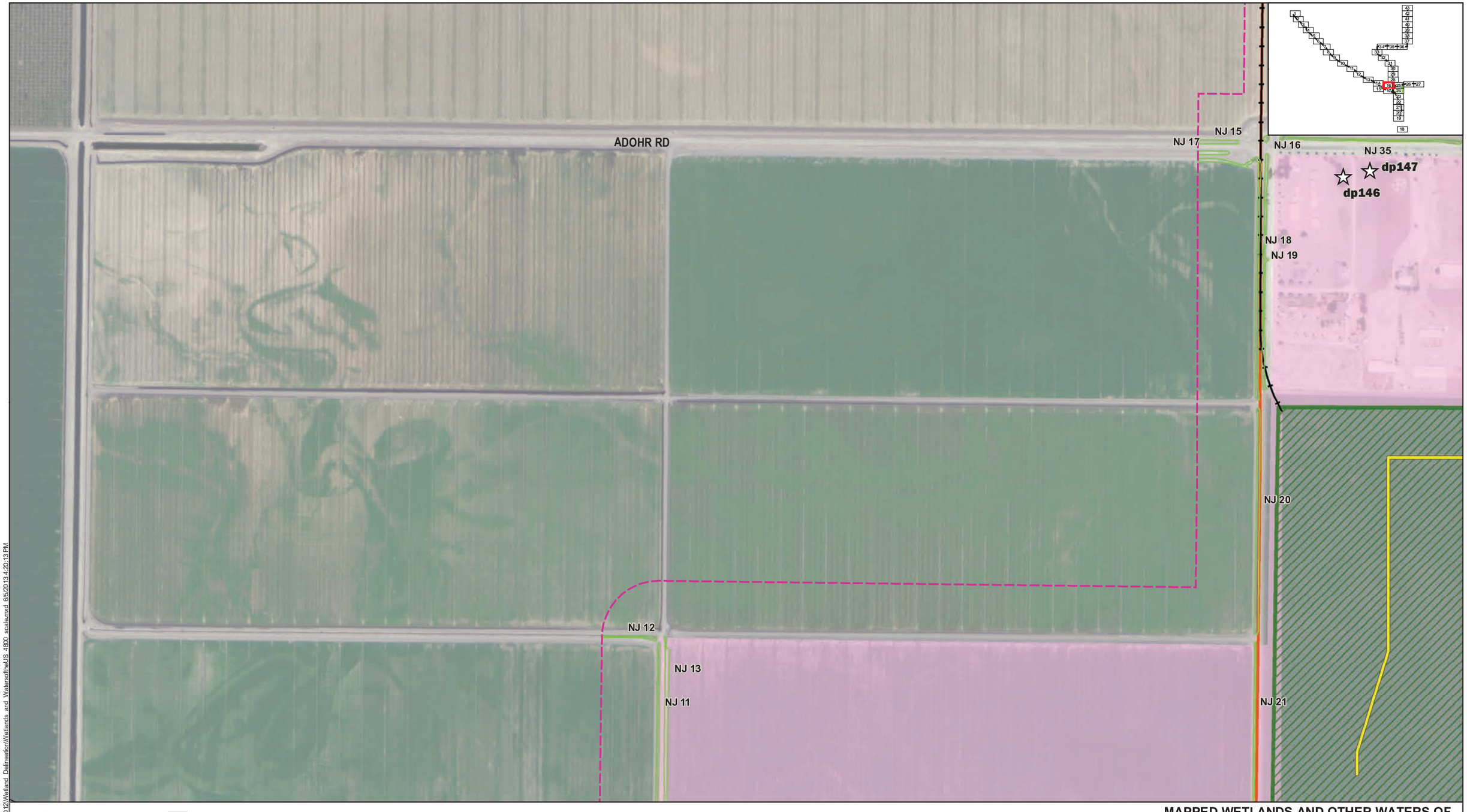

Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N

0 200 400 FEET

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 16 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

NJ 10
NJ 13
NJ 21
NJ 11
NJ 14
NJ 22
NJ 23
NJ 24
West Side Canal
Kern River Flood Control Channel
NJ 1 (WESTSIDE CANAL)
dp75
dp76
dp21
dp22
dp161
dp160

Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N
0 200 400 FEET

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 17 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

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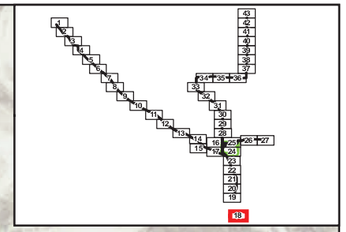

SKYLINE RD

Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N

0 200 400 FEET

Source: Aerial Imagery, USDA, NAIP, 2012.

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

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SHEET 18 OF 43

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Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N

0 200 400 FEET

Source: Aerial Imagery, USDA, NAIP, 2012.

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 19 OF 43

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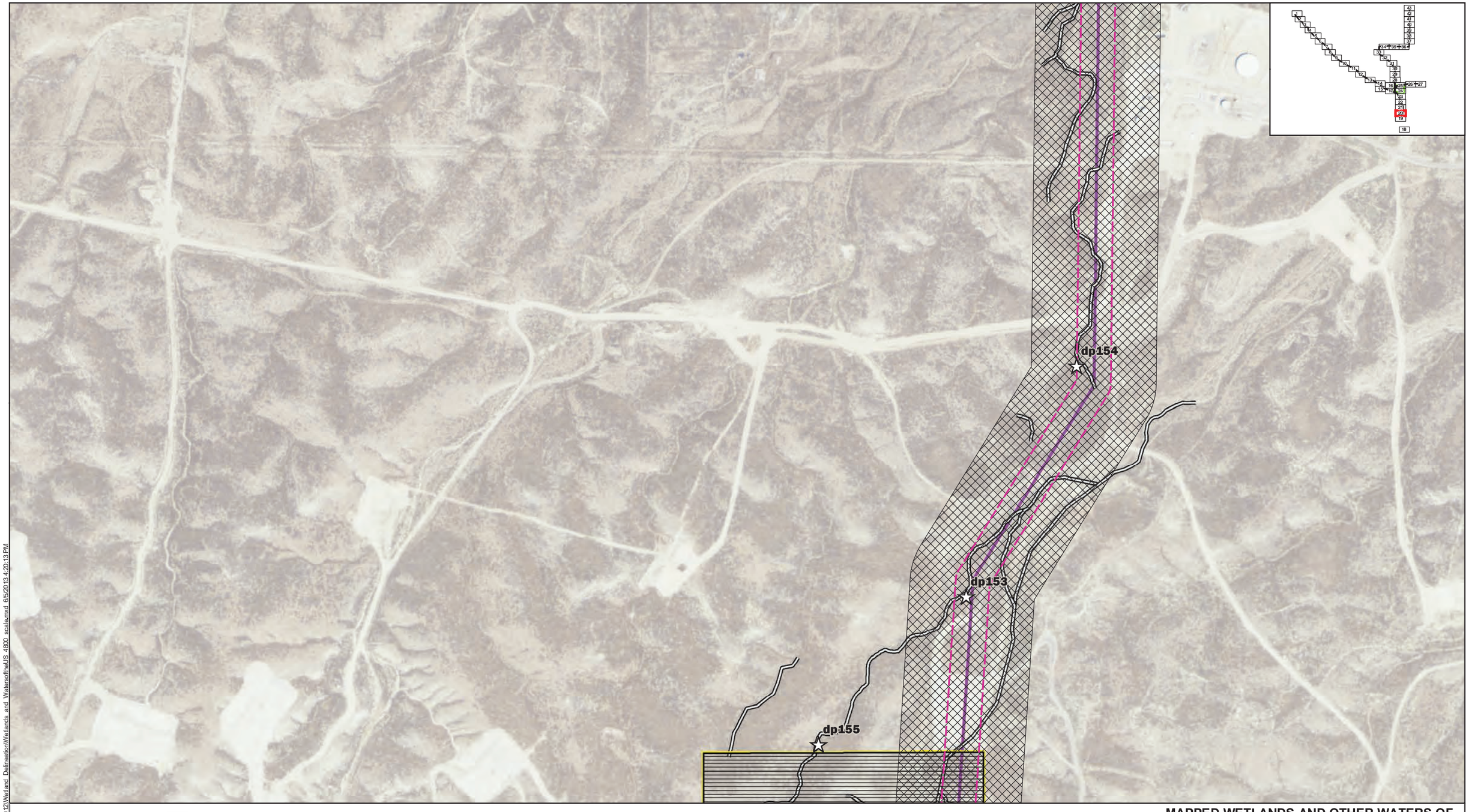

Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N
0 200 400 FEET

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 20 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

