SECTION 4.11

HYDROLOGY AND WATER QUALITY

4.11 HYDROLOGY AND WATER QUALITY

This section describes federal, state and local regulations applicable to hydrology and water quality. It also describes the regional hydrologic setting, existing hydrology/drainage (on-site and off-site), and existing flood hazards in the vicinity of the solar field site parcels. Water quality is also described in terms of groundwater beneath the solar field site parcels and surface waters in the region and the Imperial Valley.

This section also describes effects on hydrology and water quality that would be caused by implementation of the proposed Project based on the *Wistaria Ranch Conceptual Drainage Study and Storm Water Quality Analysis*, prepared by Fuscoe Engineering, Inc. (Fuscoe 2014). This document is provided on the attached CD of Technical Appendices as **Appendix I** of this EIR. Additional information from the *Preliminary Geotechnical and GeoHazards Report: Wistaria Ranch Solar Energy Center, Rockwood Road – Schaniel Road to All American Canal (International Border), Calexico, California, LCI Project No. LE12184* (LandMark 2014a) was also incorporated into the discussion as appropriate. The Geological and Geotechnical Report is provided on the attached CD of Technical Appendices as **Appendix D** of this EIR.

4.11.1 REGULATORY FRAMEWORK

A. FEDERAL

Federal Emergency Management Agency

Imperial County is a participant in the National Flood Insurance Program (NFIP), a federal program administered by the Federal Emergency Management Agency (FEMA). Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 has adopted, as a desired level of protection, an expectation that developments should be protected from floodwater damage of the Intermediate Regional Flood (IRF). The IRF is defined as a flood that has an average frequency of occurrence on the order of one in 100 years, although such a flood may occur in any given year. Imperial County is occasionally audited by the Department of Water Resources (DWR) to ensure the proper implementation of FEMA floodplain management regulations.

B. STATE

The Porter-Cologne Water Quality Control Act

California established its regulations to comply with the Clean Water Act (CWA) under the Porter-Cologne Water Quality Control Act of 1967 (Porter-Cologne Act). The Porter-Cologne Act grants the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCB) power to protect water quality and to adopt water quality criteria to protect Waters of the State (WS). Such waters are defined in Section 13050 of the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." Water quality criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. Reporting requirements for waste discharge to waters of the State are set forth in Section 13260. The RWQCBs are authorized to issue Waste Discharge Requirements specifying conditions for protection of water quality in Section 13263. Section 13181 of the Porter-Cologne Act requires the SWRCB to develop water quality reports and lists required under Section 303(d) of the CWA. Imperial County is located within the Colorado River Basin, Regional Water Quality Control Board - Region 7 (RWQCB-7).

SWRCB Construction General Permit Order No. 2010-0014-DWQ

The General Construction Permit (GCP), (Order 2009-0009-DWQ as modified by Order 2010-0014-DWQ, National Pollution Discharge Elimination System [NPDES] Permit No. CAS000002), issued by the SWRCB, regulates storm water and non-storm water discharges associated with construction activities disturbing one acre or greater of soil. Construction sites that qualify must submit a Notice of Intent (NOI) with the SWRCB to gain permit coverage or otherwise be in violation of the CWA and California Water Code. The GCP requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) for each individual construction project greater than or equal to one acre of disturbed soil area. The SWPPP must list Best Management Practices (BMPs) that the discharger would use to control sediment and other pollutants in storm water and non-storm water runoff. The GCP requires that the SWPPP is prepared by a Qualified SWPPP Developer (QSD) and implemented at the site under the review/direction of a Qualified SWPPP Practitioner (QSP).

Construction activity subject to a GCP includes clearing, grading and disturbances to the ground such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The SWPPP must contain a site map(s) showing the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the proposed Project. The SWPPP must list BMPs the discharger would use to protect storm water runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the Federal Clean Water Act section 303(d) list for sediment.

In the Colorado River Basin Region, where the Project resides, the SWRCB is the permitting authority, while the County of Imperial and RWQCB-7 provide local oversight and enforcement of the General Construction Permit (GCP).

SWRCB Phase II MS4 Permit

In 2003, the SWRCB issued the Phase II regulations concerning Small Municipal Storm Sewer Systems (MS4) (Water Quality Order No. 2003-0005-DWQ). This NPDES permit (MS4 Permit was issued by the State of California to all qualifying municipalities and agencies that operate a storm drain system and meet certain size criteria for MS4 system discharges into Waters of the United States (WUS). Pursuant to the MS4 Permit, dischargers are required to develop a Stormwater Management Plan (SWMP) and enroll in the program. The County of Imperial has enrolled in the MS4 Permit, but does not have specific storm water related criterion for new development, related to the NPDES Program. If and when the County does develop said criterion, new development projects will be required to comply with the provisions set forth by the County of Imperial.

Water Quality Control Plan Colorado River – Region 7

The Water Quality Control Plan - Colorado River Basin Plan (Basin Plan) was prepared by the RWQCB-7, and establishes beneficial uses in the Colorado River Basin. The Basin Plan also identifies water quality objectives that protect the beneficial uses of surface water and groundwater; describes an implementation plan for water quality management in the Colorado River Region; and describes measures designed to ensure compliance with statewide plans and policies. Overall, the Basin Plan provides comprehensive water quality planning in Region 7 which encompasses all of Imperial County as well as portions of San Bernardino, Riverside and San Diego Counties (RWQCB-7 2006).

Clean Water Act (CWA) Section 303(d)

Section 303(d) of the CWA deals with Water Quality Standards and Implementation Plans. Specifically, section (d) addresses the stringency of effluent limitations for state waters and whether the limitations are stringent enough to implement any water quality standard applicable to such waters. Section 303(d) requires each state to establish a priority ranking for such waters taking into account the severity of the pollution and the uses to be made of such waters. In addition, Section 303(d) requires each state to identify those waters or parts thereof within its boundaries for which controls on thermal discharges under Section 301 are not stringent enough to assure protection and propagation of a balanced indigenous population of shellfish, fish and wildlife. For the specific purpose of developing information, each state shall identify the total maximum daily load with seasonal variations and margins of safety for those pollutants which the Administrator identifies under section 204(a)(2) as suitable for such calculation and for thermal discharges at a level that would assure protection and propagation of a balanced indigenous population of fish, shellfish and wildlife. Section 303(d) also identifies Limitations on Revision of Certain Effluent Limitations and addresses instances where the standard is Not Attained as well as instances where the Standard is Attained.

Clean Water Act (CWA) Section 401

Section 401 of the CWA, water quality certification, provides states and authorized tribes with an effective tool to help protect water quality, by providing an opportunity to address the aquatic resource impacts of federally issued permits and licenses. Under Section 401, a federal agency cannot issue a permit or license for an activity that may result in a discharge to waters of the U.S. until the state or tribe where the discharge would originate has granted or waived section 401 certification. The central feature of CWA section 401 is the state or tribe's ability to grant, grant with conditions, deny or waive certification. Granting certification, with or without conditions, allows the federal permit or license to be issued consistent with any conditions of the certification. Denying certification prohibits the federal permit or license from being issued. Waiver allows the permit or license to be issued without state or tribal comment. States and tribes make their decisions to deny, certify, or condition permits or licenses based in part on a proposed project's compliance with EPA-approved water quality standards. In addition, states and tribes consider whether the activity leading to the discharge will comply with any applicable effluent limitations guidelines, new source performance standards, toxic pollutant restrictions, and other appropriate requirements of state or tribal law.

Clean Water Act (CWA) Section 404

CWA Section 404 establishes a program to regulate the discharge of dredged and fill material into waters of the United States (WUS), including wetlands. Responsibility for administering and enforcing Section 404 is shared by the U.S. Army Corps of Engineers (USACE) and EPA. USACE administers the day-to-day program, including individual permit decisions and jurisdictional determinations; develops policy and guidance; and enforces Section 404 provisions. EPA develops and interprets the environmental criteria used in evaluating permit applications, identifies activities that are exempt from permitting, review/comments on individual permit applications, enforces Section 404 provisions, and has authority to veto USACE permit decisions. With EPA approval and oversight, states and tribes can assume administration of the Section 404 permit program in certain "non-navigable' waters within their jurisdiction.

NPDES General Industrial and Construction Permits

The NPDES General Industrial Permit requirements apply to the discharge of storm water associated with industrial sites. The permit requires implementation of management measures that will achieve the performance standard of the best available technology economically achievable and best

conventional pollutant control technology. Under the statue, operators of new facilities must implement industrial BMP's in the projects' Storm water Pollution Prevention Pan (SWPPP) and perform monitoring of storm water discharges and unauthorized non-storm water discharges. Construction activities are regulated under the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit), which covers storm water runoff requirements for project where the total amount of ground disturbance during construction exceeds one acre. Coverage under General Construction Permit requires a preparation of a SWPPP and submittal of a Notice of Intent (NOI) to comply with the General Construction Permit. The SWPPP includes description of BMP's to minimize the discharge of pollutants from the sites during construction. Typical BMP's include temporary soil stabilization measures (e.g., mulching and seeding), storing materials and equipment to ensure that spills or leaks cannot enter the storm drain system or storm water, and using filtering mechanisms at drop inlets to prevent contaminants from entering storm drains. Typical post-construction management practices include street sweeping and cleaning storm water drain inlet structures. The NOI includes site specific information and the certification of compliance with the terms of the General Construction Permit (HDR 2012).

California Toxic Rule

Under the California Toxic Rule (CTR), the USEPA has proposed water quality criteria to priority toxic pollutants for inland surface waters, enclosed bays, and estuaries. These federally promulgated criteria create water quality standards for California waters. The CTR satisfies CWA requirements and protects public health and the environment. The USEPA and the SWRCB have the authority to enforce these standard, which are incorporated into the NPDES permits that regulate the current discharges in the study areas (HDR 2012).

C. LOCAL

Imperial County General Plan

The Imperial County General Plan contains goals, objectives, policies and programs created to ensure water resources are preserved and protected. **Table 4.11-1** identifies applicable General Plan goals, objectives, policies and programs from the Conservation and Open Space Element for water quality and flood hazards that are relevant to the Project. In addition, one policy and two programs from the Water Element that directly relate to the Project are also analyzed. While this EIR analyzes the Project's consistency with the General Plan pursuant to CEQA Guidelines Section 15125(d), the Imperial County Board of Supervisors ultimately determines consistency with the General Plan.

TABLE 4.11-1
IMPERIAL COUNTY GENERAL PLAN CONSISTENCY ANALYSIS

General Plan Goals and Objectives	Consistent with General Plan?	Analysis
CONSERVATION AND OPEN SPACE ELEMENT		
Preservation of Water Resources		
Goal 8 The County will conserve, protect, and enhance the water resources in the planning area.	Yes	The proposed Project would protect water quality during construction through compliance with Imperial County design and detention requirements and the NPDES GCP, as well as preparation and implementation of Project-specific SWPPP(s), which will incorporate the requirements referenced in in

TABLE 4.11-1
IMPERIAL COUNTY GENERAL PLAN CONSISTENCY ANALYSIS

General Plan Goals and Objectives	Consistent with General Plan?	Analysis
		the State Regulatory Framework, design features, and BMPs.
Objective 8.4 Ensure the use and protection of the rivers and other waterways in the County. Ensure proper drainage and provide accommodation for storm runoff from urban and other developed areas in manners compatible with requirements to provide necessary agricultural drainage.	Yes	To ensure proper drainage and accommodate storm water runoff, the proposed Project would rely on existing drainage patterns coupled with proposed detention basins and shallow ponded basins. The *Conceptual Drainage Study and Storm Water Quality Analysis* (Fuscoe 2014) confirmed the adequacy of drainage for the proposed Project. Proposed detention basins and shallow ponding basins would be designed to meet County of Imperial Requirements. Final limits of the detention basins and shallow ponding would be determined during final design, subject to review and approval by the County. Therefore, the proposed Project would be consistent with this objective.
Objective 8.5 Protect and improve water quality and quantity for all water bodies in Imperial County.	Yes	The proposed Project would protect water quality during construction through compliance with the NPDES GCP, SWPPP, and BMPs. Design features and BMPs have also been identified to address water quality for the Project as described below in Section 4.11.3, Impacts and Mitigation Measures. For example, each CUP owner would be required to file a NOI to comply with the NPDES GCP during construction of the Full Build-out Scenario. Water quantity would be maintained for the proposed Project by retaining the majority of the solar field site parcels with pervious surfaces. Temporary conversion of the solar field site parcels from agricultural uses to a solar generation facility may also improve runoff quality by eliminating use of fertilizers and pesticides. Even if the proposed Project does not improve water quality and quantity as anticipated, it will protect existing conditions and satisfy County requirements. Therefore, the proposed Project would be consistent with this objective.

TABLE 4.11-1
IMPERIAL COUNTY GENERAL PLAN CONSISTENCY ANALYSIS

General Plan Goals and Objectives	Consistent with General Plan?	Analysis
Policy: The County shall establish a program to identify open space necessary for the protection of public health and safety, such as floodplains, geologic risk areas, and airport flight zones, and maintain these areas in open space, agriculture, or other appropriate low intensity uses.	Yes	The Project would comply with County, State and Federal requirements in regard to preservation of open space necessary for the protection of public health and safety. Two site-specific Phase I Environmental Site Assessments (AECOM 2013b and 2013c), Preliminary Geological and Geotechnical Evaluation Report (LandMark 2014a), and *Conceptual Drainage Study and Stormwater Quality Analysis* (Fuscoe 2014) were prepared for the proposed Project. These studies identify potential health and safety risks associated with flooding and geologic conditions present at the solar field site parcels, and provide measures to address issues pertinent to solar field site parcels conditions, as discussed below under Section 4.11.3, Impacts and Mitigation Measures. In addition to mandatory regulatory compliance, the Project would be required to comply with all recommendations and mitigation measures contained in these technical studies and in this EIR. Therefore, the Project would comply with this policy.
Program: Structural development normally shall be prohibited in the designated floodways. Only structures which comply with specific development standards should be permitted in the floodplain.	Yes	The majority of the proposed solar field site parcels are located in Flood Zone "X" (Refer to **Figures 4.11-2a thru 4.11-2d**). Zone "X" is defined by the FEMA as areas determined to be outside of the 0.2 percent annual chance floodplain. However, a portion of the solar field site parcels (CUP 13-0042 [APN052-170-014]; CUP 13-0045 [APN 052-350-020]; CUP 13-0046 [052-350-001, -003, and -004]; and CUP 13-0047 [052-360-008, -009, and 052-410-006]) are located in Flood zone "A," defined by FEMA as areas subject to inundation by the one percent annual chance flood event (Fuscoe 2014, p. 2). The Project would avoid placement of structures within Flood Zone "A." However, should the placement of structures within Flood Zone "A" be required, compliance with mitigation measure MM 4.11.1 would ensure the

TABLE 4.11-1
IMPERIAL COUNTY GENERAL PLAN CONSISTENCY ANALYSIS

General Plan Goals and Objectives	Consistent with General Plan?	Analysis
		structures are located above 100-year flood levels. Therefore, the proposed Project would be consistent with this Program.
WATER ELEMENT		
Protection of Water Resources from Hazardous Materials		
Policy: Adoption and implementation of ordinances, policies, and guidelines which assure the safety of County ground and surface waters from toxic or hazardous materials and/or wastes.	Yes	The Project would preserve ground and surface water quality from hazardous materials and wastes during construction, operation and decommissioning activities. The proposed Project would protect water quality during construction through compliance with NPDES GCP, SWPPP, which will incorporate the requirements referenced in the State Regulatory Framework and BMPs. Applicant proposed Measures/Project Design Features have also been identified to address water quality during Project operations. It is anticipated that Project decommissioning activities would be subject to similar or more stringent ground and surface water regulations in place at the end of each CUP or 30 years, whichever is later. Therefore, the proposed Project would comply with this policy.
Program: The County of Imperial shall make every reasonable effort to limit or preclude the contamination or degradation of all groundwater and surface water resources in the County.	Yes	A Conceptual Drainage Study and Stormwater Quality Analysis report has been prepared for the proposed Project (Fuscoe 2014). As noted under the analysis Objective 8.5 of the Conservation and Open Space Element (above), the Project includes Applicant proposed Measures/Project Design Features in addition to required compliance with a general NPDES permit and SWPPP during construction and with BMPs during operation. Compliance with these features would ensure Project-related application of herbicides and dust-suppressants would not be allowed to degrade ground and surface waters in the County. Finally, it is anticipated that Project decommissioning activities would be subject to similar or more stringent ground and surface water regulations in place at the end

TABLE 4.11-1
IMPERIAL COUNTY GENERAL PLAN CONSISTENCY ANALYSIS

General Plan Goals and Objectives	Consistent with General Plan?	Analysis
		of each CUP or 30 years, whichever is later. Therefore, the proposed Project would not significantly contaminate ground or surface waters. Temporary conversion of the solar field site parcels from agricultural uses to a solar generation facility may improve runoff quality by eliminating use of fertilizers and pesticides. Therefore, the proposed Project would be consistent with this program.
Program: All development proposals brought before the County of Imperial shall be reviewed for potential adverse effects on water quality and quantity, and shall be required to implement appropriate mitigation measures for any significant impacts.	Yes	No adverse effects on water quality are anticipated in association with implementation of the proposed Project. The Project would comply with applicable County, Imperial County Air Pollution Control District (ICAPCD), Imperial Irrigation District (IID) and SWRCB requirements regarding water quality and quantity. The Project would also implement mitigation measures MM 4.11.1a, MM 4.11.1b, MM 4.11.1c, MM 4.11.1c, MM 4.11.4a, MM 4.11.4b, and MM 4.11.4c to ensure compliance with applicable regulations. Therefore, the proposed Project would be consistent with this program. Refer also to the analysis for Objective 8.5.

