
Volume 1 of 3: Revised and Updated Preliminary Jurisdictional Determination Report and Appendices B, C, D, and E

Sunrise Powerlink
San Diego and Imperial Counties, California

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Date:

July 8, 2009



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1.0 INTRODUCTION

1.1 Project Background

San Diego Gas and Electric (SDG&E) is proposing to construct a new 500/230 kilovolt (kV) electric transmission line that would traverse approximately 120 miles between the El Centro area of Imperial County and southwestern San Diego County, in southern California. The proposed project consists of construction of a new transmission line between the existing Imperial Valley and Sycamore Canyon Substations, construction of a new Modified Route D Alternative Substation (MRDA Substation), three system upgrades (reconductors from Sycamore Canyon Substation to Pomerado, Scripps, and Elliott Substations), and other system modifications necessary in order to reliably operate the new line. The entire route (Project Right of Way) and upgrades are shown on Figure 1-4. For clarity, the Project Right of Way (ROW) is described in three separate segments, or “links,” according to geographic location: Desert South Link, Cleveland National Forest (CNF) South Link, and Inland Valley South Link. Together, these three links comprise the 120-mile Environmentally Superior Southern Route (ESSR) alignment. The California Public Utilities Commission voted on December 18, 2008 to approve the Final Environmentally Superior Southern Route (see Decision D.08-12-058) and a Notice of Determination was submitted to the State Clearinghouse. The BLM issued a Record of Decision approving the same route on January 20, 2009¹.

SDG&E hired WRA, Inc. and ICF Jones & Stokes to complete field studies to determine the presence of features that meet the definition of wetlands and/or “waters of the U.S.” as defined by the U.S Army Corps of Engineers (USACE) guidance documents and regulatory guidance letters. The field work was conducted between March 16, 2009 and May 28, 2009 and focused on the locations along the Project ROW where permanent or temporary impacts were anticipated.

This report presents the results of this delineation for the purposes of obtaining a Preliminary Jurisdictional Determination (PJD) from the USACE, as described in Regulatory Guidance Letter No. 08-02 (June 26, 2008). Additional minor changes to the route are anticipated as final engineering is completed and any additional areas of “waters of the US” will be submitted to the USACE for verification as a supplement to this report.

1.2 Regulatory Background

Section 404 of the Clean Water Act

Section 404 of the Clean Water Act gives the U.S. Environmental Protection Agency (EPA) and the USACE regulatory and permitting authority regarding discharge of dredged or fill material into “navigable waters of the United States”. Section 502(7) of the Clean Water Act defines navigable waters as “waters of the United States, including territorial seas.” Section 328 of Chapter 33 in the Code of Federal Regulations defines the term “waters of the United States” as it applies to the jurisdictional limits of the authority of the USACE under the Clean Water Act. A summary of this definition of “waters of the U.S.” in 33 CFR 328.3 includes (1) waters used for