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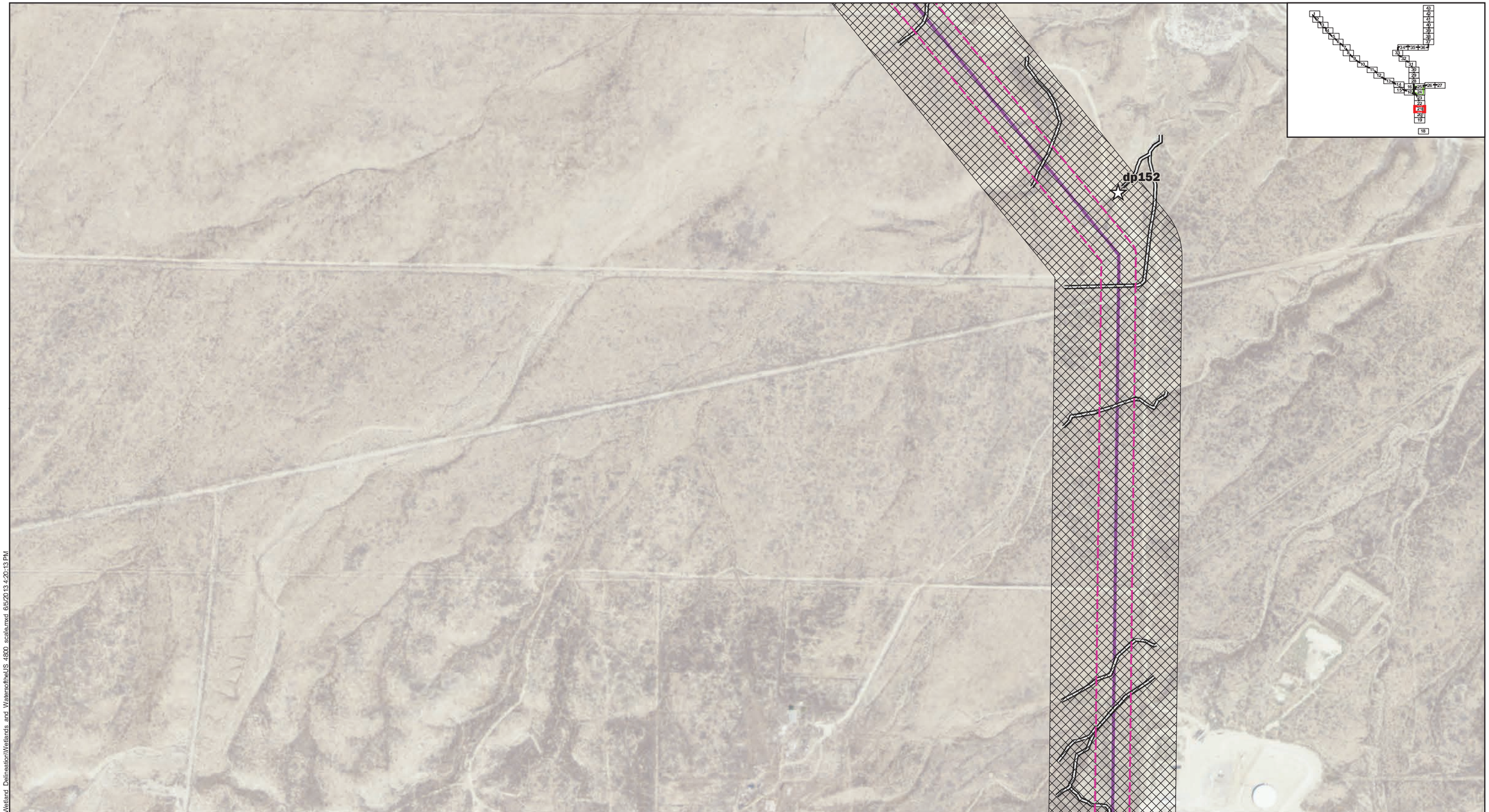


Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N

0 200 400 FEET

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

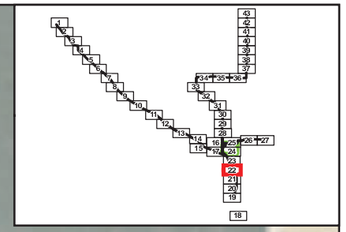
June 2013
28068052

URS

SHEET 21 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

WUS 54 (KERN RIVER, FLOOD CONTROL CHANNEL)
NJ 25
WUS 53
NJ 26
NJ 27
OEHI Study Area (survey in progress)
dp151
TUPMAN RD



Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N
0 200 400 FEET

Source: Aerial Imagery, USDA, NAIP, 2012.

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 22 OF 43

Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N
0 200 400 FEET

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 23 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

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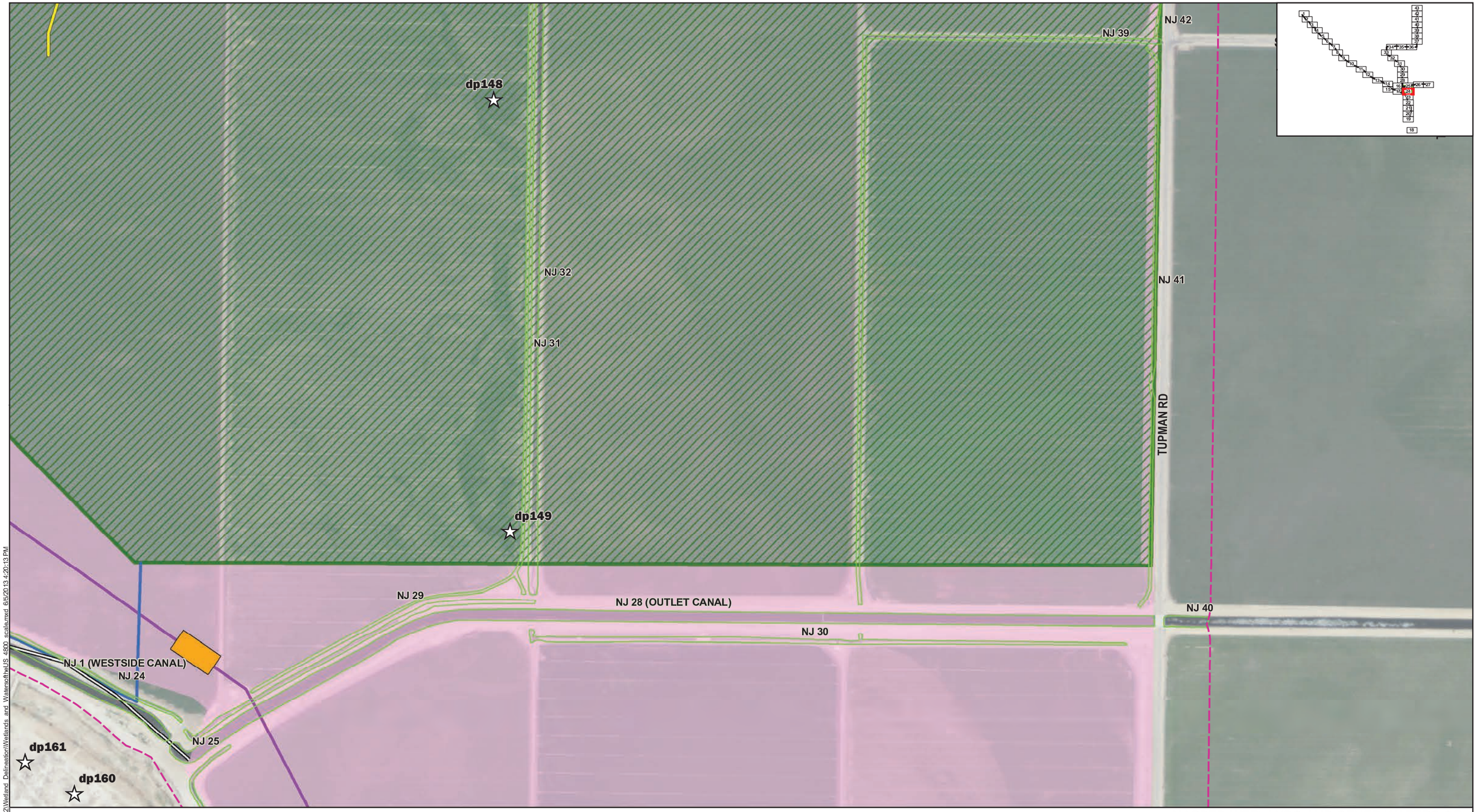

Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N

0 200 400 FEET

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 24 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

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Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N
0 200 400 FEET

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 25 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

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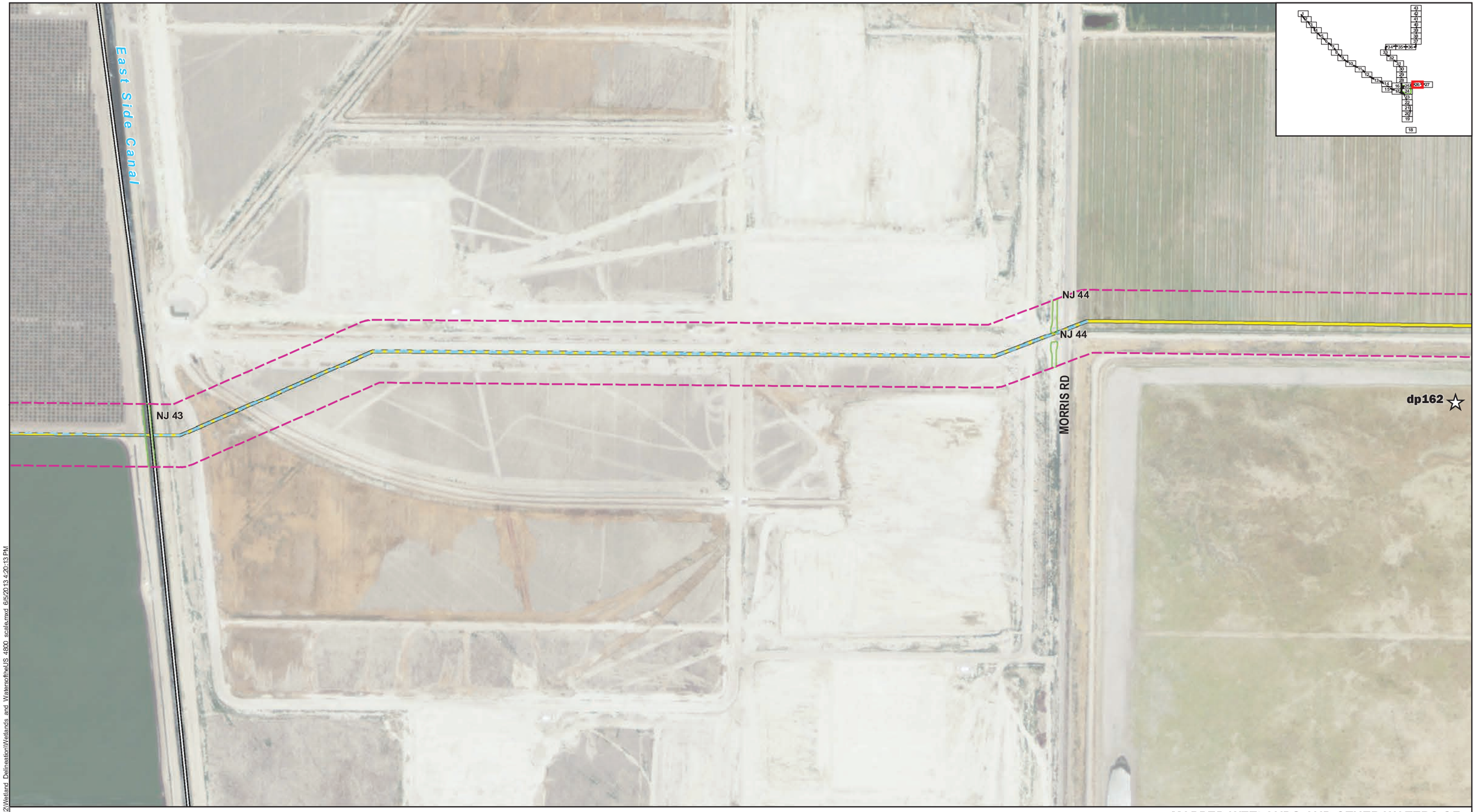

Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N
0 200 400 FEET

Source: Aerial Imagery, USDA, NAIP, 2012.