County of Imperial Land Use Ordinance, Title 9

Division 16 of Title 9 of the Land Use Ordinance addresses Flood Damage Prevention Regulation. The purpose of this division is to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provision of design to protect human life and minimize damage. Division 16 of Title 9 of the Land Use Ordinance requires an application for development in the floodplain to be submitted to the County's Floodplain Administrator. This division restricts floodplain uses; requires that floodplain uses be protected against flood damage; controls alteration of floodplains and stream channels; controls filling and grading in floodplains; and prevents diversion of flood flows where these would increase flood hazards in other areas.

Division 22 of Title 9 of the Land Use Ordinance addresses groundwater. The focus of this division is to preserve, protect and manage the groundwater within the County.

County of Imperial Engineering Design Guidelines Manual for the Preparation and Checking of Street Improvements, Drainage and Grading Plans within Imperial County

The *County of Imperial Engineering Design Guidelines Manual for the Preparation and Checking of Street Improvements, Drainage and Grading Plans within Imperial County* (Imperial County 2008d) provides drainage design standards for development throughout the County. Specific standards applicable to the Project include:

- Detention volume of 3 inches of rainfall with no assumed infiltration or evaporation for development of impervious areas. Detention basins are to empty within 72 hours after receiving water.
- Finished pad elevations for buildings shall be at or above the 100-year flood elevation. Finished floors shall be 6 inches above the 100-year flood.
- Drainage report required for all developments.

Imperial Irrigation District

IID's Water Department has been serving the Imperial Valley's water needs for 100 years. The district provides raw Colorado River water for irrigation and also for non-potable residential and industrial use. IID receives an average of 3.1 million acre-feet of water each year from the Colorado River. The Imperial Dam, located north of Yuma, Arizona, serves as a diversion structure for water deliveries throughout southeastern California, Arizona and Mexico. The operations of IID's River Division Office at Imperial Dam, as well as system wide water distribution, all fall under the direction of the United States Bureau of Reclamation (IID 2014).

Water diverted at Imperial Dam for use in the Imperial Valley first passes through one of three de-silting basins, used to remove silt and clarify the water. From the de-silting basins, water is then delivered to the Imperial Valley through the 80-mile long All-American Canal. To facilitate water delivery, IID operates more than 230 miles of main canals, 1,438 miles of canals and laterals, and 1,406 miles of drainage ditches in the Imperial Valley. IID also maintains approximately 1,456 miles of drainage ditches used to collect surface runoff and subsurface drainage from the 32,227 miles of tile drains underlying 426,202 acres of farmland. Most of these drainage ditches ultimately discharge water into either the Alamo River or the New River (IID 2014).

Three main canals, East Highline, Central Main and Westside Main, receive water from the All-American Canal and are used to deliver water to many canals that exist throughout the Imperial Valley. Farmers then divert water directly from these canals to irrigate approximately 479,000 acres of farmland within IID's boundaries. Another important component of IID's distribution system is the seven regulating reservoirs and three interceptor reservoirs that have a total storage capacity of more than 3,300 acre-feet (AF) of water (IID 2014).

As a part of its operating system, IID maintains an extensive gravity flow drainage system. The lateral drain system is laid out to provide a drainage outlet for each governmental subdivision of approximately 160 acres and, as such, the drains usually parallel the canals. There are over 1,456 miles of surface drains that can be divided into three main areas: Alamo River System, New River System and drains that flow directly into the Salton Sea. Approximately 430 control structures are installed along the drainage system. The IID is obligated to provide its drains at sufficient depth (generally 6 to 10 feet deep) to accept tile drain discharge. Where the drain cannot be maintained at sufficient depth, a sump and pump are provided and maintained by IID. These drains are used to collect excess surface flow (tailwater) from agricultural fields, subsurface tile discharges and operational discharge from canals and laterals (IID 2014).

4.11.2 ENVIRONMENTAL SETTING

Information contained in this section is summarized from the *Wistaria Ranch Conceptual Drainage Study and Storm Water Quality Analysis* (Fuscoe 2014).

4.11 HYDROLOGY AND WATER QUALITY

A. SOLAR ENERGY CENTER

Hydrologic Setting

The solar field site parcels are located in the Brawley Hydrologic Area (HA) of the Imperial Hydrologic Unit (HU) within the Salton Sea Watershed in the Colorado River region (Fuscoe 2014, p. 16). The Salton Sea Watershed encompasses an area of approximately 8,000 square miles that extends from San Bernardino County in the north to the Mexicali Valley (Republic of Mexico) in the south (**Figure 4.11-1**). The watershed includes vast acreages of agricultural land, towns such as El Centro, Calexico, and Brawley, along with a large network of IID operated canals and drains. The watershed is atypical of most watersheds in California, as it currently and historically has been shaped by man-made forces. The watershed's primary watercourses, the New River and Alamo River, flow north from the International Border with Mexico terminating at the Salton Sea. Created in 1905 through a routing mistake and subsequent flood on the Colorado River, the Salton Sea is a 376 square mile inland lake. Since 1905, the Sea has been fed primarily by agricultural runoff from the New and Alamo Rivers (Fuscoe 2014, p. 16).

Existing Hydrology/Drainage

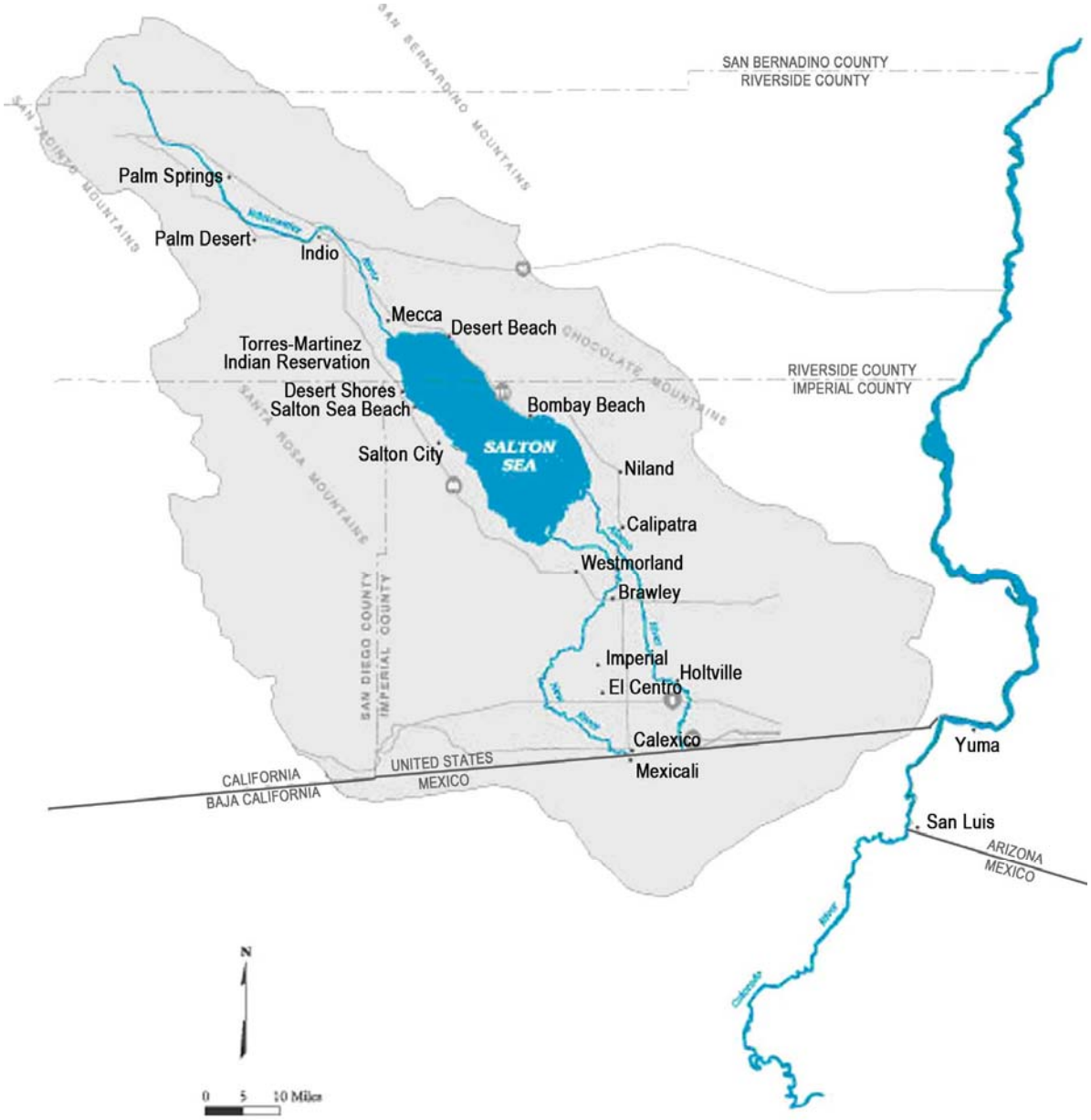
The solar field site parcels are comprised of land mostly under active agricultural cultivation void of any existing drainage basins. The perimeter of the solar field site parcels is surrounded by public roads, IID canals and drains. Based upon review of topography and the field investigation, it was determined that the only off-site flow that enters the solar field site parcels originates from adjacent paved and unpaved roads. No flow from the adjacent fields enters any of the project site parcels (Fuscoe 2014, p. 2).

On-Site Drainage

The solar field site parcels are currently agricultural land divided into individual fields by existing canals, drains, public roads, and private roads that have multiple discharge points to the various IID drains or the New River. As a result, the Project area is undeveloped, unpaved and highly pervious. Based on these characteristics, the majority of rainfall is usually absorbed by the soil, intercepted by subsurface tile drains, or percolates into the groundwater table. Current drainage patterns generally direct storm water runoff through the agricultural fields and convey all tributary storm water runoff via existing outlet structures to IID drains located throughout the solar field site parcels. Under existing conditions, two types of flow, agricultural and storm water are discharged to the IID drains through a combination of surface runoff collection and subsurface perforated tile drain collection (Fuscoe 2014, pp. 2-3).

The solar field site parcels are underlain by a network of perforated tile drains (typically clay pipes). This network of tile drains was installed by prior landowners (farmers) to collect runoff that percolates into the soil. Tile drains will only be removed if found to be in conflict with proposed septic leach field systems or permanent structures (such as the Substation, O&M building(s), Gen-Tie transmission poles, etc.). (Fuscoe 2014, p. 2).

IID facilities that accept flow from the solar field site parcels include the A.A. Drains No. 11 and No.13; Wistaria Drain, Wistaria Drains No. 5 and No. 7; Greeson Drain and Greeson No. 2 Drain and the spill from Wistaria Canal Lateral 4. Portions of the solar field site parcels discharge directly to the New River. **Table 4.11-2** identifies the proposed CUPs and corresponding APNs draining to each IID facility or the New River.



Source: DWR 2011.

FIGURE 4.11-1
SALTON SEA WATERSHED MAP

TABLE 4.11-2
IID FACILITIES OR NEW RIVER RECEIVING FLOW FROM PROPOSED CUPS

IID Facility Receiving Flow	CUP(s)	APN	Area (in acres)	County Storage (in AF)	100-Year Runoff (in AF)
New River	13-0044	052-440-006	409.9	102.5	38.6
	13-0045	052-350-020			
	13-0046	052-350-003 052-350-004			
	13-0047	052-360-008 052-360-009 052-410-006			
Wistaria Drain	Portion of 13-0037	052-180-028 052-180-039	76.5	19.1	7.2
Wistaria Drain #5	Portion of 13-0039	052-180-034[2] 052-180-054	612.2	153.2	57.8
	13-0040	052-180-015			
	13-0041	052-180-012			
	Portion of 13-0042	052-170-014 052-180-002			
	13-0043	052-350-021			
Wistaria Drain #7	13-0048	052-440-005	397.9	99.6	37.8
	13-0049	052-440-003 052-440-004			
Spill from Wistaria Lateral #4	13-0038	052-180-045	244.7	61.2	23.0
	Portion of 13-0039	052-180-034[1] 052-180-054			
Greeson Drain	Portion of 13-0037	052-180-028 052-180-039	639.6	160.0	60.1
	Portion of 13-0042	052-180-011 052-170-014 052-180-002 052-440-009			
	13-0051	052-210-020			
	Portion of 13-0052	052-210-020			
Greeson Drain #2	Portion of 13-0050	052-210-019	288.7	72.2	27.2
	Portion of 13-0036	052-210-026 052-210-029			
All American Drain #11	Portion of 13-0052	052-210-020	90.8	22.7	8.6
All American Drain #13	Portion of 13-0050	052-210-019	42.4	10.6	4.0

Source: Haaland 2014b; Fusco 2014 pp. 8 – 9.
Note: [1] According to Imperial County Planning and Development Services, the acreage of APN 052-180-034 is 82.16 acres; however, 5 acres will be retained by the landowner as an agricultural homesite and are not included in the total parcel or Project site acreage estimates shown in Table 2.0-1 in Chapter 2.0 Project Description.

Some of the IID facilities combine such that flow is ultimately conveyed from the solar field site parcels to Greeson Drain and New River. **Table 4.11-3** summarizes the CUPs and corresponding APNs associated with IID facilities that combine and ultimately convey flows to the Greeson Drain and New River. This table also identifies the CUPs and corresponding APNs that drain either directly or ultimately to the Greeson Drain.

TABLE 4.11-3
PROPOSED CUPS DRAINING TO THE NEW RIVER AND GREESON DRAIN

IID Facility Receiving Flow	CUP(s)	APN
New River[1]	13-0044	052-440-006
	13-0045	052-350-020
	13-0046	052-350-003 052-350-004
	13-0047	052-360-008 052-360-009 052-410-006
Greeson Drain[2]	13-0036	052-210-025 052-210-026 052-210-029 052-210-006
	13-0037	052-180-028 052-180-039
	13-0038	052-180-045
	13-0039	052-180-034[3] 052-180-054
	13-0040	052-180-015
	13-0041	052-180-012
	13-0042	052-180-011 052-170-014 052-180-002 052-180-001 052-440-009
	13-0043	052-350-021 052-350-022
	13-0048	052-440-005
	13-0049	052-440-003
		052-440-004
	13-0050	052-210-019
	13-0051	052-210-020
	13-0052	052-210-020

Source: Haaland 2014b.

Notes: [1] Denotes CUPs that drain to the New River.

[2] Denotes CUPs that drain directly or ultimately to the Greeson Drain.

[3] According to Imperial County Planning and Development Services, the acreage of APN 052-180-034 is 82.16 acres; however, 5 acres will be retained by the landowner as an agricultural homesite and are not included in the total parcel or Project site acreage estimates shown in Table 2.0-1 in Chapter 2.0 Project Description.

The Greeson Drain receives flows from the solar field site parcels either directly or through other drains. The Greeson Drain ultimately discharges to the New River approximately 1.6 miles north of the northernmost boundary of the northern CUP cluster. In addition, the New River also receives flow directly from the solar field site parcels.

Portions of the solar field site parcels are not adjacent to either an IID drain or the New River. These include CUPs 13-0038, 13-0039, 13-0044 13-0049 and a portion of 13-0048 (Haaland 2014b). These CUPs discharge either to existing ditches that convey runoff alongside existing roads or to underground storm drain pipe and ultimately discharge to an IID drain or the New River (Fuscoe 2014, p. 2).