¹ <http://www.cpuc.ca.gov/Environment/info/aspen/sunrise/sunrise.htm>

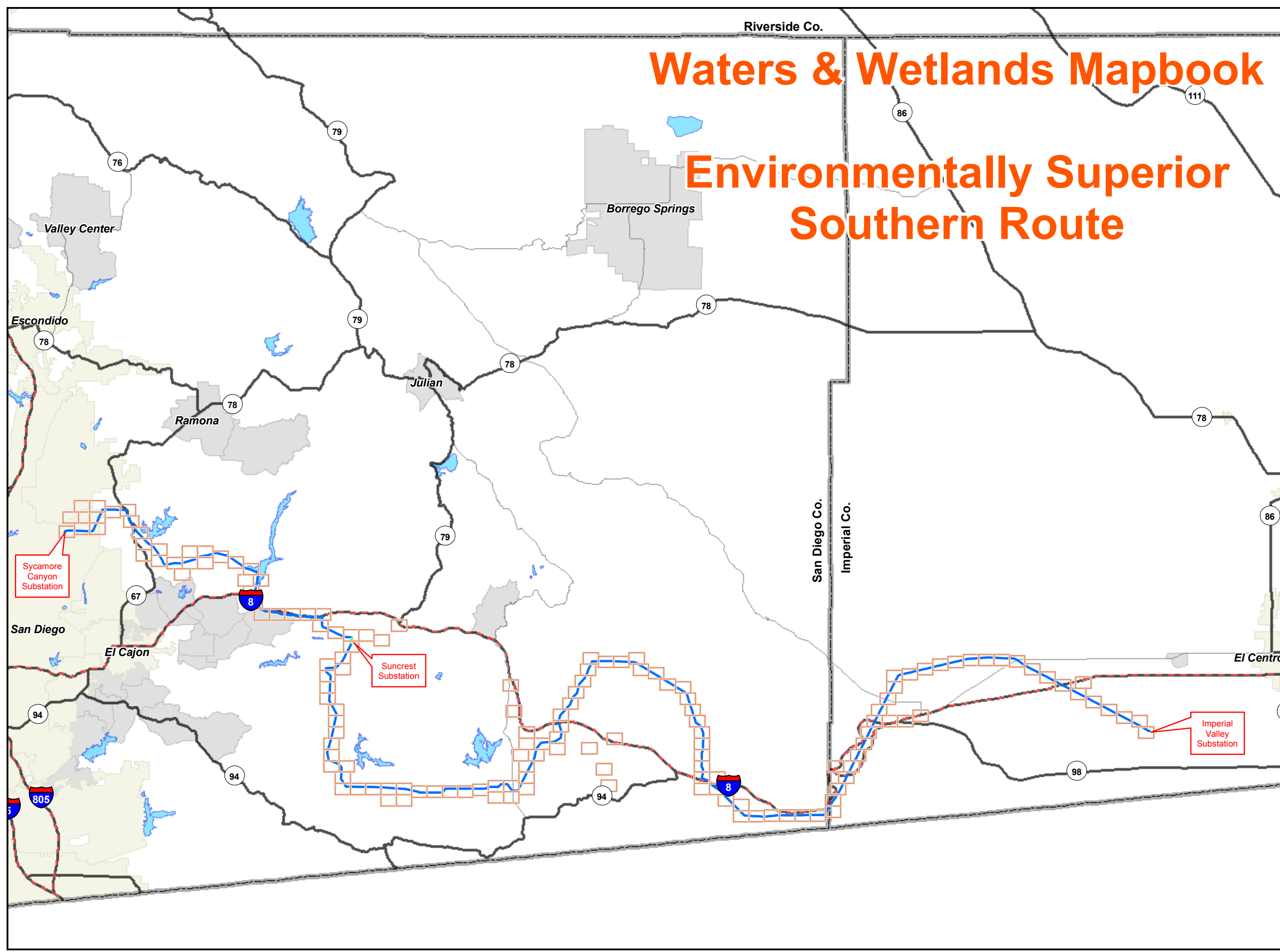
Waters & Wetlands Mapbook

Environmentally Superior Southern Route



SUNRISE POWERLINK

MAP SHEET INDEX

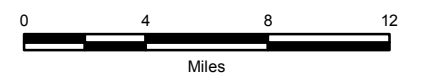


- Environmentally Superior Southern Route
- Interstate
- Major Road
- Road
- County Boundary
- Map Sheet Boundary
- Suncrest Substation
- Major Water Body
- Incorporated City
- Unincorporated City

Sycamore Canyon Substation

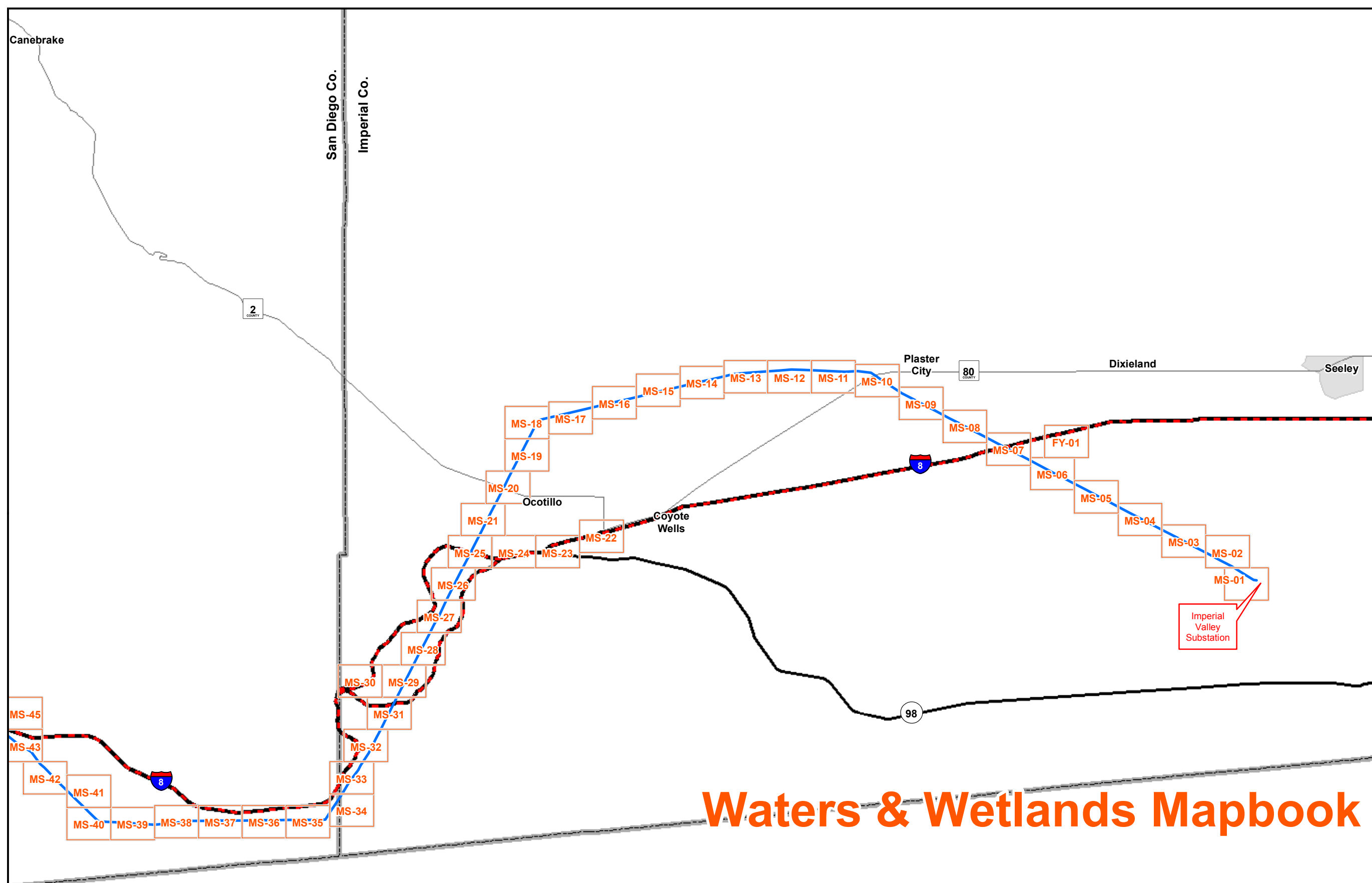
Suncrest Substation









Imperial Valley Substation



A Sempra Energy utility

MAP SHEET INDEX



-  Environmentally Superior Southern Route
-  Interstate
-  Major Road
-  Road
-  County Boundary
-  Map Sheet Boundary
-  Major Water Body
-  Unincorporated City