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 26 OF 43

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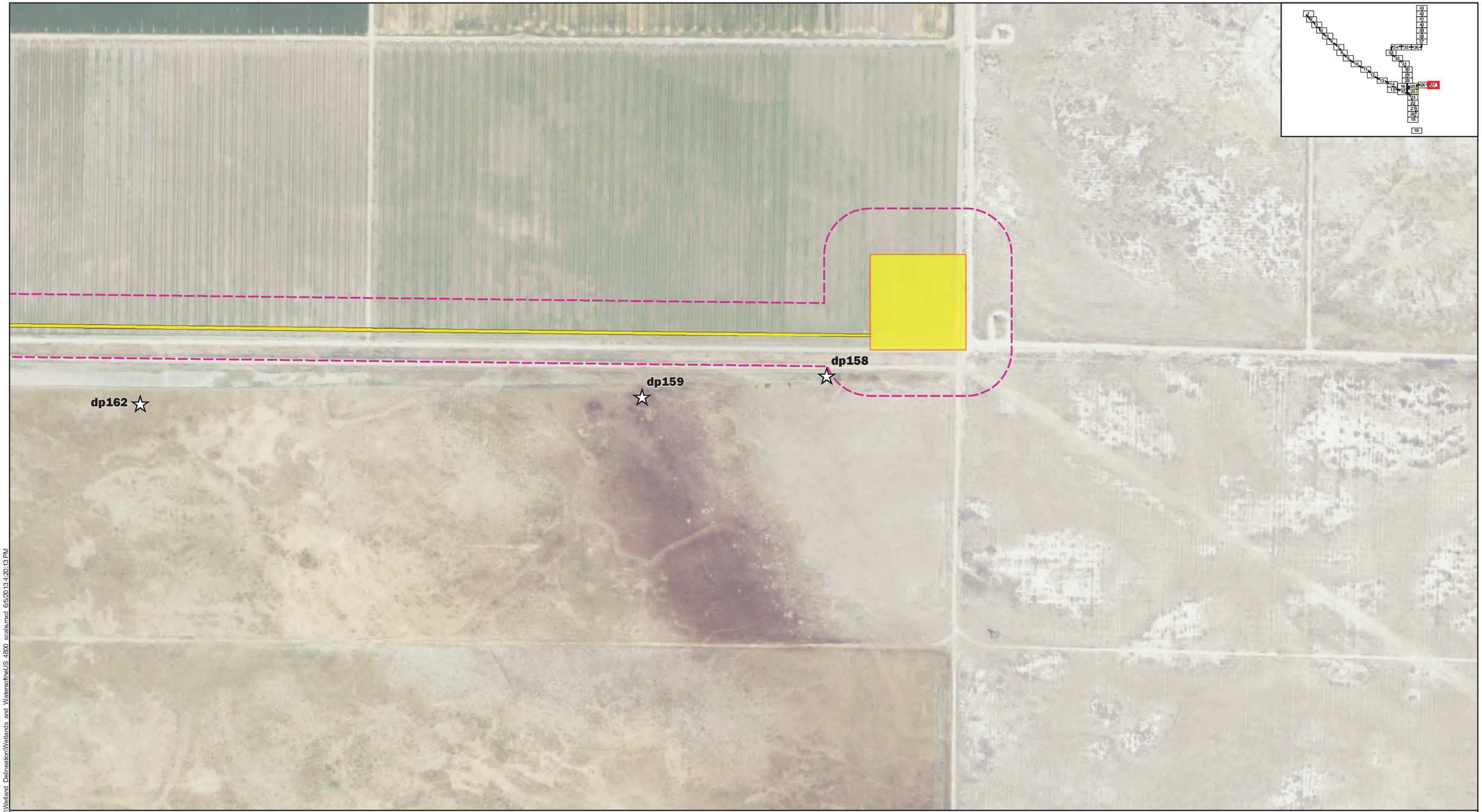

Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
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Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N
0 200 400 FEET

Source: Aerial Imagery, USDA, NAIP, 2012.

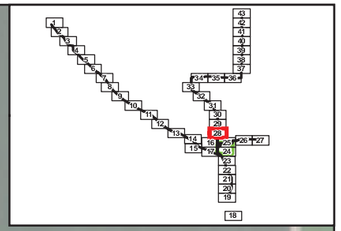
MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 27 OF 43



NJ 46

NJ-45 NJ 47

DAIRY RD

NJ 38

Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N

0 200 400 FEET

Source: Aerial Imagery, USDA, NAIP, 2012.

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MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 28 OF 43

Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N
0 200 400 FEET

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
Wetland Delineation
Kern County, California

June 2013
28068052

URS

SHEET 29 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

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Revised Jurisdictional Delineation Study Area
Project Site
Construction Staging Area
Controlled Area

BVWSD Well Field
HDD Entry/Exit Pits
PG&E Switching Station
EOR Processing Facility
EOR Satellite Gathering Station

Carbon Dioxide
Natural Gas
Potable Water
Process Water
Railroad
Transmission

Waters
Wetland (WL)
Other Waters of the U.S. (WUS)
Non-Jurisdictional Waters of the U.S. (NJ)
Area Not Surveyed

Areas Identified by USACE for Further Investigation
Potential Data Points
Potential Waters

N
0 200 400 FEET

MAPPED WETLANDS AND OTHER WATERS OF THE UNITED STATES WITHIN THE STUDY AREA

Hydrogen Energy California (HECA)
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Kern County, California

June 2013
28068052

URS

SHEET 30 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

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SHEET 31 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

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28068052

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Kern County, California

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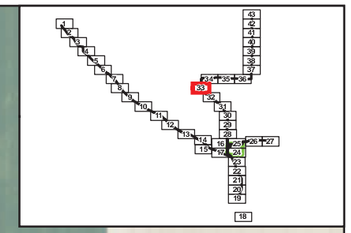
SHEET 32 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.



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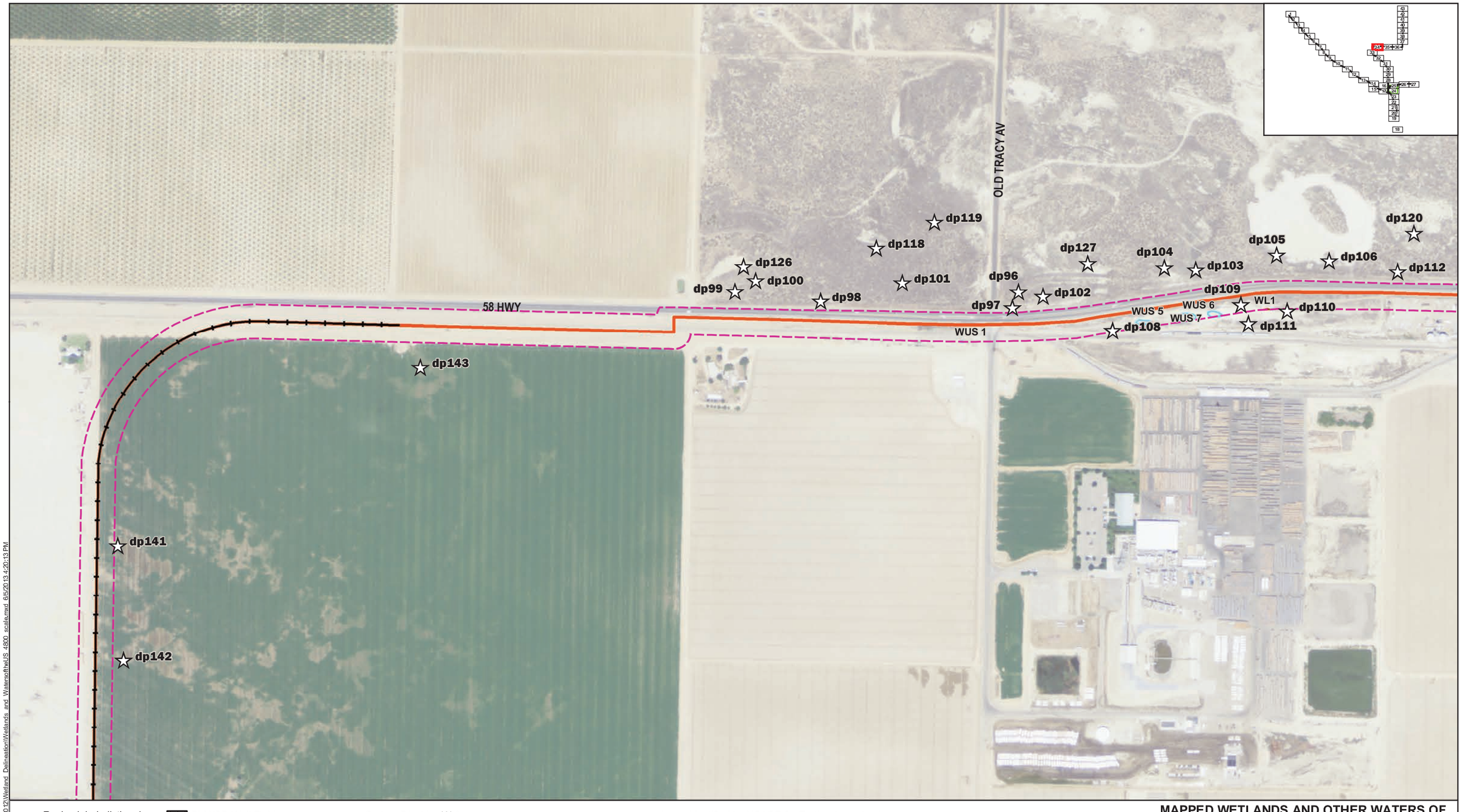