Off-site Drainage

Surrounding roads, canals, and drains isolate the solar field site parcels from runoff generated from off-site land surrounding solar field site parcels. According to the Conceptual Drainage Study and Stormwater Quality Analysis, the only off-site flow that enters the solar field site parcels originates from adjacent paved and unpaved roads. Therefore, off-site runoff does not affect any of the solar field site parcels (Fuscoe 2014, pp. 2-3).

Existing Flooding

The solar field site parcels are located on Flood Insurance Rate Map (FIRM) community-panel number 06025C2050C and 06025C2075C, dated effective September 26, 2008. The majority of the solar field site parcels are located within FEMA flood hazard Zone "X." However, portions of the solar field site parcels (CUP 13-0042 [APN 052-170-014]; CUP 13-0045 [APN 052-350-020]; CUP 13-0046 [APNs 052-350-001, -003, and -004]; and CUP 13-0047 [APNs 052-360-008, -009, and 052-410-006]) bounded by the New River and Greeson Drain are within Zone "A" (see **Figures 4.11-2a thru 4.11-2d**). Flood Zone "X" is defined by FEMA as areas determined to be outside of the 0.2 percent annual chance of flooding. Zone "A" corresponds to areas subject to inundation by the one percent annual chance of flooding (Fuscoe 2014, p. 2).

Groundwater Hydrology

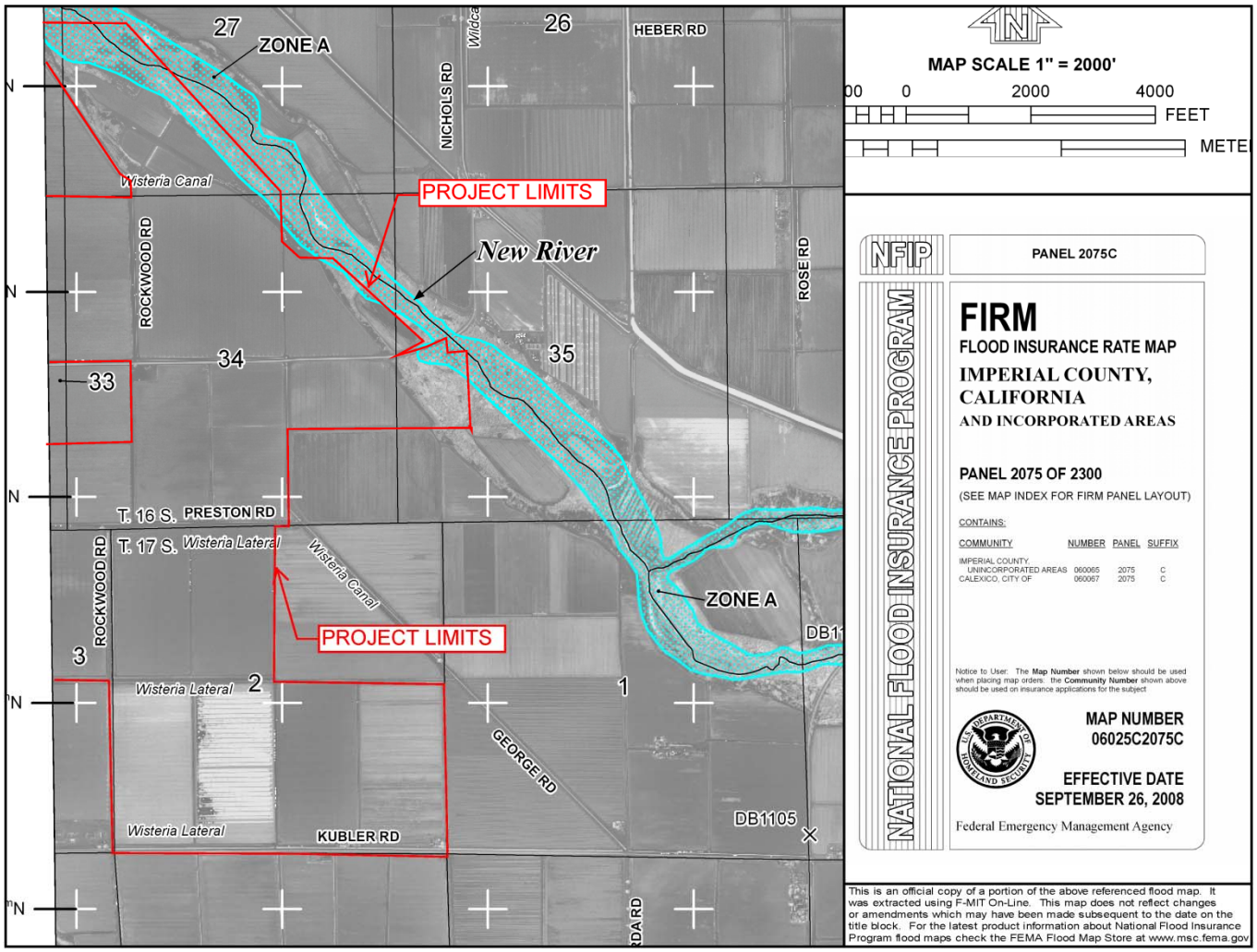
The solar field site parcels are located within the Imperial Groundwater Basin. The Imperial Valley Groundwater Basin is bounded on the east by the Sand Hills and on the west by the impermeable rocks of Fish Creek and the Coyote Mountains. To the north, the Imperial Groundwater Basin is bounded by the Salton Sea, which is the discharge point for groundwater in the basin. Major hydrologic features include the Alamo River and New River, both of which flow north towards the Salton Sea (Fuscoe 2014).

According to the *Preliminary Geotechnical and GeoHazards Report: Wistaria Ranch Solar Energy Center, Rockwood Road – Schaniel Road to All American Canal (International Border), Calexico, California*, (LandMark 2014a), groundwater in the Project vicinity is brackish and typically encountered at a depth of five to 10 feet below ground surface. As groundwater levels may fluctuate with precipitation, irrigation of adjacent properties, drainage, and site grading, reported groundwater depths do not represent a permanent condition (LandMark 2014a, p. 3).

Groundwater Quality

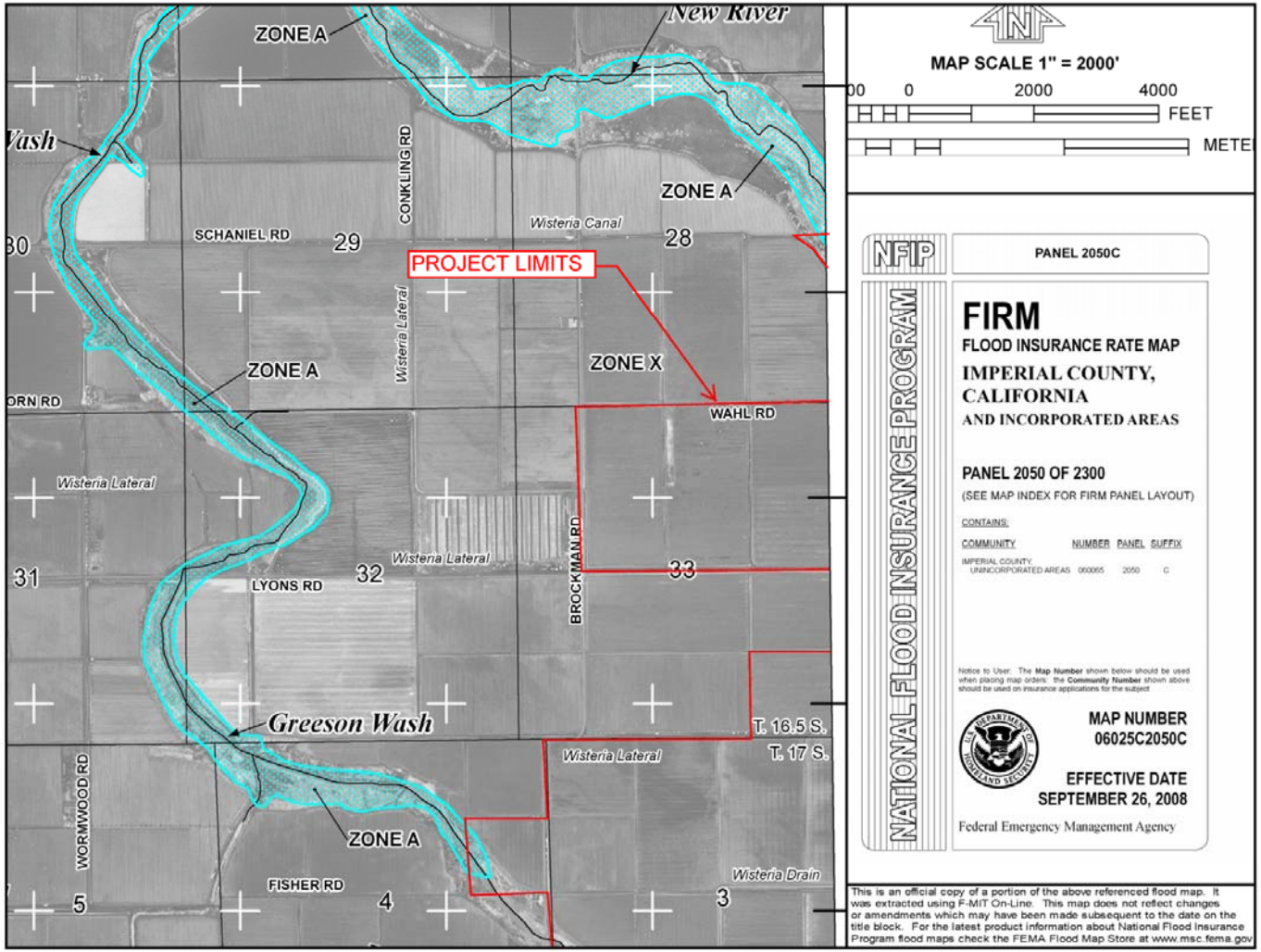
According to *Bulletin 118, California's Groundwater, Imperial Valley Groundwater Basin* (DWR 2004), water quality varies extensively throughout the Basin.

Approximately 7,000 acre-feet per year (AF/Y) of groundwater is estimated to recharge the Imperial Groundwater Basin from the New River which drains the Mexicali Valley (Republic of Mexico). This groundwater is related to surface flow from the highly polluted New River and negatively affects groundwater quality in the Basin (DWR 2004).



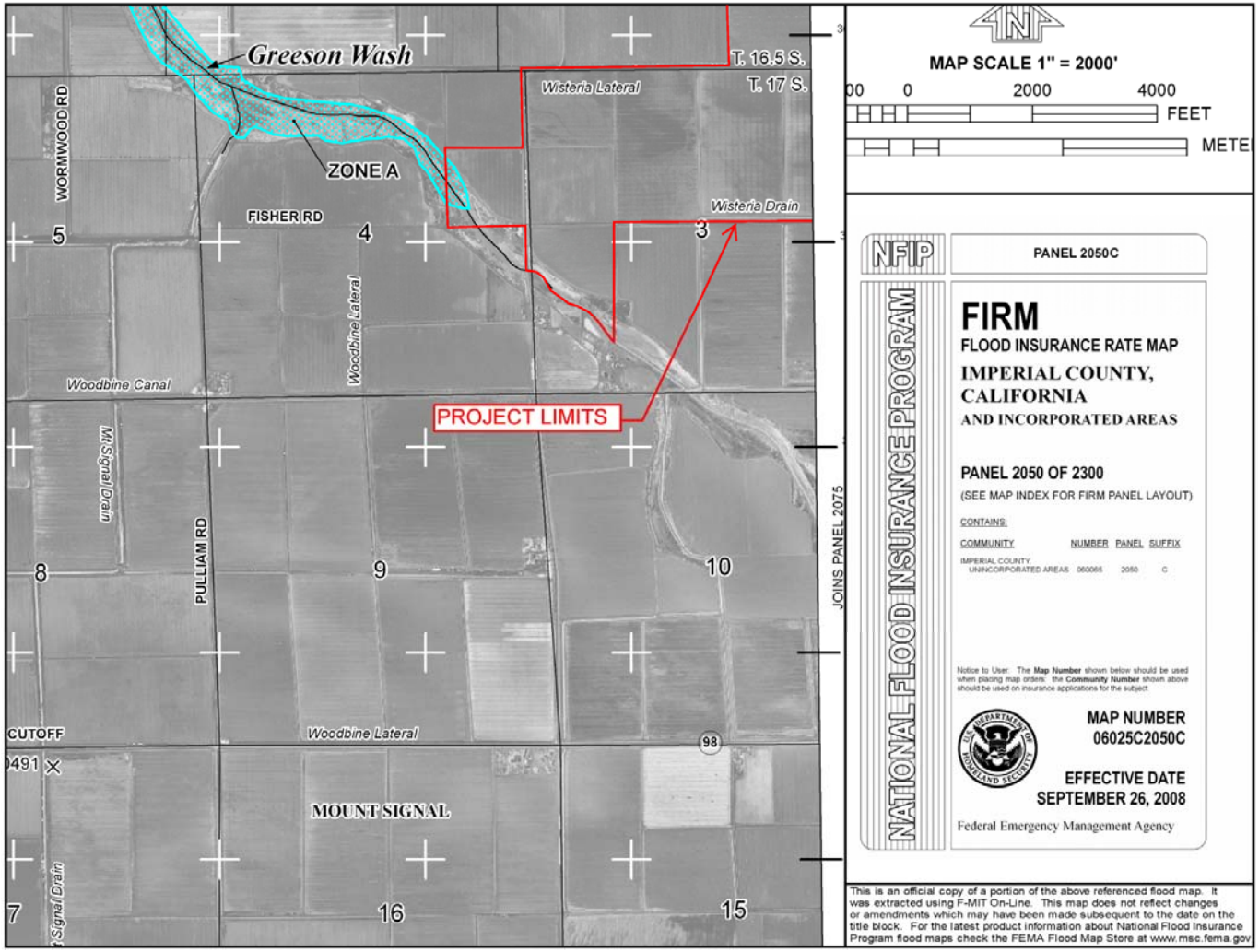
Source: FEMA 2008.

FIGURE 4.11-2A
FEMA MAP



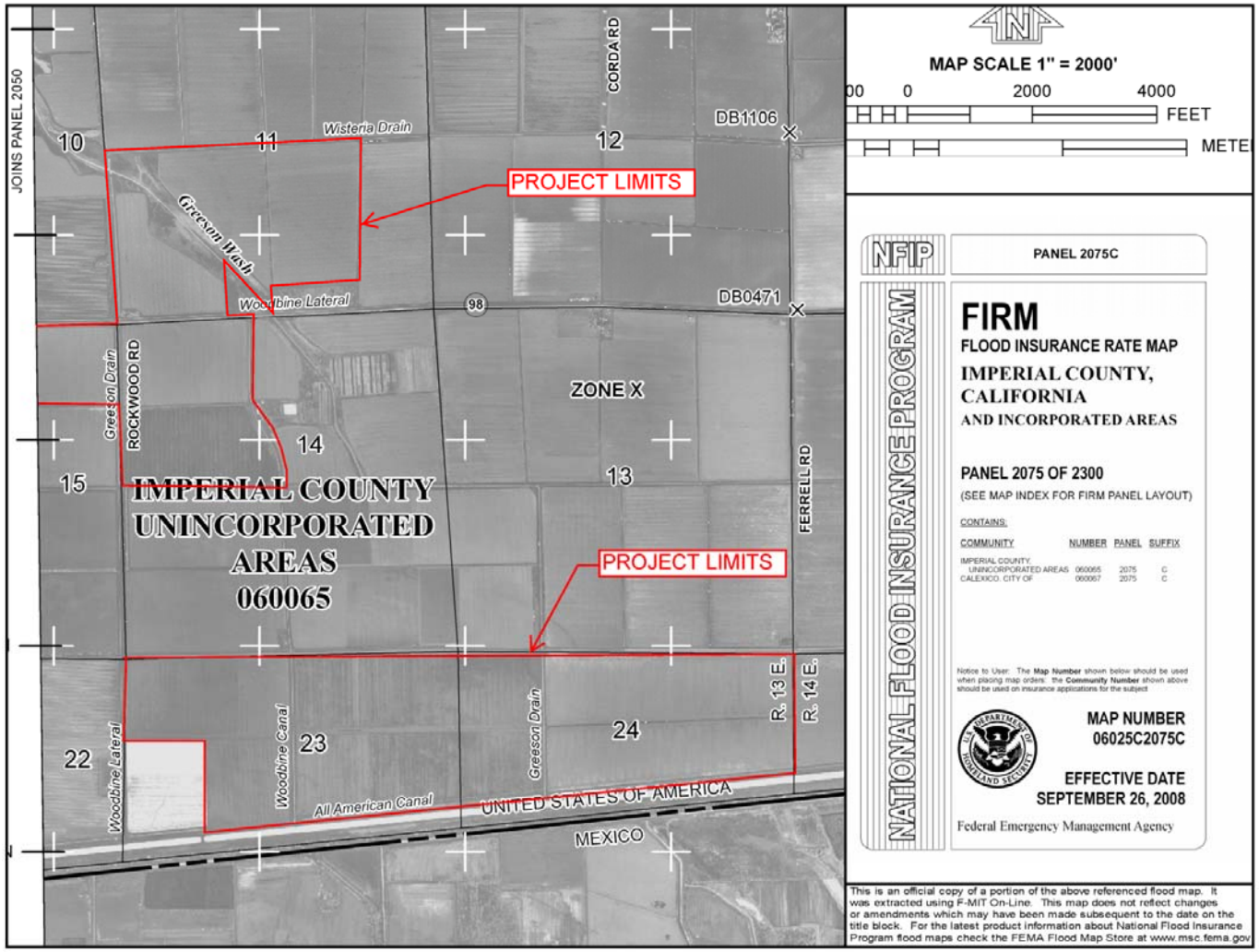
Source: FEMA 2008.