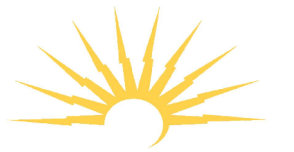
Waters & Wetlands Mapbook

Environmentally Superior Southern Route



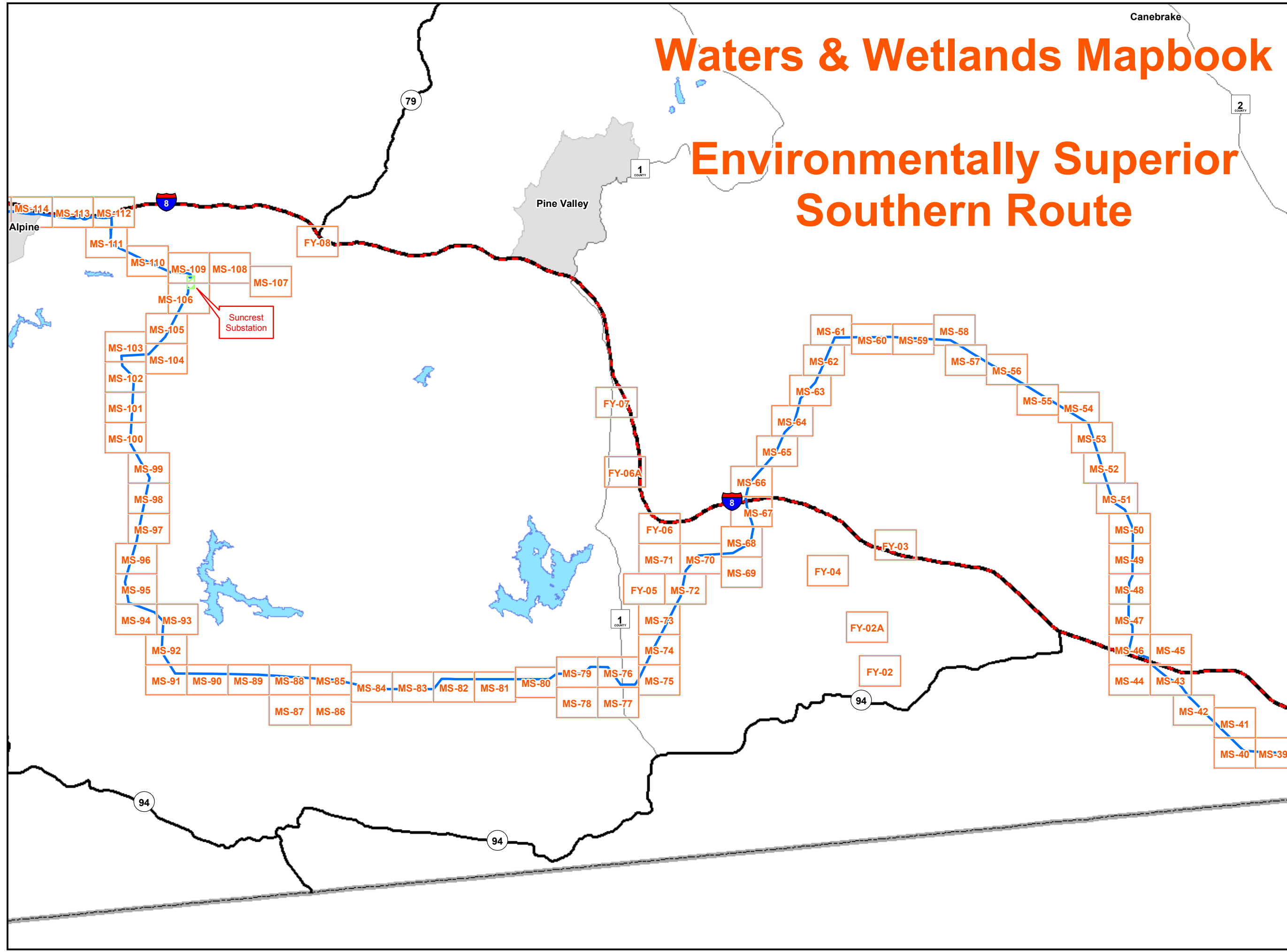
Waters & Wetlands Mapbook

Environmentally Superior Southern Route



SUNRISE POWERLINK

MAP SHEET INDEX



- Environmentally Superior Southern Route
- Interstate
- Major Road
- Road
- Map Sheet Boundary
- Suncrest Substation
- Major Water Body
- Unincorporated City



commerce; (2) interstate waters and wetlands; (3) “other waters” such as intrastate lakes, rivers, streams, and wetlands; (4) impoundments of waters; (5) tributaries to the above waters; (6) territorial seas; and (7) wetlands adjacent to waters. Therefore, for purposes of the determining USACE jurisdiction under the Clean Water Act, “navigable waters” as defined in the Clean Water Act are the same as “waters of the U.S.” defined in the Code of Federal Regulations above. The limits of USACE jurisdiction under Section 404 as given in 33 CFR Section 328.4 are as follows: (a) *Territorial seas*: three nautical miles in a seaward direction from the baseline; (b) *Tidal waters of the U.S.*: high tide line or to the limit of adjacent non-tidal waters; (c) *Non-tidal waters of the U.S.*: ordinary high water mark or to the limit of adjacent wetlands; (d) *Wetlands*: to the limit of the wetland.

2.0 SUMMARY OF AREAS MEETING THE DEFINITION OF “WATERS OF THE U.S.”

Appendix A depicts the extent of wetlands and other “waters of the U.S.” within the Project Survey Area where project features such as access roads, structures, substations, and/or temporary construction areas are currently planned. The acreage and/or linear distance of potential jurisdictional areas surveyed are summarized in Table 1 below. This table summarizes the extent of these features surveyed—the impacts will be determined from the final engineering design after avoidance and minimization measures have been adopted.

Table 1. Summary of surveyed features meeting the definition of “waters of the U.S., including wetlands”

Habitat Type	Size (acres)	Length (linear feet)
Wetlands:		
Palustrine Emergent Wetlands (PEM)	21.81	
Palustrine Emergent Wetlands, Temporarily Flooded (PEMA)	96.40	
TOTAL	118.21 acres	
Other Waters:		
Perennial streams	0.27	1,938
Intermittent streams/drainages	0.32	6,322
Ephemeral streams/drainages	28.13	241,032
Dry washes	203.90	
TOTAL	232.62 acres	249,292 feet

3.0 METHODS

A focused field evaluation of indicators of “Waters of the United States” (WoUS) was performed in the Project ROW by the ICF Jones & Stokes field team (field team²) between March 16 and May 28, 2009. The area surveyed for WoUS (Project Survey Area) included any area within and outside of the ROW that was proposed to be affected by the project. These areas included, but were not limited to new access roads, construction and maintenance pads, pull sites, fly yards, staging areas, helipads, substation structures, and any other area where construction-related facilities may be located or activities may occur.