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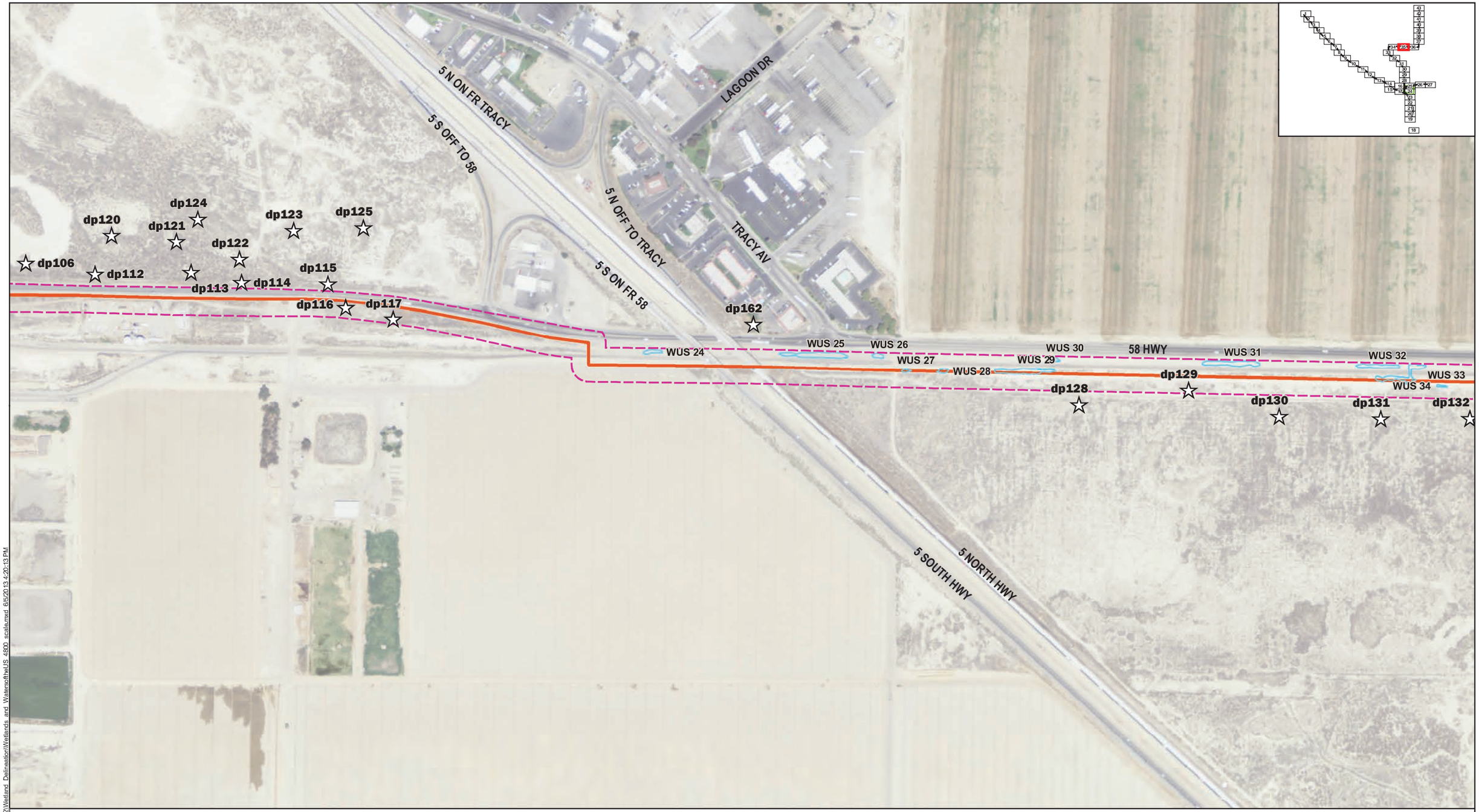

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Source: Aerial Imagery, USDA, NAIP, 2012.

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SHEET 36 OF 43

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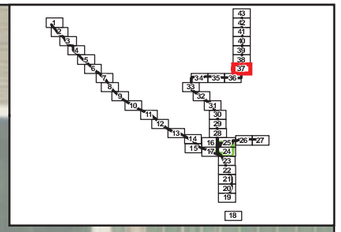

BRANDT RD

NJ 66

NJ 65

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Source: Aerial Imagery, USDA, NAIP, 2012.

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Source: Aerial Imagery, USDA, NAIP, 2012.

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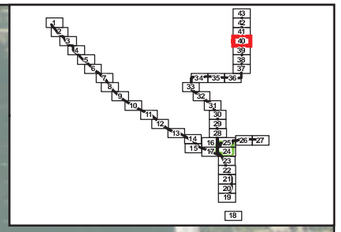
SHEET 39 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.



NJ 71
NJ 70
dp85
dp133
dp84
dp83
BRANDT RD

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SHEET 40 OF 43

Source: Aerial Imagery, USDA, NAIP, 2012.

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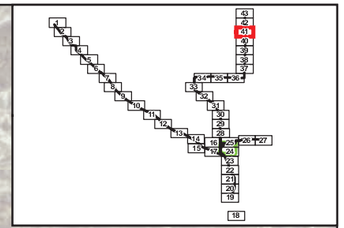
dp94
dp93
dp166
dp92
dp90
dp91
WUS 63
WUS 64
dp89
dp167
dp88
MAGNOLIA AV
dp87
dp86
dp168
dp169
SEVENTH STANDARD RD
BRANDT RD



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Source: Aerial Imagery, USDA, NAIP, 2012.

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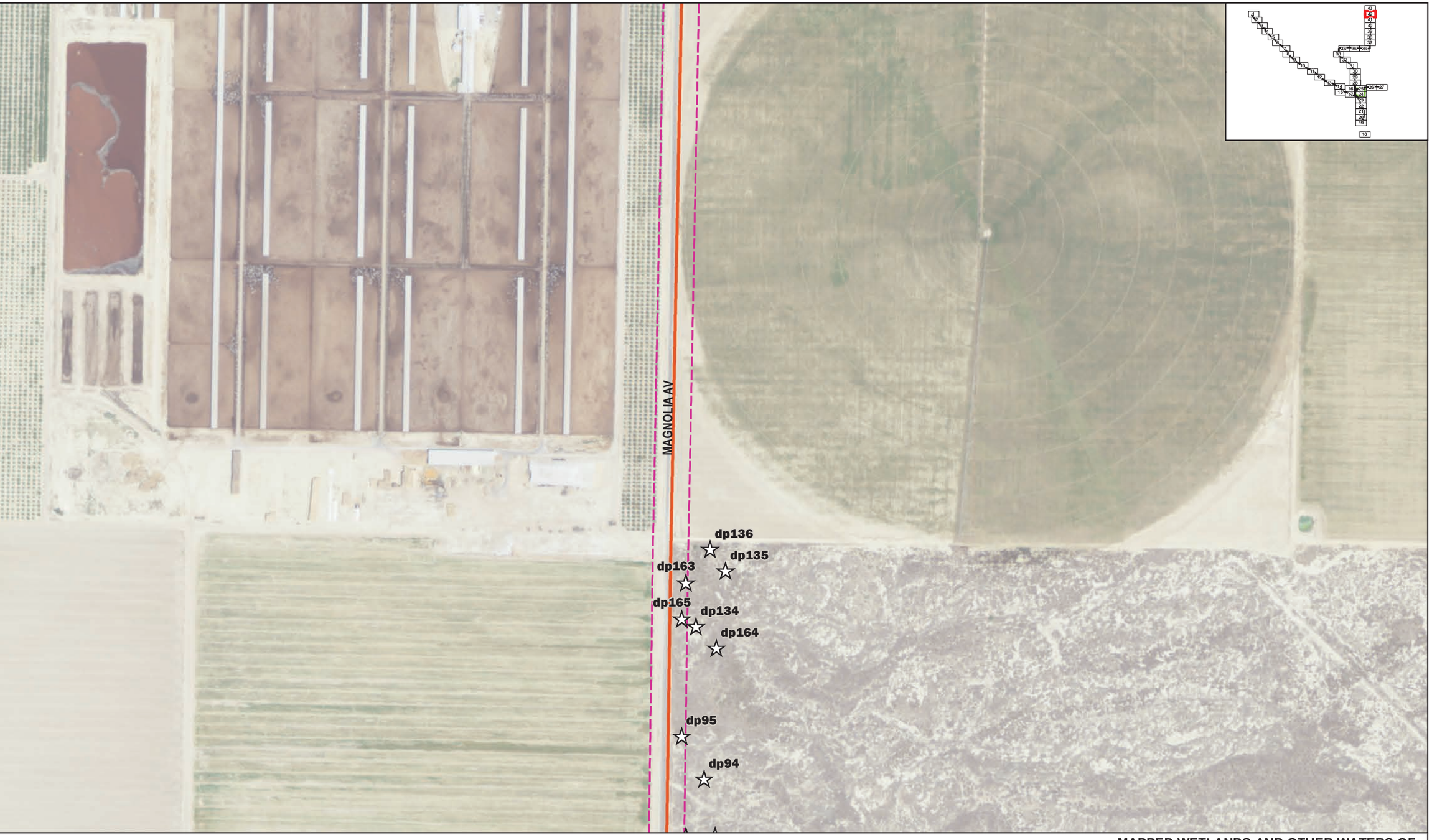

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Attachment 1
USACE Requested Information for Data Points Identified in the HECA Study Area

Attachment 1 - USACE Requested Information for Data Points Identified in Revised Study Area

Photograph	Map Sheet	DP #	Comment
 	16/25	146	This location is a cultivated field. No wetland indicators were observed during multiple site visits, including the May 30, 2013 field visit.

Photograph	Map Sheet	DP #	Comment
 	16/25	147	This location is a cultivated field. No wetland indicators were observed during multiple site visits, including the May 30, 2013 field visit.

Photograph	Map Sheet	DP #	Comment
 	24	148	This area lies within a leveled field that is cultivated for production of onions. No wetland indicators were observed during multiple site visits.

Photograph	Map Sheet	DP #	Comment
 	24	149	This area lies within a leveled and cultivated field. No wetland indicators were observed during multiple site visits. The field is currently cultivated for onion production.

Photograph	Map Sheet	DP #	Comment
 	34	108	No evidence of hydrology was observed at the locations identified as #108-110.This entire area south of State Route 58 and north of the railroad embankment was delineated after a significant precipitation event. All areas with ponding, saturation, or surface cracks were delineated. No vegetation was seen in any of the WUS features (one vegetated area was delineated as WL 1). All other vegetation in the areas was upland alkali scrub.