FIGURE 4.11-2B
FEMA MAP



Source: FEMA 2008.

FIGURE 4.11-2C
FEMA MAP



Source: FEMA 2008.

FIGURE 4.11-2D
FEMA MAP

Beneficial Uses

Beneficial uses of groundwater within the Imperial Hydrologic Unit include Municipal and Domestic Supply (MUN) and– Industrial Service Supply (IND). The MUN beneficial use for groundwater within the Imperial Hydrologic Unit is limited only to a small portion of the ground water unit. Within the Project area, groundwater is not used for municipal uses. Rather, all municipal and domestic water supply is obtained from IID canals. The IND beneficial use is defined as a use of water for industrial activities that do not depend on water quality (Fuscoe 2014, p. 22).

Impairments

In general, groundwater beneath the Imperial Valley Groundwater Basin is unusable for domestic and irrigation purposes without treatment. Total Dissolved Solids (TDS) content ranges from 498 to 7,280 milligrams per liter (mg/L) in the Basin. TDS values typically exceeding 2,000 mg/L are reported from a limited number of test wells drilled in the western part of the Basin. Groundwater in areas of the Imperial Valley Groundwater Basin has higher than recommended levels of fluoride and boron (DWR 2004).

Existing Water Quality

Surface Water Quality

Surface waters receiving storm water and agricultural runoff water from the solar field site parcels include Salton Sea, New River, and Imperial Valley Drains (Fuscoe 2014, p .16). **Table 4.11-4** summarizes the beneficial uses for the solar field site parcels receiving surface waters.

TABLE 4.11-4
BENEFICIAL USES OF PROJECT SITE PARCELS RECEIVING SURFACE WATERS

Beneficial Use/Receiving Surface Water	Imperial Valley Drains[1]	New River	Salton Sea
AQUA- Aquaculture			X
FRSH – Freshwater Replenishment	X	X	
IND- Industrial Service Supply (potential)		X	X
REC I – Water Contact Recreation (unauthorized, infrequent fishing activity)	X	X	X
REC II – Non-Contact Water Recreation (unauthorized)	X	X	X
WARM – Warm Freshwater Habitat	X	X	X
WILD – Wildlife Habitat	X	X	X
RARE – Preservation of Rare, Threatened or Endangered Species	X	X	X

Source: Fuscoe 2014; RWQCB-7 2006.

[1] Beneficial uses for the Imperial Valley Drain system are broadly based considering the fact that many of the drains are open channel conveyance systems. Therefore beneficial uses may vary by drain.

Salton Sea

The Salton Sea is the major surface water feature in the Project vicinity, located approximately 25 miles northwest of the northernmost solar field site parcels boundary (APNs 052-360-008, 052-360-009, 052-410-006; CUP 13-0047), and excess surface water flows in the Project vicinity drain to the Salton Sea.

At approximately 35 miles long and 9 to 15 miles wide with approximately 360 square miles of water surface and 105 miles of shoreline, the Salton Sea is California's largest lake. The surface of the sea lies approximately 232 feet below sea level. One of the major functions of the Salton Sea is to serve as a sump for agricultural wastewater for the Imperial and Coachella Valleys. Executive Order of Withdrawal (Public Water Reserve No. 114, California No. 26), signed in 1928, designated lands within the Salton Basin below elevation 220 feet below MSL as storage for wastes and seepage from irrigated lands in the Imperial Valley. Approximately 75 percent of the freshwater inflow to the Sea is agricultural drain water from Imperial Valley. As the Sea has no outlets, salts concentrate in it and nutrients increase the formation of eutrophic conditions. Currently, the Sea is 25 percent saltier than the ocean, with salinity increasing at approximately one percent per year (RWQCB-7 2014).

Imperial Valley Drains

The Imperial Valley agricultural drain system comprises over 1,450 miles of surface drains, which discharge into the Alamo River, the New River, and the Salton Sea. The drains primarily carry agricultural runoff from the Imperial Valley. Agricultural discharges in the Imperial Valley average about 830,000 AF/Y. Of this amount, approximately 36 percent is tailwater, 33 percent is seepage, and 30 percent is tilewater. The resulting mix of tailwater, tilewater, and seepage contains pesticides, nutrients, selenium, and silt in amounts that violate water quality standards (RWQCB-7 2014). The Imperial Valley drains are considered Freshwater by the RWQCB-7.

New River

The New River originates in Mexico and flows approximately 20 miles north through the City of Mexicali, to cross the International Boundary. From this point, the New River continues through the City of Calexico, California, and travels northward approximately 60 miles to terminate at the Salton Sea. The New Rivers flow at the International Boundary is approximately 150 to 200 cubic feet per second (cfs). (108,400 to 145,000 AF/Y). The New River carries urban runoff, untreated and partially treated municipal wastes, untreated and partially treated industrial wastes, and agricultural runoff from the Mexicali Valley in Mexico across the International Boundary into the United States. In addition, the River carries urban runoff, agricultural runoff, treated industrial wastes, and treated, disinfected and non-disinfected domestic wastes from the Imperial Valley. It also carries approximately 6 to 11 cfs (4,350 to 7,970 AF/Y) of treated wastewater from point sources in Imperial Valley (RWQCB-7 2014). The New River water is considered brackish by the RWQCB-7.

Impairments

Primary water pollutants of concern consist of those pollutants which are anticipated on-site at solar field site parcels, and are coupled with an existing impairment on surface waters downstream of the solar field site parcels. **Table 4.11-5** summarizes the primary pollutants of concern to surface waters receiving runoff from the solar field site parcels, as identified in the CWA section 303(d) Impaired Waters list.

TABLE 4.11-5
PRIMARY POLLUTANTS OF CONCERN TO SURFACE WATERS RECEIVING RUNOFF FROM THE PROJECT SITE PARCELS

Primary Pollutants of Concern	Specific 303(d) Impairment
Sediment	Sedimentation/Siltation
Heavy Metals	Arsenic, Copper, Mercury, Selenium, Zinc
Oxygen Demanding Substances	Organic/Low DO

TABLE 4.11-5
PRIMARY POLLUTANTS OF CONCERN TO SURFACE WATERS RECEIVING RUNOFF FROM THE PROJECT SITE PARCELS

Primary Pollutants of Concern	Specific 303(d) Impairment
Trash and Debris	Trash
Organic Compounds	PCBs
Nutrients	Nutrients
Sediment	Sedimentation/Siltation

Source: Fuscoe 2014, p. 21.

Pollutants identified in **Table 4.11-5** are defined as follows:

Sediment: Sediment can result from erosion during storm events, as well as from dust generated by wind erosion and vehicular traffic. Sediments increase the turbidity of the receiving waters, and have the potential to adversely impact aquatic species (Fuscoe 2014, p. 21).

Heavy Metals: The primary sources of metals in storm water are metals typically used in transportation, buildings, infrastructure, paints, fuels, adhesives and coatings. Copper, lead, and zinc are the most prevalent metals typically found in urban runoff. Other trace metals, such as cadmium, chromium, manganese, and mercury are typically not detected in urban runoff or are detected at very low levels. Trace metals have the potential to cause toxic effects on aquatic life and are a potential source of groundwater contamination (Fuscoe 2014, p. 21).

Oxygen Demanding Substances: Plant debris, food waste, and some chemical wastes fall into a category of water pollutants known as oxygen demanding substances. Such substances use dissolved oxygen in water during decay or chemical reactions. If dissolved oxygen levels in water become too low, aquatic animals can become stressed or die. Animal wastes, food wastes, leaves and twigs, and other miscellaneous organic matter carried by storm water runoff into surface water can lead to reduced oxygen levels. Slow-moving waters are particularly susceptible to oxygen depletion because aeration of the water by turbulence is lacking. Therefore, oxygen that is depleted in slow-moving waters due to the presence of excess organic matter or unnatural chemical compounds is not replaced. Reduced oxygen levels in these waters are often particularly severe after a storm (Fuscoe 2014, p. 21).

Trash and Debris: Improperly disposed or handled trash such as paper, plastics and debris including biodegradable organic matter such as leaves, grass cuttings, and food waste can accumulate on the ground surface where it can be entrained in urban runoff. A large amount of trash and debris can have significant negative impacts on the recreational value of water body. Excessive organic matter can create a high biochemical oxygen demand in a stream and lower its water quality (Fuscoe 2014, p. 21).

Organic Compounds: Organic compounds are carbon-based, and are typically found in pesticides, solvents, and hydrocarbons. Dirt, grease, and other particulates can also adsorb organic compounds in rinse water from cleaning objects, and can be harmful or hazardous to aquatic life either indirectly or directly (Fuscoe 2014, p. 21).

Nutrients: The primary sources of nutrients in storm water are fertilizers. Nitrogen and phosphorus are the most prevalent nutrients typically found in urban runoff. Failing septic tanks are also potential sources of nutrients in runoff (Fuscoe 2014, p. 21).

B. Electric Collector Line Corridor

The proposed Electric Collector Line Corridor would be a separate utility line corridor located outside of proposed Project CUPs. The Electric Collector Line Corridor would collect power from electric lines within each CUP area to connect them to the Mount Signal Solar Farm Gen-Tie line. Eighteen new poles would be required within the Electric Collector Line Corridor. Each CUP area is anticipated to use a proposed main Project switchyard; however, each CUP may independently construct a 230-kilovolt (kV) step-up transformer and switchyard. Analysis of potential hydrology/water quality impacts particular to Project-specific improvements within the Electric Collector Line corridor are broken out where applicable in Section 4.11.3, Impacts and Mitigation Measures, below. However, analysis for proposed solar energy uses has already been conducted for the Electric Collector Line Corridor in conjunction with CEQA review for other neighboring solar energy projects. As such, the discussion of potential hydrology and water quality impacts focuses primarily on the solar field site parcels. Regional settings such as hydrological setting and surface waters described for the proposed Project would also apply to the Electric Collector Line Corridor.

C. Mount Signal Solar Farm Gen-Tie

The existing Gen-Tie structures constructed by the Mount Signal Solar Farm Project align through and adjacent to lands that have been permitted for solar energy projects. Environmental analysis under both CEQA and NEPA (for portions on BLM land) have already been completed for these portions of the Gen-Tie alignment as a part of the previously-approved and permitted solar projects. As such, the discussion of potential hydrology and water quality impacts focuses primarily on the solar field site parcels. Regional settings such as hydrological setting and surface waters described for the proposed Project would also apply to the Mount Signal Solar Farm Gen-Tie line corridor.

4.11.3 Impacts and Mitigation Measures

A. Standards of Significance

The impact analysis provided below is based on the following CEQA Guidelines, as listed in Appendix G. The Project would result in a significant impact to hydrology and water quality if it would result in any of the following:

a) Violate any water quality standards or waste discharge requirements.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.

d) Substantially alter the existing drainage patterns of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.

e) Create or contribute runoff water, which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

f) Otherwise substantially degrade water quality.

g) Place housing within a 100-year flood hazard area as mapped on a Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

h) Place within a 100-year flood hazard area structures which would impede or redirect the flood flows.

i) Expose people or structures to a significant risk of loss injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

j) Inundation by seiche, tsunami, or mudflow.

B. Issues Scoped Out as Part of the Initial Study

Several criteria were scoped out as part of the Initial Study. Criterion "f" was scoped out because the Project does not propose any features that would degrade water quality outside of those addressed under Criterion "a" (see discussion under Impact 4.11.1). No impact is identified for this issue area and it is not discussed further in this section.

Criterion "g" was scoped out because the Project does not propose any housing. Thus, no housing would occur within a floodplain and this issue is not discussed further in this section.

Criterion "i" was scoped out because there are no dams immediately upstream of the solar field site parcels. Therefore, dam breakage does not present a risk to any of the solar field site parcels (Fuscoe 2014, p. 36). No impact is identified for this issue area and it is not discussed further in this section.

Criterion "j" was scoped out because there are no bays or lakes within a two-mile radius of any of the solar field site parcels and the all of the solar field site parcels are over 100 miles from the Pacific Ocean. The northernmost boundary of the solar field site parcels is approximately 25 miles from the Salton Sea, which is the nearest large water body. Due to the distance, the Salton Sea does not pose a particularly significant danger of inundation from seiche or tsunami to the solar field site parcels. Further, the western-most boundary of the solar field site parcels is approximately seven miles from Mount Signal, which is the nearest significantly sloped landscape, located to the south in Mexico. None of the solar field site parcels are in any danger of inundation by mudflow, due to distance from sloped landscape that could cause a mudflow (Fuscoe 2014, p. 36). No impact is identified for seiche, tsunami or mudflow and these issues are not discussed further in this section.

C. Methodology

The analysis of impacts to hydrology and water quality were based on the results from the *Wistaria Ranch Conceptual Drainage Study and Storm Water Quality Analysis* (Fuscoe 2014) and the physical characteristics of the Salton Sea and its watershed. Comparisons and analysis were made between the quality and quantity of runoff generated from the solar field site parcels under existing conditions during a 100-year storm event to those anticipated upon implementation of the proposed Full Build-out Scenario or each individual CUP (13-0036 thru 13-0052) constructed as part of the Phased CUP Scenario and new portions of the Gen-Tie alignment. Groundwater is addressed based on information contained in the *Preliminary Geotechnical and GeoHazards Report: Wistaria Ranch Solar Energy Center, Rockwood Road – Schaniel Road to All American Canal (International Border), Calexico, California, LCI Project No. LE12184* (LandMark 2014a).

D. Project Impacts and Mitigation Measures

Violate Water Quality Standards or Waste Discharge Requirements

Impact 4.11.1 Implementation of the proposed Project would generate small amounts of runoff during construction, operation and decommissioning. Implementation of water quality BMPs

and compliance with applicable regulatory requirements would ensure the Project would not result in a violation of water quality standards or waste discharge requirements. Therefore, this impact is considered **potentially significant** without enforceable implementation of the water quality BMP and applicable regulatory requirements.

FULL BUILD-OUT SCENARIO/PHASED CUP SCENARIO

Construction

Construction of both the Full Build-out Scenario and Phased CUP Scenario would include site preparation, foundation construction, erection of major equipment and structures, installation of piping, electrical systems, control systems, and startup/testing. In addition, the construction of transmission lines, utility pole pads, conductors, and associated structures would be required (Fuscoe 2014, p. 22). **Table 2.0-3** of the Project Description identifies the equipment the Applicant anticipates using to complete construction of the Project.

Although the solar field site parcels are relatively flat, the large amount of potential disturbed area results in the potential for erosion/sediment issues. For the purpose of "worst case"/most conservative analysis, it is anticipated that approximately 100 percent of each solar field site parcels would be disturbed during Project construction activities. During construction, sedimentation and erosion could occur because of tracking from earthmoving equipment, erosion and subsequent runoff of soil, and improperly designed stockpiles. The utilization of proper erosion and sediment control BMPs is critical in preventing discharge to surface waters/drains. The Project proposes to employ a proper SWPPP (which will incorporate the requirements referenced under the State Regulatory Framework identified in subsection 4.11.1, B and discussed in more detail below) and practices to minimize any discharges in order to meet the Best Available Technology/Best Conventional Technology (BAT/BCT) standard set forth in the GCP (Fuscoe 2014, p. 22).