Prior to initiation of the field work, the initial identification of possible WoUS in the Project ROW was completed from examination of aerial photographs and topographic maps. In addition, GIS modeling of streams was used to determine possible stream features and vegetation mapping was used to identify potential wetland areas. Field surveys were then conducted to confirm the WoUS identified in the in-office reconnaissance process and to delineate those WoUS that were co-located with the project’s proposed areas of disturbance. All features identified on aerial photographs and by stream modeling that coincided with the proposed ROW or access roads (or were within 100 feet of the outer limits of these) were surveyed in the field. Field teams were also instructed to look within the proposed disturbance areas for features that may not have been detected by aerial photography or modeled streams throughout the Project ROW and along access roads. Due to updated engineering access road designs in May and June 2009, a small number of streams (34) were digitized from modeled stream data in locations of the project’s proposed areas of disturbance. The table in Appendix D (Waters of the U.S., Including Wetlands, Surveyed on Sunrise Powerlink Project), cataloguing each potentially jurisdictional area surveyed, denotes whether the feature was surveyed, digitized, or partially surveyed (this last category referring to streams that were surveyed in the field but not along their entire reach, and a portion of this reach was later digitized as potential disturbance areas were realigned and intersected with these stream features).

Each field team consisted of two qualified personnel having a familiarity with the local flora and techniques for determining and delineating WoUS. Field teams were provided with specific map sheets and directions to the areas where field investigations for wetlands and waters would be undertaken. In addition, field teams reviewed other relevant materials such as USGS 1:24,000 maps, the San Diego and Imperial County Soil Surveys (Bowman et al., 1973 and Zimmerman 1981, USDA-NRCS, 2008), San Diego and Imperial Counties hydric soils list (USDA 2005), a Map Book showing soil map units within the Project ROW, and aerial photos for the appropriate Project Survey Area.

To assist the field team’s orientation, the GIS modeled streams, Project ROW alignments, and structure layers were uploaded onto all GPS units before field teams initiated their surveys. A customized data dictionary was uploaded onto the field teams’ GPS units to allow field surveyors to type in specific feature data.

The Sunrise Powerlink field protocols developed by WRA and used by the field teams for the determination and delineation of non-wetland “waters of the United States” and wetlands are provided in Appendix B. WRA trained the field teams for two days on implementation of the field protocols and with demonstrations at field sites. This training helped calibrate all field

²The ICF Jones & Stokes field teams included Merkel & Associates, Inc. and Psomas personnel who were subcontracted by ICF Jones & Stokes.

teams in the project's data collection methods and survey protocol. Data collected by the field teams was then compiled weekly and submitted to WRA for review and quality control checking.

3.1 Potential Waters of the U.S.

3.1.1 Wetlands

The methods used by the field teams to delineate wetlands are based on the *U.S. Army Corps of Engineers Wetlands Delineation Manual* ("USACE Manual", Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* ("Arid West Regional Supplement", USACE 2008). The routine method for wetland delineation described in the USACE Manual was used to identify areas as wetlands within the Project Survey Area. However, no soil pits were dug due to high potential for archaeological sites to be located throughout the Project ROW. Alternative observational criteria were used to complete the hydric soils component of the data sheets and are described in the soils section below.

According to the USACE Manual, for areas not considered "problem areas" or "atypical situations":

"...[E]vidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland determination."

Section 328.3 of the Federal Code of Regulations defines wetlands as:

"Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

EPA, 40 CFR 230.3 and CE, 33 CFR 328.3 (b)

Indicators described in the Arid West Supplement were used to make wetland determinations at each sample point in the Project Survey Area and are summarized below.

Vegetation

Wetland or hydrophytic vegetation is defined as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation and/or soil saturation produces anaerobic conditions within soils of sufficient duration to exert a controlling influence on the plant species present (Experimental Laboratory 1987). Plant species identified in the Project Survey Area were assigned a wetland status according to the U.S. Fish and Wildlife Service list of plant species that occur in wetlands in California (Reed 1988). This wetland plant inventory system is based on the expected frequency of occurrence of each plant in wetlands as follows:

OBL	Always found in wetlands	>99% frequency
FACW(±)	Usually found in wetlands	67-99%
FAC	Equal in wetland or non-wetlands	34-66%
FACU	Usually found in non-wetlands	1-33%

UPL/NL	Upland/Not listed (upland)	<1%
NI	Not an Indicator (no information)	

The Arid West Supplement outlines three methods to determine if hydrophytic vegetation is present: the dominance test (also called the “50/20 rule”), the prevalence index, and plant morphological adaptations. For the purposes of the wetland hydrophytic vegetation determination in the Sunrise Powerlink Project Survey Area, the dominance test was most frequently used³. The dominance test procedure is as follows:

- Dominant species in each plant community stratum are selected and evaluated independently.
- Dominant species are determined for each vegetation stratum from a sampling plot of an appropriate size surrounding the sample point. According to this protocol, dominant plant species are considered the most abundant species that individually or collectively account for more than 50 percent of the total vegetative cover in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total cover.
- The lists of dominant species are combined across all strata. If more than 50 percent of the dominant species have an OBL, FACW, or FAC status (ignoring + and - qualifiers), the sample point meets the hydrophytic vegetation criterion.

Hydrology

The USACE wetland hydrology criterion is satisfied if an area is inundated or saturated for a period sufficient to create anoxic soil conditions during the growing season (a minimum of 14 consecutive days in the Arid West region). Evidence of wetland hydrology can include primary indicators, such as visible inundation or saturation, drift deposits, oxidized root channels, and salt crusts. Secondary indicators include the FAC-neutral test, presence of a shallow aquitard, or crayfish burrows. The Arid West Supplement contains 16 primary hydrology indicators and 10 secondary hydrology indicators. Only one primary indicator is required to be present to meet the wetland hydrology criterion; however, if secondary indicators are used, at least two secondary indicators must be present to conclude that an area has wetland hydrology. Only surface hydrology field indicators were used; the presence of oxidized rhizospheres was not examined unless there was exposed soil at the surface where these indicators could be observed.