Photograph	Map Sheet	DP #	Comment
 	34	109	This entire area south of State Route 58 and north of the railroad embankment was delineated after a significant precipitation event. All areas with ponding, saturation, or surface cracks were delineated. No evidence of hydrology was observed at the locations identified as #108-110

Photograph	Map Sheet	DP #	Comment
 	35	117	These locations were surveyed after a significant precipitation event. All areas with ponding, saturation, or surface cracks were delineated. No evidence of hydrology was observed at locations 116 or 117.

Photograph	Map Sheet	DP #	Comment
 	35	129	This location was delineated after a significant precipitation event. All areas with ponding, saturation, or surface cracks were delineated. No evidence of hydrology (e.g. surface cracking) was observed at this location on May 30, 2013.

Photograph	Map Sheet	DP #	Comment
 	36	140	This location is a leveled field that is cultivated for alfalfa. Aerial signatures may be based on high soil sodicity or differences in soil fertility but are not evident in the current topography or hydrology. No wetland indicators were observed during multiple site visits.

Photograph	Map Sheet	DP #	Comment
 	38	137 and 139	This location is a leveled agricultural field currently used to cultivate alfalfa. This field is located in an area of historic alkali scrub/sink habitat that has subsequently been extirpated – aerial signatures may be based on high soil sodicity. No wetland indicators were observed during multiple site visits.

Photograph	Map Sheet	DP #	Comment
	41	86	Parcel with alkali scrub vegetation community, dominated by *Atriplex* and *Bromus*. DP 86 lies in a topographically elevated position relative to the rest of the undeveloped parcel.

Photograph	Map Sheet	DP #	Comment
	41	90 and 92	This location is a topographic high area within a parcel dominated by alkali scrub vegetation. No evidence of wetland hydrology or wetland vegetation is present at this location because it is well-drained upland habitat. Vegetation observed on May 30, 2013 included *Atriplex* and *Bromus*.

Photograph	Map Sheet	DP #	Comment
	42	95	This feature is not connected to any drainage features and would not be considered a tributary to a traditionally navigable waterway. This location is a topographic depression that may occasionally exhibit surficial ponding or episaturation when local precipitation is substantial. However, standing water or saturated soils were not observed at this location in 2011 and 2012 delineations, or during the May 30, 2013 site visit. The surrounding parcel includes alkali scrub/sink vegetation community as well as hydric vegetation in some alkali depressions. The soils are considered problematic because of the high alkalinity content, and no redoximorphic features were observed.

Photograph	Map Sheet	DP #	Comment
	42	163	Parcel with alkali scrub/sink vegetation community. This location is a topographic high area within a parcel dominated by alkali scrub vegetation (*Bromus sp.* and *Atriplex sp*. understory). No evidence of wetland hydrology or wetland vegetation is present at this location because it is well-drained upland habitat.

Photograph	Map Sheet	DP #	Comment
	42	165	Parcel with alkali scrub/sink vegetation community. Topographically lower area dominated by *Bromus sp., Atriplex sp.,* and *Erodium cicutarium.* No evidence of wetland hydrology visible during the 2011 and 2012 delineations, or during the 5/30/13 site visit.

Attachment 2
USACE Requested Information for Data Points Identified in the OEHI Study Area

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Data Point Descriptions.....3

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DP151.....3

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DP157.....5

Attachments

Attachment A Data Forms

Attachment B Photographs

Exhibits

Exhibit A HECA CO_2 Supply Line Alignment Jurisdictional Delineation Survey

Exhibit B Preliminary Mapped Other Waters of the HECA CO_2 Supply Line Alignment Project

Introduction

The attached information, provided to HECA by Occidental of Elk Hills, Inc. (OEHI) responds to USACE Comment Number 4:

There are many features within your study area that exhibit a wetland aerial signature, yet these areas have no data points associated with them. The attached USACE Areas of Concern .kmz shows all of the areas for which we do not have enough information. Please provide additional information at each of the points indicated on this map, and survey for ordinary high water mark indicators for each of the potential waters shown on the map.

The following attachments describe and characterize each of the data points and other drainage features identified in the KMZ file provided by the USACE that are located within or adjacent to the OEHI Project study area.

Data Point Descriptions

DP150

Type of Feature: Artificial Wetland

Arid West Data Form: Attachment A

Dimensions of Channels: NA

Evidence of OHWM: NA

Identification of Wetland Vegetation: Hydrophytic vegetation observed within mapped feature included:

- *Laennecia coulteri* = FAC
- *Polypogon monspeliensis* = FACW
- *Salix gooddingii* = FACW
- *Typha angustifolia* = OBL

Photographs: Attachment B

DP151

Type of Feature: Shallow Basin

Arid West Data Form: Attachment A

Dimensions of Channels: NA

Evidence of OHWM: NA

Identification of Wetland Vegetation: Dominant hydrophytic species = *Hordeum marinum* (Mediterranean Barley; FAC) within sample test pit area/GPS-mapped boundary of feature.

Photographs: Attachment B

DP152

Type of Feature: Swale and Gully

Arid West Data Form: Attachment A

Dimensions of Channels: NA

Evidence of OHWM: Gully feature exhibits scour, various nickpoints, and deep incision.

Identification of Wetland Vegetation: Absence of hydrophytic vegetation within low-gradient swale.

Photographs: Attachment B

DP153

Type of Feature: Swale

Arid West Data Form: Attachment A

Dimensions of Channels: NA

Evidence of OHWM: Absence of a defined bank.

Identification of Wetland Vegetation: Absence of hydrophytic vegetation within low-gradient swale.

Photographs: Attachment B

DP154

Type of Feature: Ephemeral Drainage

Arid West/OHWM Data Forms: Attachment A

Dimensions of Channels: 3 foot average width within sample area.

Evidence of OHWM: Intermittent scour; break in bank slope; change in average sediment texture.

Identification of Wetland Vegetation: Absence of hydrophytic vegetation within low-gradient channel.

Photographs: Attachment B

DP155

Type of Feature: Ephemeral Drainage

Arid West/OHWM Data Forms: Attachment A

Dimensions of Channels: 6 foot average width within sample area.

Evidence of OHWM: Intermittent scour; break in bank slope; change in average sediment texture.

Identification of Wetland Vegetation: Absence of hydrophytic vegetation within low-gradient channel.

Photographs: Attachment B

DP156

Type of Feature: Swale

Arid West Data Form: Attachment A

Dimensions of Channels: NA

Evidence of OHWM: Absence of a defined bank.

Identification of Wetland Vegetation: Absence of hydrophytic vegetation within low-gradient swale.

Photographs: Attachment B

DP157

Type of Feature: Swale

Arid West Data Form: Attachment A

Dimensions of Channels: NA

Evidence of OHWM: Absence of a defined bank.

Identification of Wetland Vegetation: Absence of hydrophytic vegetation within low-gradient swale.

Photographs: Attachment B

Attachment A
Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: HECA Carbon Dioxide Supply Line Alignment City/County: /Kern Sampling Date: 5/29/13

Applicant/Owner: OEHI State: CA Sampling Point: DP 150a

Investigator(s): Chris Bronny; Tommy Fardig Section, Township, Range: Section 27S, Township 30S, Range 24E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): LRRC Lat: 35.2838120° Long: -119.3827321° Datum:

Soil Map Unit Name: Elkhills sandy loam, 9 to 50 percent slopes, eroded. NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **East/northern side of historic Elk Hills drainages now truncated by CA Aqueduct and do not exhibit hydrologic connectivity to greater "waters of the U.S." within the region. All hillslope drainages have been altered by cut and fill activities and accelerated erosion associated with oil production practices; accreting sediments and hydrocarbon residues mask historic soils in low- and moderate gradient swales. Mapped wetland features created in uplands by leaky water pipes. Precipitation below-average for 2012-2013 rainy season.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. *Atriplex polycarpa*	5	no	UPL
2.			
3.			
4.			
5.			
50% = , 20% =	5	= Total Cover	
Herb Stratum (Plot size:)			
1. *Bromus madritensis*	15	yes	UPL
2. *Schimus barbatus.*	3	no	UPL
3.			
4.			
5.			
6.			
7.			
8.			
50% = , 20% =	18	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 77	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Bare ground/thatch = 77% cover; prevalence of upland species within sample area.

Project Site: HECA Carbon Dioxide Supply Line Alignment

SOIL

Sampling Point: DP 150a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8"	10YR4/4	100						

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Absence of hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Absence of hydrologic indicators and wetland hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: HECA Carbon Dioxide Supply Line Alignment | City/County: /Kern | Sampling Date: 5/29/13

Applicant/Owner: OEHI | State: CA | Sampling Point: DP 150b

Investigator(s): Chris Bronny; Tommy Fardig | Section, Township, Range: Section 27S, Township 30S, Range 24E

Landform (hillslope, terrace, etc.): Artificial Wetland | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRRC | Lat: 35.2838120° | Long: -119.3827321° | Datum: _____

Soil Map Unit Name: Elkhills sandy loam, 9 to 50 percent slopes, eroded. | NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☒, Soil ☒, or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **East/northern side of historic Elk Hills drainages now truncated by CA Aqueduct and do not exhibit hydrologic connectivity to greater "waters of the U.S." within the region. Mapped wetland features created in uplands by leaky water pipes. Precipitation below-average for 2012-2013 rainy season.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix gooddingii*	20	yes	FACW
2. *Tamarix ramosissima*	10	yes	-
3. _____	_____	____	____
4. _____	_____	____	____
50% = _____, 20% = _____	30	= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1. _____	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Herb Stratum (Plot size:_____)			
1. *Bromus madritensis*	5	no	UPL
2. *Laennecia coulteri*	15	yes	FAC
3. *Typha angustifolia*	4	no	OBL
4. *Erigeron canadensis*	10	no	FACU
5. *Polypogon monspeliensis*	5	no	FACW
6. *Aster (chilensis)*	5	no	UPL
7. *Lactuca serriola*	1	no	FACU
8. _____	_____	____	____
50% = _____, 20% = _____	45	= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
% Bare Ground in Herb Stratum 25	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	66	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:
OBL species	_____	x1 = _____
FACW species	_____	x2 = _____
FAC species	_____	x3 = _____
FACU species	_____	x4 = _____
UPL species	_____	x5 = _____
Column Totals:	_____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Bare ground/open water = 25% cover; overall dominance exhibited by hydrophytic species.