In addition to erosion and sedimentation, the use of materials such as fuels, solvents, and paints has the potential to impact surface water quality. Many different types of hazardous compounds would be used during the construction phase with proper containment being of high importance. Poorly managed construction materials can lead to the possibility for exposure of potential contaminants to precipitation. When this occurs, these visible and/or non-visible constituents become entrained in storm water runoff. If these materials are not intercepted or are left uncontrolled, the polluted runoff would otherwise freely sheet flow from the solar field site parcels to the IID drains or New River potentially cause pollution accumulation in the receiving waters (Fuscoe 2014, pp. 22-23).

Prior to beginning construction of both the Full Build-out Scenario and Phased CUP Scenario, a complete SWPPP would be prepared to demonstrate that the development of each CUP would comply with the GCP and associated local NPDES regulations. Also, in accordance with the GCP, a NOI for coverage of the both the Full Build-out Scenario and Phased CUP Scenario under the GCP would be filed with the SWRCB. The Waste Discharge Identification (WDID) Number would be issued both the Full Build-out Scenario and Phased CUP Scenario before any land disturbance may begin. If the Project is constructed as the Phased CUP Scenario, a NOI would be filed for each CUP or group of multiple CUPs (Fuscoe 2014, p. 24). Compliance with these requirements would be ensured through implementation of mitigation measures described below.

The SWPPP(s) would be implemented for both the Full Build-out Scenario and Phased CUP Scenario. The SWPPP(s) would fully describe BMPs that address pollutant source reduction and provide measures/controls necessary to mitigate potential pollutant sources. These would include, but are not

limited to: erosion controls; sediment controls; tracking controls; non-storm water management; materials and waste management; and good housekeeping practices. The SWPPP(s) would be prepared by a QSD and implemented for both the Full Build-out Scenario and Phased CUP Scenario under the review/direction of a QSP (Fuscoe 2014, p. 24). Compliance with these requirements would be ensured through implementation of mitigation measures described below.

The following water quality BMPs are proposed to be implemented during construction of both the Full Build-out Scenario and Phased CUP Scenario:

Non-Stormwater Management Control BMPs

Non-storm water discharges consist of all discharges from a municipal storm water conveyance which do not originate from precipitation events (i.e., all discharges from a conveyance system other than storm water). Non-storm water discharges also include illegal connection and dumping on construction sites, and vehicle equipment cleaning, fueling, and maintenance (Fuscoe 2014, p. 26). Construction activities at the solar field site parcels may involve the use of heavy equipment and hazardous materials as well as application of water for panel washing and dust control.

Paving, grinding, and dust control watering during construction of the Full Build-out Scenario and Phased CUP Scenario) would be classified as having potential for discharge of non-storm water pollutants. Adequate BMPs and protections would be in place at all times (Fuscoe 2014, p. 26).

Approved non-storm water management control BMPs that would be implemented for the proposed Project SWPPP(s) may include, but are not limited to the following (Fuscoe 2014, p. 26):

- NS-1 Water Conservation Practices
- NS-2 Dewatering Operations
- NS-3 Paving and Grinding Operations
- NS-4 Temporary Stream Crossing
- NS-5 Clear Water Diversion
- NS-6 IC/ID Detection and Reporting
- NS-7 Potable Water / Irrigation
- NS-8 Vehicle & Equipment Cleaning
- NS-9 Vehicle & Equipment Fueling
- NS-10 Vehicle & Equipment Maintenance
- NS-11 Pile Driving Operations
- NS-12 Concrete Curing
- NS-13 Concrete Finishing
- NS-14 Material Use Over Water
- NS-15 Demolition Over Water
- NS-16 Temporary Batch Plants

SWPPP-Approved Materials and Waste Management BMPs

Waste management consists of implementing procedural and structural BMPs for collecting, handling, storing and disposing of wastes generated by a construction project to prevent the release of waste materials into storm water discharges. Approved materials and waste management BMPs that would be implemented for the proposed Project SWPPP(s) may include, but are not limited to the following (Fuscoe 2014, pp. 26-27):

- WM-1 Material Delivery & Storage
- WM-2 Material Use

- WM-3 Stockpile Management
- WM-4 Spill Prevention and Control
- WM-5 Solid Waste Management
- WM-6 Hazardous Waste
- WM-7 Contaminated Soil
- WM-8 Concrete Waste
- WM-9 Sanitary / Septic Waste

SWPPP Monitoring Program

A monitoring program would also be included in the SWPPP(s) prepared for both the Full Build-out Scenario and Phased CUP Scenario that outlines storm event inspections throughout construction of all solar field site parcels, along with a sampling plan in accordance with the GCP. The monitoring program would be prepared by a QSD and implemented at all solar field site parcels under the review/direction of a QSP. The goals of the program would be: (1) to identify areas contributing to a storm water discharge; (2) to evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate, properly installed, and functioning in accordance with the terms of the GCP; and (3) whether additional control practices or corrective maintenance activities are needed. If a discharge is observed during these inspections, a sampling and analysis of the discharge would be required (Fuscoe 2014, p. 27).

Applicant-Proposed Materials and Waste Management BMPs

Materials and waste management BMPs proposed by the Applicant (see **Table 2.0-9** of the Project Description) during the construction of the Solar Energy Center Facilities, Electric Collector Line Corridor improvements, and Mount Signal Solar Farm Gen-Tie line upgrades (both the Full Build-out Scenario and Phased CUP Scenario) include delivery and storage of all materials with the potential to contaminate storm water runoff in designated areas with secondary containment measures (i.e., covered and bermed). Chemicals, drums, and bagged materials would be stored on pallets rather than directly on soil. Personnel would also be trained on the proper use of the materials. Further, staging areas would be located on-site. These areas would include construction yards that serve as field offices, reporting locations for workers, parking spaces for vehicles and equipment, and sites for material storage. Facilities would be fenced as necessary, and security guards would be stationed where needed. A temporary barrier around stockpiles would be installed and a cover provided during the rainy season. Spill cleanup procedures and kits would be made readily available near hazardous materials and waste. Solid wastes, such as trash and debris, would be collected on a regular basis and stored in designated areas. Concrete and paint washout areas would be installed and properly maintained (Fuscoe 2014, pp. 26-27).

Applicant-proposed materials and waste management BMPs would be incorporated into the Final Design Plans for both the Full Build-out Scenario and Phased CUP Scenario. Applicant proposed Measures/Project Design Features would also be incorporated into the SWPPP(s) prepared for both the Full Build-out Scenario and Phased CUP Scenario as applicable. Compliance with Applicant-proposed BMPs would be ensured through implementation of the measures described below as part of each CUP.

During construction of both the Full Build-out Scenario and the Phased CUP Scenario, soil erosion and sedimentation would be controlled by limiting drainage to detention basins and existing IID drains (Fuscoe 2014, p. 28). Further, the Project would be required to comply with mandatory County, ICAPCD, and SWRCB requirements regarding the filing for coverage under the NPDES GCP(s), implementation of SWPPP BMPs, implementation of measures contained in the ICAPCD, Rule 801-required Dust Control Plan(s), and Applicant proposed Measures/Project Design Features. However, the County, ICAPCD, and

SWRCB would require a means to ensure compliance with these regulations, design features, and BMPs. Therefore, soil erosion and sedimentation impacts occurring during construction would be **potentially significant** for both the Full Build-out Scenario and Phased CUP Scenario if there were not a means for enforcement. Applicant proposed Measures/Project Design Features are made enforceable as part of each CUP and the mitigation measures described below.

Upon implementation of recommended site design and source control measures, the provision of shallow ponding areas at each CUP area, and compliance with SWPPP/GCP requirements, runoff from both the Full Build-out Scenario and Phased CUP Scenario is not expected to adversely affect beneficial uses in downstream surface receiving waters (Fuscoe 2014, pp. 19, 33-34). However, the County and RWQCB must be able to monitor and confirm Project compliance with BMP, SWPPP and GCP requirements. Therefore, a **potentially significant** impact would occur relative to violating water quality standards and degrading surface water quality during construction of both the Full Build-out Scenario and Phased CUP Scenario. Compliance with these requirements would be ensured through implementation of measures described below.

Operation

Solar modules may be washed on a periodic basis if it be determined to be beneficial to the Project. Concentrated photovoltaic (CPV) panels are anticipated to be washed on a monthly basis while photovoltaic (PV) panels would be washed up to four times per year. Therefore, analysis based on water use for CPV panel washing would be considered the worst case/most conservative approach. Approximately 10 acre feet (AF) of the 60 AF of water required for operations and maintenance would be used for CPV panel wash water.

Panel washing activities (if they occur) are not anticipated to generate runoff or contain pollutants (e.g., grease, heavy metals) other than dust and perhaps trace amounts of pesticide drift that may have accumulated on the panels from neighboring parcels that are in active agricultural production. Any runoff from panel washing would evaporate or percolate through the ground, as a majority of the surfaces in the solar field would remain pervious.

The Project would be designed to include BMPs (source control BMPs and Treatment Control BMPs) as well as Project Design Features which would reduce runoff, and prevent water pollution associated with Project operations (Fuscoe 2014, p. 28). During operation, quality of runoff would also be controlled in accordance with County standards, such as implementation of a Dust Control Plan (Rule 801) (discussed further in Section 4.3, Air Quality). Proposed BMPs to be implemented during Project operations are discussed below.

Source Control BMPs

Source control BMPs (both structural and non-structural) include land use or site planning practices, or structures that aim to prevent urban runoff pollution by reducing the potential for contamination at the source of pollution. Source Control BMPs minimize the contact between pollutants and urban runoff. The following source control BMPs would be applicable to both the Full Build-out Scenario and the Phased CUP Scenario (Fuscoe 2014, pp. 28-29):

- Any outdoor trash storage areas would be designed not to allow run-on from adjoining areas, and would be screened or walled to prevent off-site transport of trash.
- Restrictions would be placed on activities that have the potential to create adverse impacts on water quality.

- Illegal dumping educational materials as well as spill response materials would be provided to employees.
- Material handling would be conducted in a manner as to prevent any storm water pollution.
- If required, the Project would prepare a Spill Prevention, Control, and Countermeasure (SPCC) Plan, and a Hazardous Materials Business Plan in accordance with Federal, State, or Local requirements.
- Employees would receive materials for storm water pollution prevention in the form of brochures and other information in a format approved by the County of Imperial.
- If any pesticide is required on-site, the need for pesticide use in the Project design would be reduced by keeping pests out of buildings using barriers, screens and caulking; use of physical pest elimination techniques, such as squashing, trapping, washing or pruning out pests; reliance on natural enemies to eat pests; and proper use of pesticides as a last line of defense.
- All vehicles would be serviced off-site whenever possible. If servicing is required onsite, it would be conducted in an area isolated from storm drain inlets or drainage ditch inlets. The area would be bermed and precluded from run-on. Any spillage would be fully contained and captured and disposed of per County of Imperial Hazardous Waste requirements.
- Materials would be disposed of in accordance with Imperial County Hazardous Material Management guidelines, and would be sent to appropriate disposal facilities. Under no circumstances would any waste or hazardous materials be stored outside without secondary containment.

In addition to the above-listed Source Control measures, specific precautions would be taken when handling, storing or processing any potentially hazardous materials during all phases of the proposed Project. The utmost care and planning would be taken when using potentially hazardous materials outside, and near any storm drain/drainage ditch inlets (Fuscoe 2014, p. 30)

Treatment Control BMPs

As discussed above, runoff from the Project would be directed towards on-site detention basins and/or shallow ponding areas to meet the County requirements for storage of three inches of runoff within the Project limits. Ultimate locations and limits of detention basins will be determined at the time of final engineering. The detention basin/ponding areas would either drain through infiltration into the underlying soils or through a connection to the IID drain system. Runoff from the Project would either be infiltrated or drain to the IID system within 72 hours. Precise drawdown times and outlet configurations would be determined during final engineering. The detention basins/ponding areas would also have the capacity to store and infiltrate runoff from the more frequent storm events, which typically lead to storm water quality concerns (Fuscoe 2014, p. 30).

Non-Stormwater Management Controls

Non-storm water discharges consist of all discharges from a municipal storm water conveyance which do not originate from precipitation events (i.e., all discharges from a conveyance system other than storm water). Non-storm water discharges also include vehicle equipment cleaning, fueling, and maintenance. Operations activities at the solar field site parcels may involve the use of heavy equipment and hazardous materials as well as application of water for panel washing and dust control. Dust control watering during construction of both the Full Build-out Scenario and the Phased CUP Scenario would be classified as having potential for discharge of non-storm water pollutants. Adequate BMPs and protections would be in place at all times (Fuscoe 2014, p. 26).

Further, each CUP property owner would be responsible for operation and maintenance of site design, source control, and treatment control BMPs. Each CUP property owner would also be responsible for long-term funding for BMP maintenance. In addition, the County of Imperial would require access to each CUP property for inspection through a formal agreement to ensure that each CUP property owner is properly carrying out the BMPs over the life of the Project. Compliance with these requirements would be ensured through implementation of measures described below.

Upon implementation of recommended site design and source control measures and the provision of shallow ponding areas, water quality exceedances are not anticipated. Pollutants within Project runoff are not expected to adversely affect beneficial uses in downstream receiving waters or groundwater. If the Phased CUP Scenario is implemented, each phase would be required to comply with a Project-site SWPPP (if available), or submit a SWPPP specific to each CUP (13-0036 thru 13-0052). Compliance with these requirements would be ensured through implementation of the mitigation measures described below. Therefore, the Project would result in a **potentially significant** impact to water quality during operation of both the Full Build-out Scenario and the Phased CUP Scenario (Fuscoe 2014, pp. 33-34).

Decommissioning

Decommissioning activities that could affect water quality at each CUP area include excavation and other earth-moving activities associated with the demolition, excavation, and removal of Project structures and solar panel foundations, as well as grading/soil improvement activities associates with the reclamation of the site for agricultural uses. Upon completion of decommissioning activities, the reintroduction of agricultural uses on the solar field site parcels has the potential to correlate with an increased use of pesticides to support agricultural uses. However, it is anticipated that at the end of each CUP or 30 years (whichever is later), similar or more stringent water quality regulations would be in place. Further, it is also anticipated that more advanced BMPs for the protection of water quality may be available at the time of decommissioning. As compliance with regulations in place at the time of decommissioning would be mandatory, it is anticipated that decommissioning for both the Full Build-out Scenario and the Phased CUP Scenario would result in a **less than significant** impact to water quality (Fuscoe 2014, p. 19; 34).

Mitigation Measures

FULL BUILD-OUT SCENARIO/PHASED CUP SCENARIO

MM 4.11.1a Prior to the issuance of building permits for, each CUP property owner shall file a NOI to comply with the GCP and associated local NPDES regulations with the SWRCB. Each CUP property owner shall also submit proof of filing the NOI to the Imperial County Planning and Development Services Department prior to the issuance of building permits for each CUP.

Timing/Implementation: *Prior to issuance of building permits.*
Enforcement/Monitoring: *Imperial County Planning and Development Services Department*.

MM 4.11.1b Prior to beginning construction, a complete SWPPP shall be prepared to demonstrate that the development of each CUP would comply with the GCP and associated local NPDES regulations. The SWPPP(s) shall be implemented for each CUP (13-0036 thru 13-0052). The SWPPP(s) shall fully describe BMPs that address pollutant source reduction and provide measures/controls necessary to mitigate potential pollutant sources. These include, but are not limited to: erosion controls; sediment controls; tracking controls; non-storm water management; materials and waste management; and good

housekeeping practices. The SWPPP(s) shall be prepared by a QSD and implemented for each CUP under the review/direction of a QSP.

A monitoring program shall be included in the SWPPP(s) prepared for each individual CUP that outlines storm event inspections throughout construction of all solar field site parcels, along with a sampling plan in accordance with the GCP. The monitoring program shall be prepared by a QSD and implemented at all solar field site parcels under the review/direction of a QSP. The goals of the program shall be: (1) to identify areas contributing to a storm water discharge; (2) to evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate, properly installed, and functioning in accordance with the terms of the GCP; and (3) whether additional control practices or corrective maintenance activities are needed. If a discharge is observed during these inspections, a sampling and analysis of the discharge shall be required.

Each CUP property owner shall submit a copy of the SWPPP(s) with to the County of Imperial Planning and Development Services Department prior to the issuance of building permits for each CUP.