³ As noted in the September 2008 USACE Arid West Region manual (page 21), the dominance test is the primary hydrophytic vegetation indicator used in most wetland delineations. However, in situations where the wetland plant communities fail the dominance test but contain positive indicators of both wetland hydrology and hydric soils, the prevalence index and plant morphological adaptations tests should be used in that order.

Soils

The Natural Resource Conservation Service (NRCS) defines a hydric soil as follows:

“A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.”

Federal Register July 13, 1994,
U.S. Department of Agriculture, NRCS

Soils formed over long periods of time under wetland (anaerobic) conditions often possess characteristics that indicate they meet the definition of hydric soils. Hydric soils can exhibit indicators such as hydrogen sulfide (rotten egg) odor, low chroma matrix color (generally designated 0, 1, or 2), presence of redox concentrations, gleyed or depleted matrix, or high organic matter content.

Due to the potential presence of sensitive cultural resources throughout the Project Survey Area, no soil pits were dug. Direct and indirect methods were used to evaluate the presence of hydric soils. Direct observation of soil redoximorphic features was used in areas where recently exposed soils were visible. In addition, the following indirect methods were used to indicate the presence of hydric soils:

- a. All areas mapped with hydric soil types listed in the local soil survey were considered hydric. The most dominant hydric soil map units included within San Diego and Imperial Counties are saline fluvaquents, pits, riverwash, Hanford cobbly coarse sandy loam, and playas. A table of all hydric soils found along the Project ROW is included in the protocols found in Appendix B.
- b. Areas dominated by OBL and FACW species with surface hydrology indicators; and
- c. Areas dominated by OBL, FACW, or FAC species with surface hydrology indicators, and located in a landscape depression or within an area containing an Ordinary High Water Mark.

The typical hydric soil profiles found in well-developed wetlands soils were not necessarily present due to the alluvial nature of many of the wetland areas in the Project Survey Area. In a few cases it was possible to examine recently exposed areas for some subsurface hydric soils indicators; however, these were not common due to the high alkalinity of the soils and the coarse sandy nature of the alluvial deposits. The delineators were knowledgeable of other indicators associated with problematic hydric soils in the Project Survey Area and as described in the Arid West Supplement (USACE 2008).

Data Collection Methods for Wetlands

Wetland boundaries (polygons) were delineated within the Project Survey Area using a Trimble GeoXH GPS (GPS) unit in areas determined to be potential wetlands which were co-located with an area of proposed disturbance from Project activities. In addition, surveyors delineated all wetland boundaries outside the proposed disturbance area for a length of at least 100 feet from the outside limits of the ROW, 100 feet on either side of the proposed access roads, and 200 feet away from the outer limits of the pull site, fly yard, or staging area. One set of paired sampling points was established in all wetlands found in the field, one just inside the wetland

boundary and one in the adjacent upland area just outside the boundary. The paired upland and wetland sampling points were recorded as GPS point data. A unique GPS identification number was assigned to each wetland feature surveyed in the field. The labeling system for each feature contains the mapsheet number in which the feature is located, the letter “W” (wetland), and the feature number for each mapsheet in that order (i.e., 122-W-1). Upland and wetland sampling locations for each wetland was indicated by either a “U” or “W,” respectively, following the feature number (i.e., 122-W-1-U).

Where wetlands occurred within a stream channel, the feature was recorded as a wetland if more than 5% of the channel was covered in vegetation and met all three wetland criteria⁴. Vegetation was estimated at each sample point as follows: trees were identified within a 30-foot radius, shrubs within a 10-foot radius, and herbs within a 1.64-foot radius⁵. The sample plot size was altered to fit the configuration of each wetland so that all herbs, shrubs, and trees sampled were within the wetland. For consistency among field teams, both giant reed (*Arundo donax*, FACW) and poison oak (*Toxicodendron diversilobum*, NI) were recorded in the shrub layer. The minimum mapping unit (MMU) for a wetland was based on the 10-foot radius plot size for herbs and shrubs identified in the USACE on-line manual. Therefore, the MMU was 314 square feet ($A=\pi r^2$, so $A= 3.14 \times 10^2$). Representative photographs were taken of the wetland at the proposed disturbance area and at upland and wetland data sampling points.

3.1.2 Other Waters of the U.S.

This study also evaluated the presence of “Waters of the United States” (WoUS) other than wetlands. For the Sunrise Project, these areas include non-tidal waters such as rivers and streams (including intermittent and ephemeral streams) and dry washes⁶. Jurisdiction in non-tidal areas extends to the ordinary high water mark (OHW) defined as:

“...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.”

Federal Register Vol. 51, No. 219,
Part 328.3 (e). November 13, 1986

Rivers and streams

River and stream features were found in the coastal and mountain ranges of the Sunrise Powerlink Alignment. They were characterized by the presence of an Ordinary High Water Mark(s) (OHWM).

Identification of OHWMs was conducted in accordance with the USACE Regulatory Guidance Letter No. 05-05, *Ordinary High Water Mark Identification* (USACE 2005), which describes

⁴ As identified in the USACE Manual, Arid West Region Supplement (September 2008) page 88.

⁵ These radius’ are identified in the 1987 Corps of Engineers Wetlands Delineation Manual, On-Line Edition (page 68).

⁶ To the extent tidal waters are encountered, USACE jurisdiction would apply to all areas below the high tide line.

physical evidence used to ascertain the lateral limits of jurisdiction (Appendix B). USACE Districts generally use more than one physical indicator or other means for determining the OHWM. Physical indicators of OHWM include:

- Natural line impressed on the bank
- Shelving
- Destruction of terrestrial vegetation
- Presence of litter and debris
- Wracking
- Vegetation matted down, bent, or absent
- Sediment sorting
- Leaf litter disturbed or washed away
- Scour
- Deposition
- Bed and banks
- Water staining
- Change in plant community

Dry Washes

Dry washes present a special problem in the Arid West because they may conduct water rarely, briefly, or only at certain times of the year. These features are found primarily in the Imperial Valley portion of the Sunrise Powerlink Project ROW. Field teams conducted surveys in areas where proposed disturbances from the project may occur that are co-located with dry washes.