Project Site: HECA Carbon Dioxide Supply Line Alignment

SOIL

Sampling Point: DP 150b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5"	10YR5/4	100					Sandy clay	
5-15"	GLEY2.5/5BG	60					Sandy muck	
5-15"	10YR5/4	40					Sandy clay	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☒ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: 0

Depth (Inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Presence of hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	7"
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	Surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Indicators of wetland hydrology are present; however, feature is hydrologically isolated and does not exhibit a significant nexus to a TNW.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: HECA Carbon Dioxide Supply Line Alignment City/County: /Kern Sampling Date: 5/29/13

Applicant/Owner: OEHI State: CA Sampling Point: DP 150c

Investigator(s): Chris Bronny; Tommy Fardig Section, Township, Range: Section 27S, Township 30S, Range 24E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): LRRC Lat: 35.2838120° Long: -119.3827321° Datum: _____

Soil Map Unit Name: Elkhills sandy loam, 9 to 50 percent slopes, eroded. NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☐, Soil ☒, or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **East/northern side of historic Elk Hills drainages now truncated by CA Aqueduct and do not exhibit hydrologic connectivity to greater "waters of the U.S." within the region. Mapped wetland features created in uplands by leaky water pipes. Precipitation below-average for 2012-2013 rainy season.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1. *Atriplex polycarpa*	10	no	UPL
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____	10	= Total Cover	
Herb Stratum (Plot size:_____)			
1. *Bromus madritensis*	40	yes	UPL
2. *Schimus barbatus.*	10	yes	UPL
3. *Laennecia coulteri*	8	no	FAC
4. *Lactucus serriola*	5	no	FAC
5. _____			
6. _____			
7. _____			
8. _____			
50% = _____, 20% = _____	63	= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1. _____			
2. _____			
50% = _____, 20% = _____	73	= Total Cover	
% Bare Ground in Herb Stratum 27	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Bare ground/thatch = 27% cover.

Project Site: HECA Carbon Dioxide Supply Line Alignment

SOIL

Sampling Point: DP 150c

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6"	10YR5/4	100					Silty clay	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Absence of hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Absence of wetland hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: HECA Carbon Dioxide Supply Line Alignment City/County: /Kern Sampling Date: 5/29/13

Applicant/Owner: OEHI State: CA Sampling Point: DP 150d

Investigator(s): Chris Bronny; Tommy Fardig Section, Township, Range: Section 27S, Township 30S, Range 24E

Landform (hillslope, terrace, etc.): Artificial Wetland Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): LRRC Lat: 35.2838120° Long: -119.3827321° Datum: _____

Soil Map Unit Name: Elkhills sandy loam, 9 to 50 percent slopes, eroded. NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☒, Soil ☒, or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **East/northern side of historic Elk Hills drainages now truncated by CA Aqueduct and do not exhibit hydrologic connectivity to greater "waters of the U.S." within the region. Mapped wetland features created in uplands by leaky water pipes. Precipitation below-average for 2012-2013 rainy season.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1. *Atriplex polycarpha*	5	no	UPL
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = _____, 20% = _____	5	= Total Cover	
Herb Stratum (Plot size:_____)			
1. *Bromus madritensis*	10	no	UPL
2. *Laennecia coulteri*	30	yes	FAC
3. *Aster (chilensis)*	3	no	UPL
4. *Sonchus oleraceus*	10	no	UPL
5. *Psuedognaphalium luteoalbum*	20	no	FAC
6. *Typha angustifolia*	5	no	OBL
7. *Erigeron canadensis*	5	no	FACU
8. _____	_____	_____	_____
50% = _____, 20% = _____	83	= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50% = _____, 20% = _____	88	= Total Cover	
% Bare Ground in Herb Stratum 12	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Bare ground/open water = 12% cover.

Project Site: HECA Carbon Dioxide Supply Line Alignment

SOIL

Sampling Point: DP 150d

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-0.5"	7.5YR4/4	100					Sandy clay	
0.5-9"	Pure sand	99					Course	
	2.5YR4/6	1					Sandy clay	Sand, tiny amount of clay

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☒ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☒ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☒ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): "

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Thin, approximately 0.5 " dark muck layer present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☒ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	0.5"
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	Surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Indicators of wetland hydrology are present; however, feature is hydrologically isolated and does not exhibit a significant nexus to a TNW.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: HECA Carbon Dioxide Supply Line Alignment City/County: /Kern Sampling Date: 5/31/13

Applicant/Owner: OEHI State: CA Sampling Point: DP 151

Investigator(s): Chris Bronny; Tommy Fardig Section, Township, Range: Section 22S, Township 30S, Range 24E

Landform (hillslope, terrace, etc.): Shallow Basin Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): LRRC Lat: 35.3088337° Long: -119.3811208° Datum: _____

Soil Map Unit Name: Cajon Loamy sand, 2 to 5 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **Feature embedded in low-gradient swale; Feature is extremely shallow basin that intercepts sheetflow runoff form surronding uplands. Precipitation below-average for 2012-2013 rainy season.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size:_____)			
1. *Hordeum marinum*	60	yes	FAC
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
50% = _____, 20% = _____	60	= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 40	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Bare ground/thatch = 40% cover; prevalence of upland species surrounding mapped feature.

Project Site: HECA Carbon Dioxide Supply Line Alignment

SOIL

Sampling Point: DP 151

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
8-11"	10YR4/4	100					Silty clay	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Absence of hydric soil indicators; no redox.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☒ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Presence of single primary and single secondary hydrologic indicators. Feature is "flashy" and appears to pond water for short hydroperiods during the rainy season.Historic drainage pattern within the greater area has been truncated by the construction of the CA Aqueduct (i.e., absence of hydrologic connectivity to valley floor hydrogeomorphic systems).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: HECA Carbon Dioxide Supply Line Alignment City/County: /Kern Sampling Date: 5/29/13

Applicant/Owner: OEHI State: CA Sampling Point: DP 152

Investigator(s): Chris Bronny; Tommy Fardig Section, Township, Range: Section 22S, Township 30S, Range 24E

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): LRRC Lat: 35.3052374° Long: -119.3769344° Datum:

Soil Map Unit Name: Cajon Loamy sand, 2 to 5 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **Single descriptive waypoint taken in low-gradient swale that transitions to deeply incised gully. Precipitation below-average for 2012-2013 rainy season.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size:)			
1. *Bromus madritensis*	30	yes	UPL
2. *Amsinckia sp.*	1	no	UPL
3. *Bromus diandrus*	60	yes	UPL
4. *Croton setiger*	10	no	UPL
5. *Cucurbita sp.*	3	no	UPL
6. *Trichostema ovatum*	1	no	UPL
7.			
8.			
50% = , 20% =	100 %	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 0	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Bare ground/thatch = 60% cover; prevalence of upland species within sample area. Croton setiger = residual dry matter from previous season's growth.

Project Site: HECA Carbon Dioxide Supply Line Alignment

SOIL Sampling Point: DP 152

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7"	10YR4/4	100					Silty clay	Gravel inclusions

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Absence of hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Presence of single secondary hydrologic indicator; absence of wetland hydrology. Historic drainage pattern within the greater area has been truncated by the construction of the CA Aqueduct (i.e., absence of hydrologic connectivity to valley floor hydrogeomorphic systems).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: HECA Carbon Dioxide Supply Line Alignment City/County: /Kern Sampling Date: 5/29/13

Applicant/Owner: OEHI State: CA Sampling Point: DP 153

Investigator(s): Chris Bronny; Tommy Fardig Section, Township, Range: Section 27S, Township 30S, Range 24E

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): LRRC Lat: 35.2915578° Long: 119.3790584° Datum:

Soil Map Unit Name: Elkhills sandy loam, 9 to 50 percent slopes, eroded. NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **East/northern side of historic Elk Hills drainages now truncated by CA Aqueduct and do not exhibit hydrologic connectivity to greater "waters of the U.S." within the region. All hillslope drainages have been altered by cut and fill activities and accelerated erosion associated with oil production practices; accreting sediments and hydrocarbon residues mask historic soils in low- and moderate gradient swales. Precipitation below-average for 2012-2013 rainy season.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size:)			
1. *Bromus madritensis*	35	yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = , 20% =	35	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 65	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Bare ground/thatch = 65% cover.

Project Site: HECA Carbon Dioxide Supply Line Alignment

SOIL

Sampling Point: DP 153

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]		
0-2"	10YR4/6	100					Sandy silt	High sand percentage; some clays present
2-9"	Sand	100					Sand	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (Inches): "

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Absence of hydric soil indicators; nearly pure sand below 2" of surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): ____
Water Table Present?	Yes	☐	No	☒	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Presence of single secondary hydrologic indicator; absence of wetland hydrology. Historic drainage patterns within the greater Elk Hills area has been truncated by the construction of the CA Aqueduct (i.e., absence of hydrologic connectivity to valley floor hydrogeomorphic systems).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: HECA Carbon Dioxide Supply Line Alignment City/County: /Kern Sampling Date: 5/31/13

Applicant/Owner: OEHI State: CA Sampling Point: DP 154

Investigator(s): Chris Bronny; Tommy Fardig Section, Township, Range: Section 27S, Township 30S, Range 24E

Landform (hillslope, terrace, etc.): Ephemeral Drainage Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): LRRC Lat: 35.2943199° Long: -119.3772882° Datum:

Soil Map Unit Name: Elkhills sandy loam, 9 to 50 percent slopes, eroded. NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **East/northern side of historic Elk Hills drainages now truncated by CA Aqueduct and do not exhibit hydrologic connectivity to greater "waters of the U.S." within the region. All hillslope drainages have been altered by cut and fill activities and accelerated erosion associated with oil production practices; accreting sediments and hydrocarbon residues mask historic soils in low- and moderate gradient swales. Precipitation below-average for 2012-2013 rainy season.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. *Atriplex polycarpa*	5	no	UPL
2.			
3.			
4.			
5.			
50% = , 20% =	5	= Total Cover	
Herb Stratum (Plot size:)			
1. *Bromus madritensis*	55	yes	UPL
2. *Amsinckia sp.*	1	no	UPL
3.			
4.			
5.			
6.			
7.			
8.			
50% = , 20% =	55	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 40	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Bare ground/thatch = 60% cover; prevalence of upland species within sample area.

Project Site: HECA Carbon Dioxide Supply Line Alignment

SOIL

Sampling Point: DP 154

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9"	7.5YR4/4	100					Sandy clay	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Absence of hydric soil indicators; No redox. Presence of hydrocarbon residues mixed in soil profile.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Presence of single secondary hydrologic indicator; does not meet hydrologic criteria. Historic drainage patterns within the greater Elk Hills area has been truncated by the construction of the CA Aqueduct (i.e., absence of hydrologic connectivity to valley floor hydrogeomorphic systems).