Timing/Implementation: *Prior to issuance of building permits.*
Enforcement/Monitoring: *Imperial County Planning and Development Services Department*.

MM 4.11.1c Applicant proposed BMPs and design features shall be incorporated into the Final Design Plans for each CUP as applicable. Applicant proposed BMPs and design features shall also be incorporated into the SWPPP(s) prepared for each individual CUP (based on build-out phasing) as applicable.

Timing/Implementation: *Prior to issuance of building permits.*
Enforcement/Monitoring: *Imperial County Planning and Development Services Department*.

MM 4.11.1d Each CUP property owner shall be responsible for operation and maintenance of site design, source control, and treatment control BMPs. Each CUP property owner shall also be responsible for long-term funding for BMP maintenance. In addition, each CUP owner shall participate in a formal agreement with the County of Imperial allowing access to each CUP property for inspection to ensure that each CUP property owner is properly carrying out the BMPs over the life of the Project.

Timing/Implementation: *Prior to issuance of building permits/Throughout life of Project.*
Enforcement/Monitoring: *Imperial County Planning and Development Services Department*.

Significance after Mitigation

Upon implementation of Project-specific BMPs, compliance with County site design and detention requirements, and compliance with mitigation measures MM 4.11.1a, MM 4.11.1b, MM 4.11.1c, MM 4.11.1d and implementation of Dust Control Plan(s) (see Section 4.4, Air Quality), both the Full Build-out Scenario and the Phased CUP Scenario would result in a **less than significant** impact to water quality and would not violate water quality standards during construction, operation, and decommissioning activities (Fuscoe 2014, p. 19, 34).

Result in Depleted Groundwater Supplies or Interfere Substantially with Groundwater Recharge

Impact 4.11.2 Implementation of both the Full Build-out Scenario and the Phased CUP Scenario would not impact groundwater supply as the Project does not propose use of groundwater. During construction and decommissioning, there is a small potential for encountering groundwater while excavating for structure foundations or Gen-Tie footings. If groundwater is encountered, it would be contained locally in the vicinity of Gen-Tie pole locations and substation foundations. The CUP areas would largely remain pervious during Project operation. Therefore, impacts associated with depleting groundwater supplies or groundwater recharge are considered **less than significant**.

FULL BUILD-OUT SCENARIO/Phased CUP Scenario)

Construction

Potential construction activities that may require dewatering include excavation activities associated with the construction of footings and foundations for the Project substation at the proposed Project site, construction of new transmission poles within the Mount Signal Solar Farm Gen-Tie alignment, and overhead collection system poles within the Electrical Collector Line Corridor. The groundwater in the Project area is brackish and typically encountered at a depth of 5 to 10 feet below ground surface. There is uncertainty in the accuracy of short-term water level measurements, particularly in fine-grained soil. Groundwater levels may fluctuate with precipitation, irrigation of adjacent properties, drainage, and site grading (LandMark 2014a, p. 3). While the groundwater level noted should not be interpreted to represent an accurate or permanent condition, shallow groundwater levels and the potential need for dewatering will need to be considered during construction (especially with regard to deep drilled pier foundations for the Gen-Tie line). Dewatering associated with these portions of construction would be localized to transmission pole locations or the substation and would not result in a significant decrease in production rates of existing or planned wells. During the construction phase, a significant amount of construction dewatering is not expected to be required (Fuscoe 2014, p. 34). Any groundwater that is encountered would be pumped to the surface and discharged on site. It is anticipated that all groundwater discharges can be fully contained within the boundaries of each CUP either through infiltration at the soil surface or retained in the on-site detention basins/ponding areas at each CUP area. The Project does not propose the use of groundwater, or contain components that would adversely affect groundwater. As such, Project construction is not anticipated to result in a loss in beneficial uses of groundwater. Therefore, both the Full Build-out Scenario and the Phased CUP Scenario would result in a **less than significant** impact to groundwater quality during Project construction (Fuscoe 2014, p. 22).

The existing site grade and drainage of each solar field site parcels would be retained or improved as part of construction. Further, minimal storm drains would be constructed. The impervious areas would drain and be allowed to pond in the detention basins and/or ponding areas under the arrays. This would effectively limit all directly connected impervious areas (DCIAs) on the solar field site parcels (Fuscoe 2014, p. 28). Therefore, both the Full Build-out Scenario and each individual CUP (13-0036 thru 13-0052) would result in a **less than significant** impact to groundwater recharge during Project construction.

Operation

The Project does not propose the use of groundwater, or contain components that would adversely affect groundwater during operations. Groundwater at or near the Project area is not for beneficial uses such as municipal, domestic, or industrial supply. As such, the Project is not anticipated to result in a loss in beneficial uses of groundwater. In addition, the proposed Project does not involve application of hazardous materials that could percolate an affect groundwater quality. Any herbicides that may be

used to manage weeds and vegetation must be approved by the ICPDSD or the Agricultural Commissioner's Office. Therefore, a **less than significant** impact related to groundwater quality would occur during Project operations (Fuscoe 2014, p. 22).

Groundwater recharge in the Project area would not be significantly affected due to the fact that the majority of each CUP would feature a pervious landscape. Detention basins and shallow ponding areas would also provide infiltration and groundwater recharge. No pumping of groundwater is anticipated during Project operation. Further, water demand during operation of the Full Build-out Scenario and each individual CUP is expected to be much less than the needs of the existing agricultural land (Fuscoe 2014, p. 34). Therefore, both the Full Build-out Scenario and the Phased CUP Scenario would result in a **less than significant** impact to groundwater supply and recharge during Project operations.

Decommissioning

Decommissioning would result in the dismantling and removal of infrastructure constructed as part of the proposed Project and Electric Collector Line Corridor. Removal of Project structures and infrastructure would result in an increase in the amount of pervious surface each CUP and the Electric Collector Line Corridor. Groundwater may be encountered during the removal of footings and foundations for the Project substation or overhead collection system poles. Dewatering associated with removal of these structures would be localized to transmission pole locations or the substation and would not result in a significant decrease in production rates of existing or planned wells. Therefore, both the Full Build-out Scenario and the Phased CUP Scenario would result in a **less than significant** impact to groundwater quality and recharge during decommissioning.

Mitigation Measures

None required.

Significance after Mitigation

Not applicable.

Result in Substantial Erosion or Siltation On- or Off-site

Impact 4.11.3 Construction, maintenance, and decommissioning activities associated with the Full Build-out Scenario and Phased CUP Scenario would result in earth disturbance and potential for erosion and loss of top soil. This impact is considered **potentially significant**.

FULL BUILD-OUT SCENARIO/PHASED CUP SCENARIO

Construction

Soil erosion could result during construction of the proposed Solar Energy Center Facilities, Electric Collector Line Corridor improvements, and Mount Signal Solar Farm Gen-Tie line upgrades in association with grading and earthmoving activities. The solar field site parcels consist of agricultural land void of structures with the exception of IID and landowner irrigation facilities.

Most of the solar field site parcels would be disturbed by construction activities such as grading and clearing as a part of site preparation. To the extent feasible, site preparation would be planned and designed to minimize the amount of earth movement. Compaction of the soil to support building and traffic loads as well as the PV module supports may be required and is dependent on final engineering design. During construction, erosion would be controlled in accordance with County standards which include preparation, review and approval of a grading plan by the County Engineer; implementation of a Dust Control Plan (Rule 801) (discussed further in Section 4.3, Air Quality); and compliance with the NPDES GCP. Imperial County requires 100 percent detention of the runoff associated with the site, assuming zero percolation into the ground. The Project proposes on-site detention basins designed and

sized to capture storm water as if none of it would penetrate into the ground. Consequently, any erosion associated with storm water runoff would be captured in the on-site detention basins.

In addition, the Project would prepare a SWPPP in accordance with SWRCB requirements and incorporate approved erosion and sedimentation control BMPs and Applicant proposed design features as BMPs as described below and in **Table 2.0-9** of the Project Description:

Erosion Control BMPs

Erosion Control, also referred to as soil stabilization, is a source control measure designed to prevent soil particles from detaching and becoming transported in storm water runoff. Erosion Control BMPs protect the soil surface by covering and/or binding the soil particles. If implemented correctly, erosion controls can effectively reduce the sediment loads entrained in storm water runoff from construction sites. Approved erosion control construction BMPs that would be implemented for the proposed Project SWPPP(s) may include, but are not limited to the following (Fuscoe 2014, p. 25):

- EC-1 Scheduling
- EC-2 Preservation of Existing Vegetation
- EC-5 Soil Binders
- EC-6 Straw Mulch
- EC-7 Geotextiles and Mats
- EC-8 Wood Mulching
- EC-9 Earth Dikes and Swales
- EC-10 Velocity Dissipation Devices
- EC-11 Slope Drains

Erosion control BMPs proposed by the Applicant during construction of both the Full Build-out Scenario and the Phased CUP Scenario include minimizing the scheduling of soil disturbing activities during the wet season, from August 1 to October 1, and November 1 to May 1. If soil disturbing activities occur in the wet season, all exposed slopes or areas with loose soil would be stabilized. This may involve the application of soil binders, or geotextiles and mats. Due to the flat surface, creating temporary earth dikes or drainage swales may also be employed/installed prior to large, forecasted storm events to divert runoff away from exposed areas and into more suitable locations.

Sediment Control BMPs

Sediment controls are structural measures that are intended to complement and enhance the soil stabilization/erosion control measures and reduce sediment discharges from construction areas. Sediment controls are designed to intercept and filter out soil particles that have been detached and transported by the force of water. Approved construction sediment control BMPs that would be implemented for the proposed Project SWPPP(s) may include, but are not limited to the following (Fuscoe 2014, p. 25):

- SE-1 Silt Fence SE-7 Street Sweeping
- SE-2 Desilting Basin (Detention Basins) SE-8 Sandbag Barrier
- SE-3 Sediment Trap SE-9 Straw Bale Barrier
- SE-4 Check Dam SE-10 Chemical Treatment
- SE-5 Fiber Rolls SE-11 Chemical Treatment
- SE-6 Gravel Bag Berm

Sediment control BMPs proposed by the Applicant during construction of both the Full Build-out Scenario and the Phased CUP Scenario include installation of silt fencing along the perimeter of work areas upstream of discharge points, and around soil stockpiles and areas of soil disturbance. Check dams

or chevrons would be situated in areas where a high velocity runoff is anticipated. Gravel bag berms or fiber rolls would be used to intercept sheet flows on streets or at the toe of slopes (such as along streets or canal and drain access roads) to minimize sediment mobilization. Street sweeping would also be scheduled in areas where sediment can be tracked off site onto paved streets or roads (Fuscoe 2014, p. 25).

Tracking Control BMPs

Approved construction tracking control BMPs that would be implemented for the proposed Project SWPPP(s) may include, but are not limited to the following (Fuscoe 2014, p. 26):

- TC-1 Stabilized Construction Entrance/Exit
- TC-2 Stabilized Construction Roadway
- TC-3 Entrance/Outlet Tire Wash
- WE-1 Wind Erosion Control

Tracking control BMPs proposed by the Applicant throughout construction of both the Full Build-out Scenario and the Phased CUP Scenario include stabilization of all construction entrance/exit points to reduce the tracking of sediments onto paved streets and roads by construction vehicles. Construction roadways would also be stabilized to minimize off-site tracking of mud and dirt. Wind erosion controls would be employed in conjunction with tracking controls (Fuscoe 2104, p. 26).

Upon implementation of recommended erosion and sediment control measures, the provision of shallow ponding areas at each CUP area, and compliance with SWPPP requirements, erosion and sedimentation are not anticipated to occur as a result of construction of each individual CUPs. However, the County must be able to monitor and confirm Project compliance with applicable BMPs and regulatory requirements. Therefore, a **potentially significant** impact would occur relative to soil erosion and sedimentation during construction of both the Full Build-out Scenario and the Phased CUP Scenario. Compliance with these requirements would be ensured through implementation of measures as described below.

Operation

Increased precipitation can result in increased runoff. However, the generally flat topography of the solar field site parcels combined with a low average annual precipitation for the area would reduce the likelihood of substantial erosion and loss of topsoil during Project operations. Daily operations and routine maintenance (such as occasional PV panel washing) are not anticipated to increase erosion. During operational activities, soil erosion and sedimentation throughout the solar energy center, Electrical Collector line Corridor, and Mount Signal Solar Farm Gen-Tie alignment would be controlled in accordance with NPDES GCP(s) and Project-specific SWPPP(s) prepared for the Full Build-out Scenario, multiple CUPs or each individual CUP (if the Project is constructed as the Phased CUP Scenaro), as applicable. However, the County must be able to monitor and confirm Project compliance with applicable BMPs and regulatory requirements. Therefore, potential soil erosion impacts occurring during operation of both the Full Build-out Scenario and the Phased CUP Scenario would be **potentially significant**.

Decommissioning

During decommissioning, soil erosion and would be controlled in accordance with NPDES GCP(s) and Project-specific SWPPP(s) prepared for both the Full Build-out Scenario and the Phased CUP Scenario), as required by mitigation measures MM 4.11.1a, 4.11.1b and MM 4.11.1c. Decommissioning activities would require earth-moving activities that could contribute to soil erosion and/or release of sediment. Earth-moving activities would be typical of most construction sites and temporary in nature. During decommissioning, each CUP owner would continue to be responsible for implementing and funding

BMPs as required by mitigation measure MM 4.11.1d. Further, compliance with requirements and BACTs in place at the time of decommissioning are anticipated to be similar to, or more stringent than, those currently required. Therefore, a **less than significant** impact regarding soil erosion and sedimentation would occur during the decommissioning phase at all Project CUPs.

Mitigation Measures

Compliance with mitigation measures MM 4.11.1a, MM 4.11.1b, MM 4.11.1c and 4.11.1d, County site design and detention requirements, and required Dust Control Plan(s) throughout both the Full Build-out Scenario and the Phased CUP Scenario. Dust Control Plans shall include provision for stabilization of bulk material storage, on- and off-site unpaved roads, and unpaved traffic areas one acre or more in size to limit opacity for dust emissions to 20 percent.

Significance After Mitigation

Implementation of mitigation measures MM 4.11.1a, MM 4.11.1b, MM 4.11.1c and 4.11.1d, and compliance with County site design and detention requirements and required Dust Control Plan would reduce the potential for soil erosion and sedimentation at off-site locations through containment of disturbed soils on-site during construction, operation, and decommissioning activities. Therefore, potential soil erosion and sedimentation impacts would be reduced to **less than significant** throughout Project site under both the Full Build-out Scenario and the Phased CUP Scenario.

Result in Substantial Flooding On- or Off-Site/Create or Contribute Runoff Exceeding Capacity

Impact 4.11.4 Implementation of the proposed Project would generate on-site runoff throughout all 17 CUP areas constructed as part of the Phased CUP Scenario. Alteration of the existing drainage pattern would not alter the course of a steam or river nor would the Project create additional sources of polluted runoff. Existing drainage patterns would be maintained and the surface of each CUP would remain pervious. Sufficient capacity to collect on-site runoff is available in receiving IID drains. However, potential flooding could occur at CUPs 13-0038, 13-0039, and 13-0049 Therefore, impacts associated with flooding or exceedance of existing drainage capacity are considered **potentially significant** for both the Full Build-out Scenario and the Phased CUP Scenario at CUPs 13-0038, 13-0039, and 13-0049.

CUPs 13-0038, 13-0039 and 13-0049

Construction

Stormwater Runoff

To enable the development of the solar arrays, private dirt roads and ditches within both the Full Build-out Scenario and the Phased CUP Scenario would be re-graded as necessary. Likewise, cultivated areas may be re-graded to allow for smooth transitions of runoff through the solar array areas and to produce positive surface drainage to the designated detention basins/shallow ponding areas. A private perimeter access road would be constructed around the arrays.

Detention requirements for both the Full Build-out Scenario and the Phased CUP Scenario would be satisfied at detention basins located outside of the solar array configurations, shallow ponded areas to be located under the arrays, or a combination of both. At the time of final design and engineering, a Final Hydrology Study would be prepared and processed for approval by the Imperial County Planning and Development Services Department and Public Works Department. The Final Hydrology Study would utilize standard industry practice that models factors such as runoff coefficient or curve number, infiltration into underlying soils, and flow-in storm drain discharge pipes connected to the IID Drain

system and/or the New River. Ultimate locations, volumes, and limits of detention basins and ponding areas would be determined at the time of final engineering (Fuscoe 2014, pp. 10-11).