The USACE *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual* (August 2008) method for delineating the lateral extent of the WoUS in the Arid West (using stream geomorphology and vegetation response to the dominant stream discharge) was used by the field teams. A summary of this protocol and example USACE data sheets are included within Appendix B.

Data Collection Methods for WoUS

Once an area was determined to be a potential WoUS and was co-located with an area of proposed project disturbance, a master data form created for this project was completed, documenting all of the OHWM indicators (i.e., for streams) and factors (i.e., for dry washes) (see Appendix B for example Master Data Form). In addition to recording information on the presence of OHWMs, field teams recorded additional information helping to characterize WoUS, including but not limited to the wetted width and depth of the stream feature and its characteristic hydrology (perennial, intermittent, or ephemeral).

The following guidelines were used to help distinguish between intermittent and ephemeral streams in the field:

- There will be stronger OHWM indicators for an intermittent stream compared to an ephemeral stream;
- Intermittent streams will have more FAC and FACW plants, whereas ephemeral streams may even have some upland plants; and
- Intermittent streams will have numerous hydrology indicators whereas the ephemeral stream will have few.

The field teams delineated each stream feature by recording line data on the GPS while walking along the centerline of the stream. For dry washes, the OHWM was delineated using GPS line data along both sides of these features and are represented on maps as areas (polygons) (Appendix A). In addition, streams features were surveyed outside the proposed disturbance areas for a length of at least 100 feet from the outside limits of the ROW, 100 feet on either side

of the proposed access roads, and 200 feet away from the outer limits of the pull site, fly yard, or staging area. The field teams took measurements of stream width in three locations using the survey tape: at the location of disturbance, 100 feet upstream from the disturbance, and 100 feet downstream from the disturbance. When significant changes in stream width occurred along the length being surveyed, those widths were also measured. Representative photographs were taken of each stream and dry wash feature at the proposed impact area (one upstream and one downstream).

A unique GPS identification number was assigned to each WoUS feature surveyed in the field. The labeling system for each feature contained the mapsheet number in which it was located, the letter "S" (representing stream), and the feature number in the order it was surveyed (i.e., 42-S-5).

3.2 Difficult Wetland Situations in the Arid West

The Arid West Supplement (USACE 2008) includes procedures for identifying wetlands that may lack indicators due to natural processes (problem areas) or recent disturbances (atypical situations). "Problem area" wetlands are defined as naturally-occurring wetland types that periodically lack indicators of hydrophytic vegetation, hydric soil, or wetland hydrology due to normal seasonal or annual variability. Some problem area wetlands may permanently lack certain indicators due to the nature of the soils or plant species on the site. "Atypical situations" are defined as wetlands in which vegetation, soil, or hydrology indicators are absent due to recent human activities or natural events.

The list of difficult wetland situations provided in the Arid West Supplement includes wetlands with problematic hydrophytic vegetation, problematic hydric soils, and wetlands that periodically lack indicators of wetland hydrology. In addition, the problem area and atypical situation sections of the USACE Manual (Environmental Laboratory 1987) were utilized to determine if any sample points taken within the Project Survey Area met the criteria for a problem area or atypical situation.

4.0 STUDY AREA DESCRIPTION

The Sunrise Powerlink ROW covers approximately 6,000 acres and traverses approximately 120 miles between the El Centro area of Imperial County and southwestern San Diego County, in southern California (see Figures 1-4). SDG&E is constructing the new ESSR between the existing Imperial Valley and Sycamore Canyon Substations. The project includes construction of a new MRDA Substation, three system upgrades (reconductors from Sycamore Canyon Substation to Pomerado, Scripps, and Elliott Substations), and other system modifications necessary in order to reliably operate the new line. The ESSR alignment has a right-of-way that is 200 feet in width for 91 miles, 300 feet in width for 23 miles (except for six miles where it is undergrounded), and 100 feet in width for six miles in an existing ROW. New access roads, temporary work areas, pull and tension sites, fly yards, and staging areas that are outside of the ROW were included in this WoUS and wetland delineation field survey. The alignment is divided into 144 mapsheets, with an additional 10 mapsheets focusing specifically on fly yards located off the regular alignment (Appendix A). In addition, the ROW has been assigned mileposts (MP), which range from the Imperial Valley Substation (MP-0) to the Sycamore Canyon Substation (MP-118).

Land uses within the Project Survey Area include ranching, farming, parks, residential, and the Cleveland National Forest.

4.1 Vegetation

A number of broad vegetation types (referred to as 'terrestrial natural communities', Holland 1986) were observed along the 120-mile long ROW. Natural communities found within the CNF South Link and Inland Valley South Links were more similar to one another than those found within the Desert South Link. The distribution of these broad vegetation types within the Project Survey Area are listed below. More detailed descriptions of these types and a generalized vegetation map are available in the Biological Resources Section of the Final EIR/EIS (<http://www.cpuc.ca.gov/environment/info/aspen/sunrise/feir/D02%20Biology.pdf>). Appendix C contains a list of plant species observed along the ROW during the waters/wetlands field surveys as well as a list of all plants recorded on data forms.

Inland Valley South Link

Along the Inland Valley Link of the Project Survey Area the predominant plant communities found were coastal sage-chaparral scrub and chaparral. Other plant communities such as coastal sage scrub (inland form), non-native grassland, oak riparian forest, mule fat scrub, coast live and Engelmann oak woodland, and southern coast live oak riparian forest were also found along this route.

Specifically, two typical communities found within the Inland Valley South Link include Diegan Coastal Sage Scrub and Southern Mixed Chaparral.