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: HECA CO_2 Supply Line Alignment
Project Number:
Stream: Unnamed Ephemeral Drainage
Investigator(s): Chris Brabaw; Tommy Fardig

Date: 5/31/2013 **Time:** 11:45AM
Town: Tupman **State:** CA
Photo begin file#: **Photo end file#:**

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

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details: Corresponds with HECA Figure; DP 154

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:
Proposed Pipeline Alignment Project; Normal cut/fill grading activities associated with Oil Production Infrastructure.

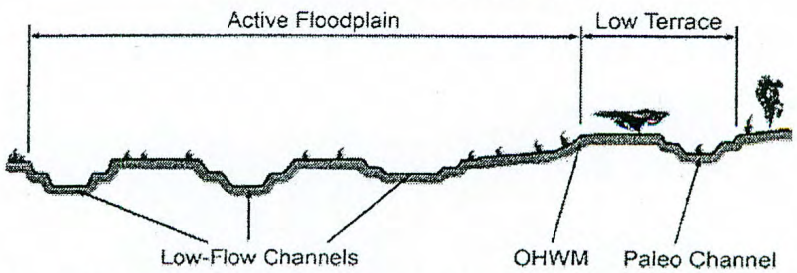
Brief site description:
Sample area located in low-gradient ephemeral drainage that is hydrologically supported by a number of non-jurisdictional swales. Mapped feature is truncated downslope. Intermittent scour along bed; bed and bank fairly well defined in this reach.

Checklist of resources (if available):

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

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

Hydrogeomorphic Floodplain Units



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

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

Project ID: **Cross section ID:** DP154 **Date:** 5/31/2013 **Time:** 11:50 AM

Cross section drawing:

Approx. 3' in width in sample area location

OHWM

GPS point: Polygon

Indicators:

- [X] Change in average sediment texture
- [ ] Change in vegetation species
- [X] Change in vegetation cover
- [X] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Thalweg of channel sparsely vegetated by upland species – primarily Bromus madritensis, Gutierrezia californica, + Atriplex polycarpa. Sediments coarse sands at small gravel.

Floodplain unit: [X] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: Polygon

Characteristics of the floodplain unit:

Average sediment texture: Coarse Sands

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

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [X] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

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

Comments:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: HECA Carbon Dioxide Supply Line Alignment | City/County: /Kern | Sampling Date: 5/29/13

Applicant/Owner: OEHI | State: CA | Sampling Point: DP 155

Investigator(s): Chris Bronny; Tommy Fardig | Section, Township, Range: Section 27S, Township 30S, Range 24E

Landform (hillslope, terrace, etc.): Ephemeral Drainage | Local relief (concave, convex, none): concave | Slope (%): 5

Subregion (LRR): LRRC | Lat: 35.2900899° | Long: 119.3805821° | Datum:

Soil Map Unit Name: Elkhills sandy loam, 9 to 50 percent slopes, eroded. | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **East/northern side of historic Elk Hills drainages now truncated by CA Aqueduct and do not exhibit hydrologic connectivity to greater "waters of the U.S." within the region. All hillslope drainages have been altered by cut and fill activities and accelerated erosion associated with oil production practices. Precipitation below-average for 2012-2013 rainy season.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:_____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size:_____)			
1. *Gutierrezia californica*	5	no	UPL
2.			
3.			
4.			
5.			
50% = _____, 20% = _____	5	= Total Cover	
Herb Stratum (Plot size:_____)			
1. *Bromus madritensis*	3	no	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = _____, 20% = _____	3	= Total Cover	
Woody Vine Stratum (Plot size:_____)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 92		% Cover of Biotic Crust	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species	8	x5 =	40
Column Totals:	8 (A)		40 (B)

Prevalence Index = B/A = 5.0

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Bare ground/thatch = 60% cover; Prevalence Index > 3.0

Project Site: HECA Carbon Dioxide Supply Line Alignment

SOIL

Sampling Point: DP 155

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2"	10YR 5/6	100					Silty clay	Nearly pure sand below 2"
2-10"	Sand	100					Sand	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Absence of hydric soil indicators; nearly pure sand below 2" of surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): ____
Water Table Present?	Yes	☐	No	☒	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Presence of single secondary hydrologic indicator; absence of wetland hydrology; does not meet hydrologic criteria. Historic drainage patterns within the greater Elk Hills area has been truncated by the construction of the CA Aqueduct (i.e., absence of hydrologic connectivity to valley floor hydrogeomorphic systems).

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: HECA CO_2 Supply line Alignment
Project Number:
Stream: Unnamed Ephemeral Drainage
Investigator(s): Chris Bronny; Tommy Fardig

Date: 5/30/2013 **Time:** 9:30 AM.
Town: Tupman **State:** CA
Photo begin file#: **Photo end file#:**

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

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details:
Corresponds with HECA Figure; DP 155

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:
Proposed Pipeline Alignment Project; normal cut/fill grading activities associated with oil production infrastructure.

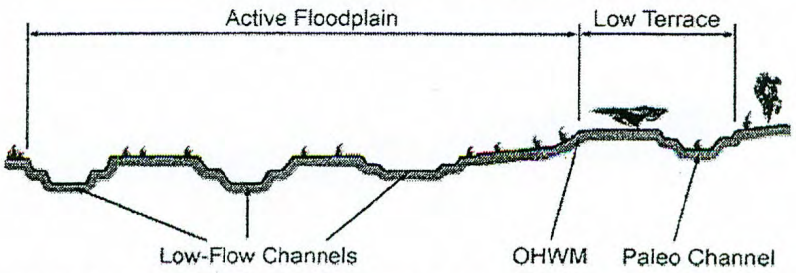
Brief site description: Sample area located in low-gradient ephemeral drainage that is hydrologically supported by a number of micro watershed, non-jurisdictional swales. Mapped feature is truncated downslope. Intermittent scour along bed; bed and bank fairly well-defined in this reach.

Checklist of resources (if available):

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

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

Hydrogeomorphic Floodplain Units



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

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

Project ID: **Cross section ID:** DP155 **Date:** 5/30/13 **Time:** 9:45AM.

Cross section drawing:

OHWM

GPS point: Polygon/lines

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [ ] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Thalweg of channel sparsely vegetated by upland species - primarily Bromus madritensis, Amsinckia sp., Schismus barbatus, Gutierrezia Californica, at Atriplex polycarpa. Channel sediments Course sands/small gravel

Floodplain unit: [ ] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: Polygon/ lines

Characteristics of the floodplain unit:

Average sediment texture: Course Sand

Total veg cover: 30 % Tree: ____ % Shrub: 25 % Herb: 5 %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [x] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

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

Comments:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: HECA Carbon Dioxide Supply Line Alignment City/County: /Kern Sampling Date: 5/29/13

Applicant/Owner: OEHI State: CA Sampling Point: DP 156

Investigator(s): Chris Bronny; Tommy Fardig Section, Township, Range: Section 27S, Township 30S, Range 24E

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): LRRC Lat: 35.2837232° Long: 119.3813534° Datum:

Soil Map Unit Name: Elkhills sandy loam, 9 to 50 percent slopes, eroded. NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **East/northern side of historic Elk Hills drainages now truncated by CA Aqueduct and do not exhibit hydrologic connectivity to greater "waters of the U.S." within the region. All hillslope drainages have been altered by cut and fill activities and accelerated erosion associated with oil production practices; accreting sediments and hydrocarbon residues mask historic soils in low- and moderate gradient swales. Precipitation below-average for 2012-2013 rainy season.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. *Atriplex polycarpa*	20	yes	UPL
2.			
3.			
4.			
5.			
50% = , 20% =	20	= Total Cover	
Herb Stratum (Plot size:)			
1. *Bromus madritensis*	35	yes	UPL
2. *Amsinckia sp.*	1	no	UPL
3.			
4.			
5.			
6.			
7.			
8.			
50% = , 20% =	36	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 44	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0%** (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Bare ground/thatch = 44% cover; prevalence of upland species within sample area. Absence of hydrophyta.

Project Site: HECA Carbon Dioxide Supply Line Alignment

SOIL

Sampling Point: DP 156

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15"	7.5YR5/6	100					Clayey silt	Some sand throughout pedon

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Absence of hydric soil indicators; No redox..

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Presence of single secondary hydrologic indicator; absence of wetland hydrology. Historic drainage patterns within the greater Elk Hills area has been truncated by the construction of the CA Aqueduct (i.e., absence of hydrologic connectivity to valley floor hydrogeomorphic systems).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: HECA Carbon Dioxide Supply Line Alignment City/County: /Kern Sampling Date: 5/29/13

Applicant/Owner: OEHI State: CA Sampling Point: DP 157

Investigator(s): Chris Bronny; Tommy Fardig Section, Township, Range: Section 27S, Township 30S, Range 24E

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): LRRC Lat: 35.2874704° Long: 119.3813995° Datum:

Soil Map Unit Name: Elkhills sandy loam, 9 to 50 percent slopes, eroded. NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☒ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: **East/northern side of historic Elk Hills drainages now truncated by CA Aqueduct and do not exhibit hydrologic connectivity to greater "waters of the U.S." within the region. All hillslope drainages have been altered by cut and fill activities and accelerated erosion associated with oil production practices; accreting sediments and hydrocarbon residues mask historic soils in low- and moderate gradient swales. Precipitation below-average for 2012-2013 rainy season.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size:)			
1. *Bromus madritensis*	1	no	UPL
2. *Amsinckia sp.*	1	no	UPL
3. *Schismus barbatus*	1	no	UPL
4.			
5.			
6.			
7.			
8.			
50% = , 20% =	3	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 90	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Sparsley vegetated swale; prevalence of upland species within sample area.

Project Site: HECA Carbon Dioxide Supply Line Alignment

SOIL Sampling Point: DP 157

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10"	Sand	100					Sand	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Absence of hydric soil indicators; nearly pure sand. Presence of hydrocarbons mixed in the sand.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Presence of single secondary hydrologic indicator; absence of wetland hydrology. Historic drainage patterns within the greater Elk Hills area has been truncated by the construction of the CA Aqueduct (i.e., absence of hydrologic connectivity to valley floor hydrogeomorphic systems).