Potential for Infiltration of Runoff

A full range of hydrologic soil groups is present on the solar field site parcels. In areas where the dominate soils belong to groups A or B (i.e., soils that have moderate to high percolation rates (0.15 inches/hour and above) and are therefore suitable for infiltration, infiltration of storm water runoff may be feasible. While infiltration testing has not been done on the solar field site parcels at this time, soil groups A and B are generally present mostly in the northern portion of the solar field site parcels (CUPS 13-0036, 13-0037, 13-0045, 13-0046, 13-0047, 13-0050) (Fuscoe 2014, p. 13). **Table 4.11-6** identifies the location of the various soil groups by CUP.

TABLE 4.11-6
HYDROLOGIC SOIL GROUPS BY CUP

CUP#	Soil Group(s) Present	CUP#	Soil Group(s) Present
13-0036	B, C	13-0043	C
13-0037	B, C	13-0044	C
13-0038	C	13-0045	A, C, D
13-0039	C	13-0046	B, C, D
13-0040	C	13-0047	A, B, C, D
13-0041	C	13-0048	C
13-0042	C, D	13-0049	C
		13-0050	B, C

Source: Fuscoe 2014, Haaland 2014a.

Soil Group A = 119, Indio Vint Complex

Soil Group B = 106, Glenbar Clay Loam; 117 Indio Loam; 118 Indio Loam, wet; 142, Vint very fine sand, wet; and 144, Vint and Indio, very fine sandy loams, wet

Soil Group C = 109, Holtville Silty Clay; 110, Holtville Silty clay; 112, Imperial Silty clay; 114, Imperial Silty clay, wet; 115, Imperial Silty clay loams, wet; 122 Meloland Loamy very fine sandy loam, wet; and 123 Meloland and Holtville Loams, wet

Soil Group D = 102, Badland; 104, Fluvaquents

At the time of final engineering, a Final Hydrology Study would be prepared and submitted to the Imperial County Department of Public Works. Infiltration tests would be required to confirm infiltration feasibility and calculate drawdown times at the proposed detention/ponding locations. At this preliminary stage, detention basins/ponding areas which are underlain by group A or B soils (CUPs 13-0036, 13-0037, 13-0045, 13-0046, 13-0047, and 13-0050) are proposed to drain primarily through infiltration into the ground, although storm drain connection to the receiving IID Drain or New River may be necessary. A maximum drawdown time of 72 hours would be considered during final design in order to prevent the creation of vector control issues. Detention basins/ponding areas which are underlain by grounp C or D soils (all CUPs [13-0036 thru 13-0052]) would be provided with a storm drain connection to the IID drain system or the New River. These storm drain connections would take the place of existing connections, would be located at or near existing connections, and would be constructed in accordance with current standards. The Project proposes to match or reduce the number of existing connections to the IID Drain system and/or New River (Fuscoe 2014, p. 13).

Agricultural Runoff

Runoff from agricultural activities would cease once construction begins and last throughout the life of both the Full Build-out Scenario and the Phased CUP Scenario. As such, the total volume of runoff (storm water plus agricultural runoff) discharged to the IID Drain system would decrease during construction and continue over the life of the Project (Fuscoe 2014, p. 14).

Phasing

The Project may be constructed as 17 individual CUPs or as multiple CUPs (i.e. the Phased CUP Scenario) rather than the Full Build-out Scenario being constructed at one time. Whether constructed as the Full Build-out Scenario or the Phased CUP Scenario, no substantial change to existing drainage patterns would be required through the Full Build-out Scenario. However, during final design and construction, drainage considerations would be required at CUPs 13-0038, 13-0039, and 13-0049. (Fuscoe 2014, p. 14). Therefore, a **potentially significant** impact related to flooding as a result of storm water runoff or changes to drainage systems would occur at CUPs 13-0038, 13-0039, and 13-0049 during the construction phase of the Project.

Operation

Potential issues related to flooding as a result of storm water runoff or changes to drainage systems would be addressed during Project design and construction, as required by applicable regulations and mitigation measures. Therefore, during Project operations, flooding impacts associated with CUPs 13-0038, 13-0039 and 13-0049 would have already been addressed. Therefore, a **less than significant** impact related to storm water runoff or changes to drainage systems would occur at CUPs 13-0038, 13-0039 and 13-0049 during the Project operation.

Decommissioning

Decommissioning would result in the dismantling and removal of infrastructure constructed as part of the Solar Energy Center and Electric Collector Line Corridor (only if not in use). No change to the drainage system to offsite areas is proposed by the Project during decommissioning. Therefore, following decommissioning, the Project would result in a **less than significant** impact related to flooding as a result of storm water runoff or changes to drainage systems at CUPs 13-0038, 13-0039 and 13-0049.

FULL BUILD-OUT SCENARIO

Construction

No drainage issues beyond the potential flooding identified for CUPs 13-0038, 13-0039, and 13-0049 above were identified for the construction of the Full Build-out Scenario. However, CUPs 13-0038, 13-0039, and 13-0049 are part of the Full Build-out Scenario. Therefore, a **potentially significant** impact related to storm water runoff and/or changes to drainage systems would occur during the construction of the Full Build-out Scenario.

Operation

The *Conceptual Drainage Study and Stormwater Quality Analysis* prepared for the proposed solar field site parcels calculated runoff under the existing versus proposed Project condition. For the purpose of these calculations, the 32 solar field site parcels were delineated into tributary drainage basins for the existing and proposed conditions. Points of concentration in drainage basins are shown on **Figure 4.11.3a** and **Figure 4.11.3b**, Drainage Basin Maps.

As shown in the FEMA Maps (refer to **Figures 4.11-2a thru 4.11-2d**) a portion of the solar field site parcels (CUP 13-0042 [APN052-170-014]; CUP 13-0045 [APN 052-350-020]; CUP 13-0046 [052-350-001, -003, and -004]; and CUP 13-0047 [052-360-008, -009, and 052-410-006]) is located in Flood Zone A which indicates areas subject to inundation by the 100-year storm event.

Table 4.11-7 identifies the drainage basin and required AF of storage for each CUP with regard to County storage requirement of three inches of runoff and 100-year storage runoff is provided on a per drainage basin level (Fuscoe 2014, p. 14).

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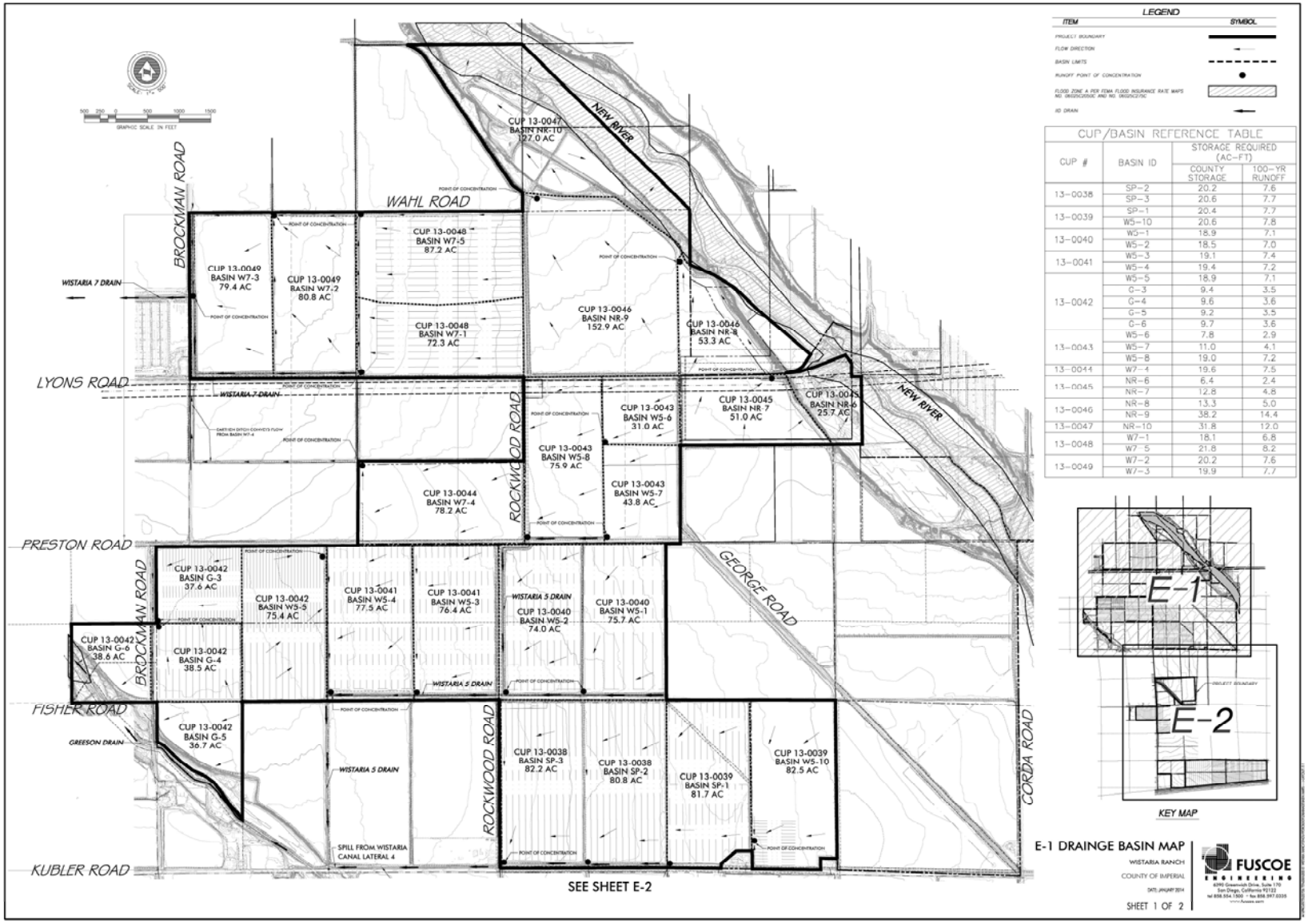
TABLE 4.11-7
CUP/BASIN REFERENCE TABLE

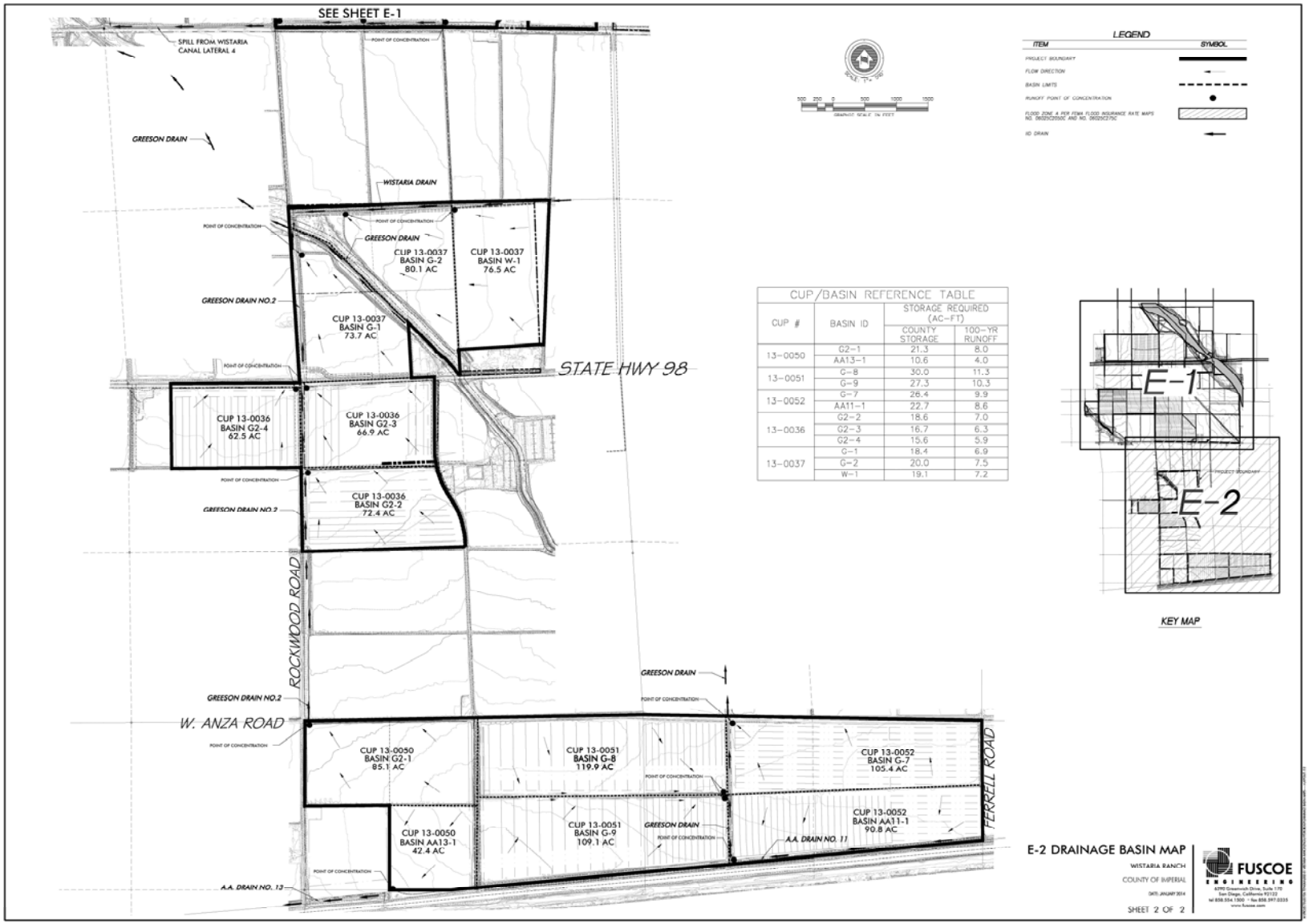
CUP#	Basin ID	Storage Required (AF)	
		County Storage	100-Year Runoff
13-0036	G2-2	18.6	7.0
	G2-3	16.7	6.3
	G2-4	15.6	5.9
13-0037	G-1	18.4	6.9
	G-2	20.0	7.5
	W-1	19.1	7.2
13-0038	SP-2	20.2	7.6
	SP-3	20.6	7.7
13-0039	SP-1	20.4	7.7
	W5-10	20.6	7.8
13-0040	W5-1	18.9	7.1
	W5-2	18.5	7.0
13-0041	W5-3	19.1	7.4
	W5-4	19.4	7.2
13-0042	W5-5	18.9	7.1
	G-3	9.4	3.5
	G-4	9.6	3.6
	G-5	9.2	3.5
	G-6	9.7	3.6
13-0043	W5-6	7.8	2.9
	W5-7	11.0	4.1
	W5-8	19.0	7.2
13-0044	W7-4	19.6	7.5
13-0045	NR-6	6.4	2.4
	NR-7	12.8	4.8
13-0046	NR-8	13.3	5.0
	NR-9	38.2	14.4
13-0047	NR-10	31.8	12.0
13-0048	W7-1	18.1	6.8
	W7-5	21.8	8.2
13-0049	W7-2	20.2	7.6
	W7-3	19.9	7.7
13-0050	G2-1	21.3	8.0
	AA13-1	10.6	4.0
13-0051	G-8	30	11.3
	G-9	27.3	10.3
13-0052	G-7	26.4	9.9
	AA11-1	22.7	8.6

Source: Fuscoe 2014. AF = acre feet



Source: Fusco 2014.

FIGURE 4.11-3A
DRAINAGE BASIN MAP – NORTHERN CUP CLUSTER



Source: Fusco 2014.

FIGURE 4.11-3B
DRAINAGE BASIN MAP – SOUTHERN CUP CLUSTER

Ultimate points of discharge to the IID Drains would be similar under the existing and proposed conditions (Fuscoe 2014, p. 7). The existing drainage characteristics of the solar field site parcels would remain substantially the same as the proposed conditions. Existing low lying areas which receive runoff would continue to do so in association with Project implementation. Where on-site soils may have the potential, runoff would be infiltrated. Where infiltration is not feasible, runoff would be detained and slowly released to the IID Drain system. Therefore, flows generated during Project operations would not exceed the flows in the existing conditions, and no impact to IID Drains would occur as a result of operation of the Full Build-out Scenario (Fuscoe 2014, p. 10).

Potential issues related to flooding as a result of storm water runoff or changes to drainage systems would be addressed during the Project design and construction. No drainage issues were identified in association with operation of proposed Project. Therefore, a **less than significant** impact related to storm water runoff and/or changes to drainage systems would occur during the operation and maintenance of the Full Build-out Scenario.