Diegan Coastal Sage Scrub

One of the terrestrial natural communities found within the Inland Valley South Link is Diegan Coastal Sage Scrub. This community is characterized by low, mostly soft-woody shrubs, 1.5 feet to 6 feet tall, with crowns usually touching, and typically with bare ground underneath and between shrubs. This community occurs on dry, more or less rocky slopes, usually below 3,000 feet in elevation (Holland 1986). The characteristic species of this community that are described in Holland and found within the Project Survey Area are California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), lemonade berry (*Rhus integrifolia*), and white sage (*Salvia apiana*).

Southern Mixed Chaparral

Southern mixed chaparral is found in the coastal foothills of San Diego County, usually below 3,000 feet in elevation in areas with lower precipitation and moderate temperatures compared to Northern Mixed Chaparral. This natural community type is also found within the CNF South Link portion of the Project. The characteristic species of this community described in Holland and also found within the Project Survey Area are chamise (*Adenostoma fasciculatum*), Eastwood manzanita (*Arctostaphylos glandulosa* ssp. *glandulosa*), woolyleaf ceanothus (*Ceanothus tomentosus*), toyon (*Heteromeles arbutifolia*), southern honeysuckle (*Lonicera subspicata*), laurel sumac, sugarbush (*Rhus ovata*), and Mojave yucca (*Yucca schidigera*).

CNF South Link

The predominant plant community along the CNF South Link of the Project Survey Area was chaparral, including northern mixed chaparral, southern mixed chaparral, red shank chaparral, and semi-desert chaparral. Other plant communities found along this route included coastal sage scrub (inland form), coastal sage-chaparral scrub, valley needlegrass grassland, non-

native grassland, meadow, black oak woodland, coast live oak woodland, and Engelmann oak woodland, mule fat scrub, southern willow scrub, southern coast live oak riparian forest, southern arroyo willow riparian forest, southern cottonwood-willow riparian forest, and freshwater seep.

Desert South Link

The predominant plant community found along the Desert South Link of this route was Sonoran creosote bush scrub and stabilized desert dunes, both of which are described in more detail below. Other desert plant communities such as Sonoran mixed woody and succulent scrub, Sonoran wash scrub, Colorado desert wash scrub, chenopod scrub, desert saltbush scrub, desert sink scrub, and tamarisk scrub are also found along this route.

Sonoran Creosote Bush Scrub

Sonoran creosote bush scrub occurs in well-drained soils of slopes, alluvial fans, and valleys rather than upland sites with thin residual soils. The dominant plant species are creosote bush (*Larrea tridentata*) with white bursage (*Ambrosia dumosa*), brittlebush (*Encelia farinosa*), and ocotillo (*Fouquieria splendens*).

Stabilized Desert Dunes

These communities consist of dunes and accumulations of sand in the desert which are stabilized or partially stabilized by evergreen and/or deciduous shrubs, scattered low annuals, and perennial grasses. The characteristic species of this community that are described in Holland (1986) and are also found within the Project Survey Area are desert sand verbena (*Abronia villosa* var. *villosa*), burrobrush (*Ambrosia dumosa*), fourwing saltbush (*Atriplex canescens*), silky dalea (*Dalea mollissima*), desert sunflower (*Geraea canescens*), desert lily (*Hesperocallis undulata*), Emory indigobush (*Psorothamnus emoryi*), Scott indigobush (*Psorothamnus schottii*), smoketree (*Psorothamnus spinosus*), and fanleaf crinklemat (*Tiquilia plicata*).

4.2 Wetlands

According to the U.S. Fish and Wildlife Survey (USFWS), Nationwide Wetland Inventory (NWI) classification system, all of the 29 wetlands surveyed were characterized as Palustrine Emergent Wetlands (PEM) with varying hydrology (saturated, temporarily flooded, or seasonally flooded). However, identification of soil saturation at each wetland was difficult to determine during field investigation since soil pits could not be dug. None of the wetlands were permanently flooded. Nine of the 29 wetlands surveyed were classified on NWI maps as PEMA, PEMC, PEMFh, PEMAh, PUSCh, or R4USC. Field verifications indicated that only three (PEMA wetlands) of the nine NWI-mapped wetlands were classified accurately. The six misclassified wetlands were grouped in the more general category of PEM, since we could not definitively determine the duration of hydrology during our field surveys.

Palustrine systems are defined by Cowardin et al. (1979) as "...all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens..." Palustrine wetlands may be situated along shoreward of lakes, river channels, or estuaries; on river floodplains; in isolated catchments; or on slopes. The "emergent wetland" class within the palustrine system is characterized by "...erect, rooted, herbaceous hydrophytes, excluding mosses and lichens" (Cowardin et al. 1979) and includes a variety of water regimes. This vegetation must be persistent, present for most of the growing season and dominated by perennial plants, to be classified as palustrine according to this system.

Palustrine Emergent Wetlands, Temporarily Flooded (PEMA)

Three wetlands surveyed within the Project Survey Area are classified as PEMA, according to the NWI maps. One wetland (GPS ID# 43-W-1) is dominated by the following herbs; saltgrass (*Distichlis spicata*, FACW), flixweed (*Descurainia sophia*, NI), and tumble mustard (*Sisymbrium altissimum*, NI). The shrub layer is dominated by Menzies' goldenbush (*Isocoma menziesii*, FACW). Another wetland (GPS ID# FY02-W-1) is dominated by field sedge (*Carex praegracilis*, FACW), with yerba mansa and Mexican rush also present in the herb stratum. The shrub stratum is comprised of wild tarragon, and big sagebrush (*Artemisia tridentata*, NL). The tree stratum is dominated by red willow. The third wetland (GPS ID# FY06-W-1) is dominated by field sedge, Mexican rush, and a species of *Panicum* thought to be witchgrass (*Panicum capillare*, FAC).