Attachment B
Photographs

Representative photograph showing the location of **DP 150**, facing east. This feature is an artificial wetland induced by leaky water pipes. Upland and wetland data points (DP150c and DP150d) were taken to document existing conditions and determine the wetland boundary; the Munsell fieldbook marks the upland position and the shovel marks the location of the wetland test pit.

Representative photograph showing the location of **DP 150**, facing southeast. This feature is an artificial wetland induced by leaky water pipes. Upland and wetland data points (DP150a and DP150b) were taken to document existing conditions and determine the wetland boundary; the orange fieldbook marks the upland position and the shovel (left-center of photograph) marks the location of the wetland test pit.

Representative photograph showing location of **DP 151**, facing northeast. Shovel marks the location of descriptive DP151. Feature is a shallow basin that has a prevalence of hydrophytic vegetation (i.e., dominance exhibited by *Hordeum marinum* – FAC) and presence of hydrologic indicators (i.e., sediment deposits and saturation visible on aerial imagery), but lacks hydric soil indicators.

Representative photograph showing location of **DP 152**, facing east. Sample area consists of low-gradient swale transitioning to a gully with numerous deeply incised nickpoints.

Representative photograph showing the location of **DP 153**, facing northeast and downslope. This low-gradient swale lacks hydrophytic vegetation, and hydric soil indicators. Only a single secondary hydrologic indicator (i.e., drainage pattern) was evident at this location.

Representative photograph showing the location of **DP 154**, facing northeast/downslope. This mapped feature is a low-gradient ephemeral drainage that has a defined bed and bank, but is hydrologically truncated downslope by historic cut and fill grading activities associated with oil production infrastructure.

Representative photograph showing the location of **DP 155**, facing northeast and downslope. This low-gradient ephemeral drainage exhibits a bed and bank, intermittent scour, and change in average sediment textures.

Representative photograph showing the location of **DP 156**, facing northeast. This low-gradient swale lacks hydrophytic vegetation or hydric soil indicators Only a single secondary hydrologic indicator (i.e., drainage pattern) was evident at this feature.

Representative photograph showing the location of **DP 157**, facing northeast and downslope. This low-gradient swale lacks hydrophytic vegetation or hydric soil indicators. Only a single secondary hydrologic indicator (i.e., drainage pattern) was evident at this location.

Exhibit A
HECA CO_2 Supply Line Alignment Jurisdictional Delineation Survey

4S
3S
2S
9S
10S
11S
16S
15S
22S
23S
California Aqueduct
DP151
DP152
DP150a
DP150b
0.00063 ac.
DP150d
DP150c
0.00632 ac.
50' Section
Width: 12.0 ft.
0.0295 ac.
DP155
50' Section
50' Section
Width: 3 ft.
0.0159 ac.
DP154
50' Section
DP156
DP153
DP157
DP150
DP156
DP151
DP152
DP154
DP153
DP155
DP157
DP150
DP156

Hydrogen Energy California
Shallow Basin
Swale
Ephemeral Drainage
Gully
Wetland
Possible Waters of the US
Water Resources/ Streams (USGS)
OEHI Boundary
Jurisdictional Delineation Survey Boundary (50 ft.)
Data Points

Bluelines interpreted by the Environmental Science Research Institute for the USGS. Probable Waters of the US were derived from Google Maps (2013). Preliminary other waters data collected by Stantec Consulting (May 2013). Section numbering system; The Section Numbering System in the Western Areas that are within the Department of Energies Naval Petroleum Reserve No. 2 are in a Alpha Numeric format. The rest of Kern County is in the USGS Standard Sectioning Numering System.

0 0.2 0.4
Miles
0 0.25 0.5
Kilometers

Stantec

STANTEC CONSULTING SERVICES Inc.
4700 Stockdale Highway, Suite 125
Bakersfield, CA 93309
Phone: (661) 616-0000 Fax: (661) 616-2400

OCCIDENTAL OF ELK HILLS, INC.

HECA CO_2 SUPPLY LINE ALIGNMENT JURISDICTIONAL DELINEATION SURVEY

Date: 6/5/2013
Author: HS

Reference Scale
1:17,533

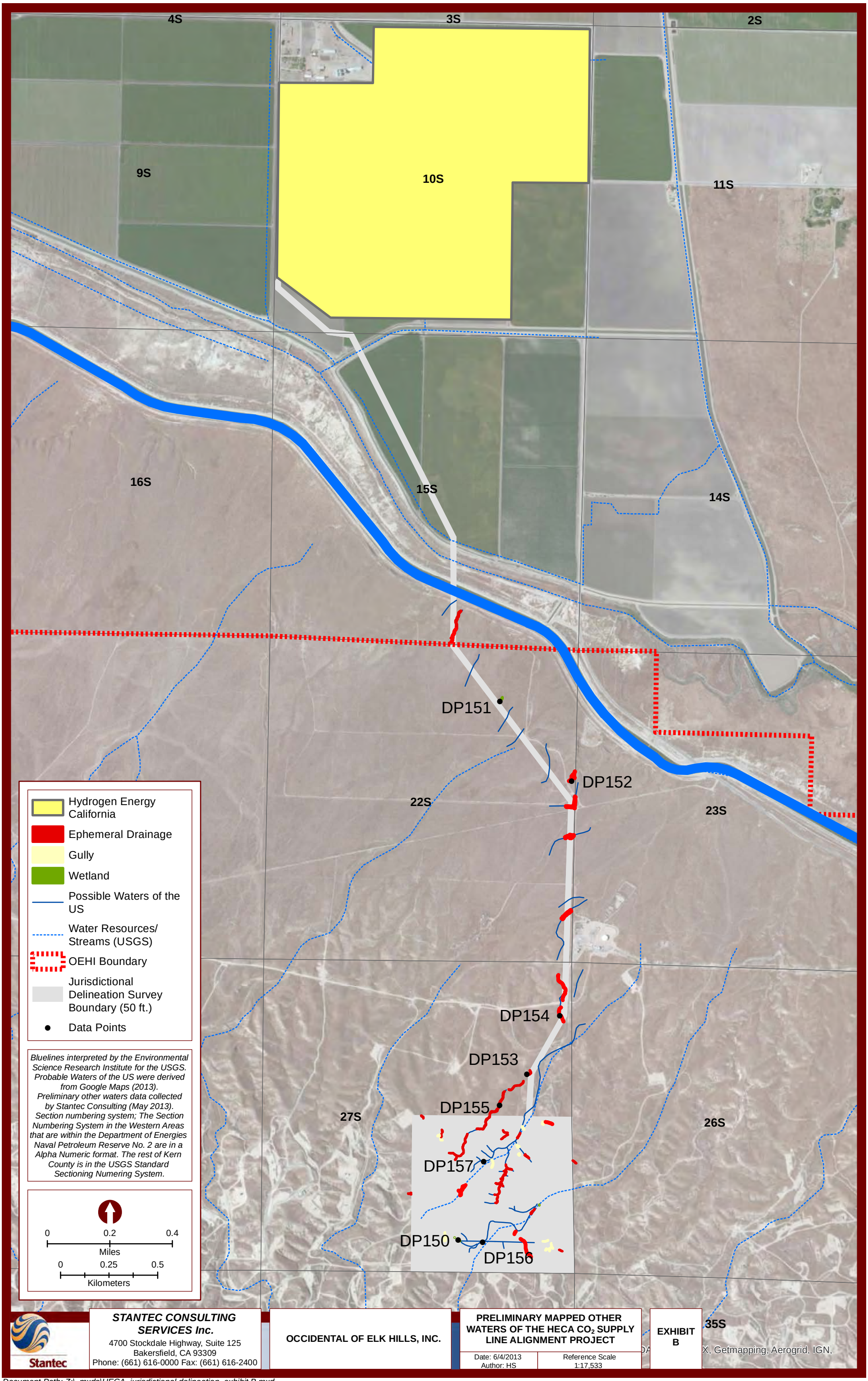
EXHIBIT A

35S

X, Getmapping, Aerogrid, IGN,

Document Path: Z:_mxds\HECA_jurisdictional delineation_exhibit A.mxd

Exhibit B
Preliminary Mapped Other Waters of the HECA CO_2 Supply Line Alignment Project



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OCCIDENTAL OF ELK HILLS, INC.

PRELIMINARY MAPPED OTHER WATERS OF THE HECA CO_2 SUPPLY LINE ALIGNMENT PROJECT

Date: 6/4/2013
Author: HS

Reference Scale
1:17,533

EXHIBIT B

Document Path: Z:_mxds\HECA_jurisdictional delineation_exhibit B.mxd

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

AMENDED APPLICATION FOR CERTIFICATION FOR THE HYDROGEN ENERGY CALIFORNIA PROJECT

Docket No. 08-AFC-08A
PROOF OF SERVICE
(Revised 05/10/2013)

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*Indicates Change

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docket@energy.ca.gov

OTHER ENERGY COMMISSION PARTICIPANTS (LISTED FOR CONVENIENCE ONLY):

After docketing, the Docket Unit will provide a copy to the persons listed below. Do not send copies of documents to these persons unless specifically directed to do so.

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Commissioner and Presiding Member

ANDREW McALLISTER
Commissioner and Associate Member

Raoul Renaud
Hearing Adviser

Galen Lemei
Adviser to Presiding Member

Jennifer Nelson
Adviser to Presiding Member

Hazel Miranda
Adviser to Associate Member

David Hungerford
Adviser to Associate Member

Patrick Saxton
Adviser to Associate Member

Eileen Allen
Commissioners' Technical Adviser for Facility Siting

DECLARATION OF SERVICE

I, Dale Shileikis, declare that on June 7, 2013, I served and filed copies of the attached Response to USACE comments on the jurisdictional delineation dated June, 2013. This document is accompanied by the most recent Proof of Service, which I copied from the web page for this project at: http://www.energy.ca.gov/sitingcases/hydrogen_energy/.

The document has been sent to the other persons on the Service List above in the following manner:

(*Check one*)

For service to all other parties and filing with the Docket Unit at the Energy Commission:

___ I e-mailed the document to all e-mail addresses on the Service List above and personally delivered it or deposited it in the U.S. mail with first class postage to those persons noted above as "hard copy required"; OR

X Instead of e-mailing the document, I personally delivered it or deposited it in the U.S. mail with first class postage to all of the persons on the Service List for whom a mailing address is given.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am over the age of 18 years.

Dated: June 7, 2013