Palustrine Emergent Wetlands (PEM)

The most common dominant wetland plants found within the herbaceous strata in these PEM wetlands were Mexican rush (*Juncus mexicanus*, OBL), Mariposa rush (*Juncus dubius*, FACW), toad rush (*Juncus bufonius*, FACW+), soft rush (*Juncus effusus*, OBL), wild tarragon (*Artemisia dracuncululus*, FAC), western ragweed (*Ambrosia psilostachya*, FAC), common monkeyflower (*Mimulus guttatus*, OBL), and curly dock (*Rumex crispus*, FACW-). Other dominant hydrophytic herbs surveyed at these sites include common spikerush (*Eleocharis macrostachya*, OBL), yerba mansa (*Anemopsis californica*, OBL), watercress (*Nasturtium officinale*, OBL), field sedge (*Carex praegracilis*, FACW), saltgrass, brass buttons (*Cotula coronopifolia*, FACW+), sand spikerush (*Eleocharis montevidensis*, FACW), and western goldenrod (*Euthamia occidentalis*, OBL). Other dominant facultative or upland herbs present at these sites include short-pod mustard (*Hirschfeldia incana*, NL), common Mediterranean grass (*Schismus barbatus*, NL), miner's lettuce (*Claytonia perfoliata*, FAC), soft chess (*Bromus hordeaceus*, FACU-), ripgut brome (*Bromus diandrus*, NL), prickly sowthistle (*Sonchus asper*, FAC), and slender wild oats (*Avena barbata*, NL).

The most common dominant hydrophytic plants found in the shrub layer were mule fat (*Baccharis salicifolia*, FACW) and Menzies' goldenbush. Other dominant shrubs in these wetlands sites were small flower salt-cedar (*Tamarix parviflora*, FAC), coyote brush (*Baccharis pilularis*, NL), and poison oak (*Toxicodendron diversilobum*, NI). Dominant hydrophytic trees found in PEM wetlands were arroyo willow (*Salix lasiolepis*, FACW), Gooding's willow (*Salix goodingii*, OBL), and red willow (*Salix laevigata*, FACW).

4.3 Hydrology

The Project Survey Area crosses regions with variable hydrologic characteristics. The Desert South Link crosses a desert region where annual rainfall and runoff is very low and vegetation is sparse. High runoff volumes are possible in response to high rainfall, but watercourses were mostly dry and remain dry for most of the year. The CNF South and Inland Valley South Links are in a wetter region with higher rainfall, more abundant vegetation, and more persistent stream flows.

The Peninsular Mountain Range forms the divide between the Colorado River Basin, which drains generally east toward the Salton Sea and the Colorado River, and the South Coast Basin, which drains west toward the Pacific Ocean. Based on the information provided by the

California State Water Resources Control Board, the Project ROW crosses the South Coast and the Colorado River hydrologic regions. Each hydrologic region is subdivided into subregions and further divided into basins and sub-basins. Basins crossed by the project within the South Coast Hydrologic Region include the San Diego basin and those within the Colorado River Hydrologic Region include the Imperial basins.

Rainfall is substantially higher for the Inland Valley South and CNF South Links than for the Desert South Link. Stream flow for the desert is ephemeral and activated entirely by rainfall. Watercourses are dry for most of the year, and there is little sustained flow after rainfall occurs, particularly in the summer. Summer rainfall and runoff peaks and valleys are coincident, indicating that runoff from the very sparse summer storms occurs very shortly after the occurrence of the storms.

Stream flow in the CNF South and Inland Valley South Links is also ephemeral and activated by rainfall, but due to the wetter climate and more watershed vegetative cover there is more potential for dry-season flow.

4.4 Soils

The list of soils found in the region is provided in Appendix B (attached to the Wetlands protocol) along with the description of whether or not they are considered hydric by the County of San Diego or Imperial County.

5.0 RESULTS

The preliminary JD form and table (Waters of the U.S., Including Wetlands, Surveyed on Sunrise Powerlink Project), cataloguing each potentially jurisdictional area surveyed, is included as Appendix D. Photos of representative streams, wetlands, and sample points within the Project Survey Area are shown in Appendix E. The standard USACE Arid West Region wetland data forms and USACE dry wash data forms for all sample points taken by the field teams are included with the master data forms and table of structure name changes in Appendix F. A list of plant species observed during the site visits is included as Appendix C.

5.1 Potential Waters of the U.S.

5.1.1 Wetlands

A total of 29 wetlands, varying in size from less than 0.01 acres to 64.86 acres (for a combined total of 118.21 acres) were delineated within the CNF South and Inland Valley South Links within the Project Survey Area. These wetlands were classified as Palustrine Emergent wetlands with varying hydrology regimes, including saturated, temporarily flooded, and seasonally flooded. These wetlands were dominated by hydrophytic vegetation. Since no soil pits were dug, hydric soils were assumed based on: (1) hydric soils maps (Appendix B), (2) prevalence of OBL and FACW plant species and surface hydrology indicators, or (3) prevalence of OBL, FACW, and FAC plant species, surface hydrology indicators, and located in a landscape depression or within an area containing an OHWM.

5.1.2 *Other Waters of the U.S.*

A total of 610 streams and drainages were surveyed within the Project Survey Area. The majority of streams were ephemeral (559), including 40 dry washes. Nine were classified as intermittent and two as perennial streams within the Project Survey Area. The OHWM width varied greatly among these streams. Distance between OHWMs on right and left banks were greatest in desert washes surveyed within the Desert South Link. These desert washes (found between Mapsheets 01 and Mapsheets 25) varied in width from 0.5 feet to 2,900 feet, varied in length between 24 feet and 1,162 feet, and ranged in size from 0.12 acres to 70.56 acres. Ephemeral, intermittent, and perennial streams and drainages surveyed within the CNF South and Inland Valley South Links varied in distance between OHWM width from 0.5 and 12 feet, and varied in length between 20 and 2,633 feet.

The total number of linear feet of streams surveyed (not including dry washes) within the Project Survey Area is 249,292 linear feet, comprising 28.72 acres. In addition, 203.90 acres of dry washes were surveyed.

5.2 Difficult Wetland Situations in the Arid West

Field teams did not encounter “problem area” wetlands or “atypical situations” as defined in the Arid West Supplement (USACE 2008). The survey occurred in March, early April, and May after rains and hydrology indicators were present during the time of the survey. The only constraints faced by the field teams were property access and restrictions on digging soil pits.

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