Decommissioning

Project decommissioning would entail removal of all Project components, and restoration of the site to agricultural uses. Improvements to the drainage system incorporated during Project construction would remain in place. However, these improvements would be designed to match the existing drainage system. Therefore, upon decommissioning, a **less than significant** impact related to storm water runoff and/or changes to drainage systems would occur for the Full Build-out Scenario.

Mitigation Measures

CUP 13-0038

MM 4.11.4a The shallow earthen ditch that conveys water to proposed Basin SP-2 and SP-3 on CUP 13-0038 shall remain undisturbed or otherwise be reconstructed to continue conveyance of flow.

The following considerations shall be incorporated as part of the design and construction of CUP 13-0038:

- A shallow earthen ditch receives flow from Basin SP-1 (CUP 13-0039) and conveys runoff along the southern limit of Basin SP-2 (CUP 13-0038). At the southwestern corner of Basin SP-2 (CUP 13-0038), flow between Basins SP-1 and SP-2 (CUPs 13-0039 and 13-0038) converge and discharge to an earthen ditch along the southern limit of Basin SP-3 (CUP 13-0038). At the southwestern corner of Basin SP-3 (CUP 13-0038), the ditch receives runoff from Basin SP-3 (CUP 13-0038), collecting runoff in an underground storm drain that conveys flow to the Spill from Wistaria Canal Lateral 4. In the development and construction of Basins SP-2 and SP-3 (CUP 13-0038), the earthen ditch shall either remain undisturbed or otherwise be reconstructed in a manner that continues the above described conveyance of flow.

  Timing/Implementation: *During Final Project Design.*
  Enforcement/Monitoring: *Imperial County Planning and Development Services Department, and Imperial County Department of Public Works.*

CUP 13-0039

MM 4.11.4b The shallow earthen ditch that conveys water to proposed Basin SP-2 and SP-3 on CUP 13-0038 shall either remain undisturbed or otherwise be reconstructed to continue conveyance of flow.

The following considerations shall be incorporated as part of the design and construction of CUP 13-0039:

- Flow from the fields located to the east of Basin W5-10 (CUP 13-0039) is collected in a storm drainage structure and conveyed underground western across Basin W5-10 (CUP 13-0039). At the westerly limit of Basin W5-10 (CUP 13-0039), the pipe enters a storm drain structure that also collects surface and tile drain flow from Basin W5-10 (CUP 13-0039). The converged flow from adjacent fields and W5-10 (CUP 13-0039) continues in an underground pipe in a northwestern direction across Basin SP-1 (CUP 13-0039), ultimately discharging to the Wistaria 5 Drain. In the development and construction of Basins SP-1 and W5-10 (CUP 13-0039), the underground pipe shall remain either undisturbed or otherwise be reconstructed in a manner that continues the above described conveyance of flow.

Timing/Implementation: *Prior to approval of final building plans/As part of Project design/Prior to issuance of building permits.*

Enforcement/Monitoring: *Imperial County Planning and Development Services Department, and Imperial County Department of Public Works.*

CUP 13-0049

MM 4.11.4c The shallow earthen ditch that conveys water to proposed Basin SP-2 and SP-3 on CUP 13-0038 shall remain undisturbed or otherwise be reconstructed to continue conveyance of flow.

The following considerations shall be incorporated as part of the design and construction of CUP 13-0049:

- A shallow earthen ditch receives flow from Basin W7-5 (CUP 13-0048) and conveys runoff along the northerly limit of Basin W7-2 (CUP 13-0049). At the northwesterly corner of Basin W7-2 (CUP 13-0049), flow between Basins W7-5 and W7-2 (CUPs 13-0049 and 13-0048) converge and discharge to an earthen ditch along the northern limit of Basin W7-3 (CUP 13-0049). At the northwestern corner of Basin W7-3 (CUP 13-0049), the ditch receives runoff from the fields located to the north and conveys flow south to Wisteria 7 Drain. In the development and construction of Basins W7-2 and W7-3 (CUP 13-0049) the earthen ditch shall either remain undisturbed or otherwise be reconstructed in a manner that continues the above described conveyance of flow.

Timing/Implementation: *During Final Project Design.*

Enforcement/Monitoring: *Imperial County Planning and Development Services Department, and Imperial County Department of Public Works.*

Significance after Mitigation

Implementation of mitigation measure MM 4.11.4a would reduce potential impacts related to flooding as a result of storm water runoff or changes to drainage systems at CUP 13-0049 to a level of **less than significant** by ensuring the shallow earthen ditch that conveys water to proposed Basin SP-2 and SP-3 on CUP 13-0038 remains able to continue conveyance of flow.

Implementation of mitigation measure MM 4.11.4b would reduce potential impacts related to flooding as a result of storm water runoff or changes to drainage systems at CUP 13-0038 to a level of **less than significant** by ensuring the shallow earthen ditch that conveys water to proposed Basin SP-2 and SP-3 on CUP 13-0038 remains able to continue conveyance of flow.

Implementation of mitigation measure MM 4.11.4c would reduce potential impacts related to flooding as a result of storm water runoff or changes to drainage systems at CUP 13-0039 to a level of **less than significant** by ensuring the shallow earthen ditch that conveys water to proposed Basin SP-2 and SP-3 on CUP 13-0038 remains able to continue conveyance of flow.

Result in Placement of People or Structures within an Area Subject to Flood Hazards

Impact 4.11.5 Implementation of the proposed Project could place workers and structures within FEMA Zone "A" during construction, operation and decommissioning. This Zone indicates areas subject to inundation by the 100-year storm event. Thus, a **potentially significant impact** could occur.

CUPs 13-0045, 13-0046, 13-0047, 13-0036, 13-0037, 13-0042 13-0051 and 13-0052

Construction

As discussed above, the majority of the solar field site parcels are located in FEMA Flood Zone "X," which corresponds to areas that are located above (outside of) the flood level, with a one percent chance of occurrence (the 100-year event). Solar field site parcels bounded by the New River and Greeson Drain are located within FEMA Flood Zone "A," which corresponds to areas within the 100-year event (Fuscoe 2014, p. 35). CUPs bounded by the New River include CUP 13-0045, CUP 13-0046 and CUP 13-0047. CUPs bounded by the Greeson Drain include CUP 13-0036, CUP 13-0037, CUP 13-0042, CUP 13-0051, and CUP 13-0052.

At this time, improvements associated with the Project (including arrays, substations, O&M facilities, Gen-Tie, access roads, etc.) are not anticipated to be constructed within areas mapped as Flood Zone "A". However, should Project improvements within Flood Zone "A" ultimately be determined necessary, consideration of the 100-year storm would be required with respect to the design and construction of all improvements during Final Project Design (Fuscoe 2014, p. 14). Therefore, a **potentially significant impact** related to placement of structures within the 100-year flood zone at CUPs 13-0045, 13-0046, 13-0047, 13-0036, 13-0037, 13-0042 13-0051 and 13-0052 would occur during the Project construction.

Operation

As discussed above, potential for placement of structures within the 100-year flood zone would be addressed during Project design and construction. However, Project operations and maintenance activities may require the presence of workers and equipment within the 100-year flood zone. Should access within Flood Zone "A" mapped areas be necessary, review of rain forecasts and scheduling of activities in a manner that considers potential for flooding would be implemented (Fuscoe 2014, p. 15). A **potentially significant impact** related to presence of workers within the 100-year flood zone at CUPs 13-0045, 13-0046, 13-0047, 13-0036, 13-0037, 13-0042 13-0051 and 13-0052 would occur during the Project operation and maintenance.

Decommissioning

Project decommissioning would entail removal of all Project components, and restoration of each parcel to agricultural uses. Therefore, upon decommissioning, no structures would be located in the 100-year floodplain. People may be temporarily present in the 100-year floodplain in order to achieve decommissioning activities. However, it is anticipated decommissioning activities would be scheduled to avoid the presence of workers in the 100-year flood zone during potential flooding events. Nonetheless, a **potentially significant** impact related to flood zones would occur during decommissioning activities throughout at CUPs 13-0045, 13-0046, 13-0047, 13-0036, 13-0037, 13-0042 13-0051 and 13-0052.

FULL BUILD-OUT SCENARIO

Construction

No construction activities beyond those identified above for CUPs 13-0045, 13-0046, 13-0047, 13-0036, 13-0037, 13-0042 13-0051 and 13-0052 would occur within the 100-year flood zone within the Full Build-out Scenario. However, these CUPs are part of the Full Build-out Scenario. Therefore, a **potentially significant** impact regarding the placement of structures within the 100-year flood zone would occur during construction of the Full Build-out Scenario.

Operation

During the Project operation, no structures or activities beyond those identified above for CUPs 13-0045, 13-0046, 13-0047, 13-0036, 13-0037, 13-0042 13-0051 and 13-0052 would occur within the 100-year flood zone within the Full Build-out Scenario. Operational activities would result in fewer workers on-site than would be present during construction activities. However, CUPs 13-0045, 13-0046, 13-0047, 13-0036, 13-0037, 13-0042 13-0051 and 13-0052 are part of the Full Build-out Scenario. Therefore, a **potentially significant impact** regarding the presence of people within the 100-year flood zone would occur during the operation and maintenance phase of the Full Build-out Scenario.

Decommissioning

Project decommissioning would entail removal of Solar Energy Center Facilities and Electric Connector Line Corridor facilities (if not in use), and restoration of each CUP area to agricultural uses. Therefore, upon decommissioning, no structures would be located in the 100-year floodplain. People may be temporarily present in the 100-year floodplain during decommissioning activities. However, it is anticipated decommissioning activities would be scheduled to avoid the presence of workers in the 100-year flood zone during potential flooding events. Nonetheless, a **potentially significant** impact related to the presence of workers and equipment within the 100-year flood zone would occur during decommissioning activities throughout the Full Build-out Scenario.

Mitigation Measures

CUPs 13-0045, 13-0046, 13-0047, 13-0036, 13-0037, 13-0042 13-0051 and 13-0052

MM 4.11.5a During final design of CUPs 13-0045, 13-0046, 13-0047, 13-0036, 13-0037, 13-0042 13-0051 and 13-0052, the limits of FEMA FIRM Zone "A" shall be considered and structures shall be located beyond the limits of Zone "A." If the Project requires placement of structures within Flood Zone "A," site-specific analysis shall be performed during final engineering design to determine the depth of flooding in a 100-year event. The analysis shall specify the grading and construction work necessary to ensure structures are above the 100-year flood elevation. The results of the site-specific analysis shall be submitted for review and approval by the Imperial County Planning and Development Services Department and the Public Works Department during Final Project Design. All

measures and design specifications identified in the site-specific analysis shall be incorporated into and reflected on the Project design and building plans.

Timing/Implementation: *Prior to approval of final building plans/As part of Project design/Prior to issuance of building permits.*

Enforcement/Monitoring: *Imperial County Planning and Development Services Department*

MM 4.11.5b Should construction, operation, or decommissioning activities require presence of people within Flood Zone "A" at CUPs 13-0045, 13-0046, 13-0047, 13-0036, 13-0037, 13-0042 13-0051 and 13-0052, CUP owners and/or contractor representatives shall conduct a review of rain forecasts, and construction activities shall be scheduled in a manner that considers potential for flooding. Any non-stationary equipment and personnel located within Flood Zone "A" shall be relocated outside of the flood zone until such time as the threat of flooding has passed. Each CUP owner shall prepare a plan identifying actions to be taken to avoid placement of people and equipment within the Flood Zone "A" during construction, operation, and decommissioning of the Full Build-out Scenario and each CUP. The plan shall be submitted to the County of Imperial Planning and Development Services Department, and reflected in the Project's conditions of approval.

Timing/Implementation: *During potential flood events throughout the life of the Project.*

Enforcement/Monitoring: *Imperial County Planning and Development Services Department, and Imperial County Department of Public Works.*

Significance After Mitigation

CUPs 13-0045, 13-0046, 13-0047, 13-0036, 13-0037, 13-0042 13-0051 and 13-0052

Implementation of mitigation measure MM 4.11.5a would ensure that any development within Flood Zone "A" would occur above the 100-year flood elevation, and would reduce potential impacts related to the presence of structures within the flood zone to a level of **less than significant**.

Implementation of MM 4.11.5b would reduce potential impacts related to the presence of workers within the flood zone to a level of **less than significant** through monitoring the weather and scheduling on-site activities accordingly to avoid exposure to potential flooding on CUPs 13-0045, 13-0046, 13-0047, 13-0036, 13-0037, 13-0042 13-0051 and 13-0052.

4.11.4 CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

A. CUMULATIVE SETTING

The cumulative setting for hydrologic resources is the Imperial Hydrologic Unit of the Salton Sea watershed as defined by the Colorado River Regional Water Quality Control Board's Basin Plan (2006) (geographic scope). The Salton Sea Watershed encompasses an area of approximately 8,360 square miles that extends from San Bernardino County in the north to the Valley of Mexicali (Republic of Mexico) in the south (see **Figure 4.11-1**). The Salton Sea lies at the lowest point in the watershed (approximately 227 feet below mean sea level) and collects runoff and agricultural drainage from most of Imperial County, a considerable portion of Riverside County, small portions of San Bernardino and San Diego Counties, as well as the northern portion of the Valley of Mexicali. The principal sources of inflow to the Salton Sea include: the Alamo River, New River, Whitewater River/Coachella Valley Storm Channel, direct drainage from Imperial and Coachella Valleys, subsurface inflow from groundwater, San

Felipe Creek, Salt Creek, other smaller local drainages, and direct precipitation. Approximately two-thirds of the water diverted from the Colorado River to the IID water service area is consumptively used. The remaining third of imported water discharges to the Salton Sea (CH2MHill 2001, p. ES-2) through existing irrigation ditches and culverts around the perimeter of the fields, which drain into the Greeson Drain and the New River to the Salton Sea. The impaired waterbodies listed on the 303 (d) list include the New River and Salton Sea. Groundwater in the area of the Project is not used for municipal or domestic supply.

Table 3.0-1 in Chapter 3.0, Introduction to the Environmental Analysis and Assumptions Used identifies cumulative projects in the vicinity of the proposed Project, the majority of which are other solar projects. In addition, a subset of the projects listed in Table 3.0-1 reduce agricultural runoff to the Salton Sea. **Table 4.11-8** summarizes these projects (including the proposed Project) and their associated acreages that are proposed, approved or built throughout the Salton Sea Watershed which would result in at least the temporary conversion of agricultural lands producing runoff to other non-water intensive uses and no longer contribute agricultural runoff inflows to the Salton Sea. The remaining projects are either not located on actively farmed land or are on non-agricultural land (i.e. County Center II, Linda Vista, etc.) and therefore do not produce inflows to the Salton Sea.

Table 4.11-8 summarizes the reduced agricultural runoff projects and associated acreages. As shown, the cumulative projects reducing agricultural runoff to the Salton Sea would result in at least the temporary conversion of a total of 24,448 acres of agricultural lands to other uses. The proposed Project site (2,793 acres gross) exclusive of roads and canals totals 2,589 acres or approximately 10.7 percent ([2,589 acres ÷ 24,244] acres x 100) of the total acres of agricultural lands temporarily converted.

TABLE 4.11-8
SUMMARY OF AGRICULTURAL ACREAGE TEMPORARILY OR PERMANENTLY CONVERTED AND REDUCING RUNOFF TO THE SALTON SEA*

Project Name	Acres
Mosiac	201
Hallwood/Calexico Place 111 & Casino	61
Calexico Mega Park	146
Commons	18
County Center Expansion II	80
Rancho Los Logos	1,076
McCabe Ranch II	457
McCabe Ranch	80
Imperial Center	78
101 Ranch	1,897
Canergy	83
Chocolate Mountain	320
Imperial Valley Solar II	150
IV Solar Company	123
Energy Source Solar 1	960
Midway Solar Farm I	319
Midway Solar Farm II	803

TABLE 4.11-8
SUMMARY OF AGRICULTURAL ACREAGE TEMPORARILY OR PERMANENTLY CONVERTED AND REDUCING RUNOFF TO THE SALTON SEA*

Project Name	Acres
Lindsey Solar Farm	148
Wilkinson Solar Farm	302
Calipat Solar Farm I	159
Alhambra Solar/Solar Gen 2	482
Arkansas Solar/Solar Gen 2	481
Sonora Solar/Solar Gen 2	488
Imperial Solar West (Westside Main)	1,130
Campo Verde	1,443
Imperial Solar South	947
Calexico I-A	720
Calexico I-B	610
Calexico II-A	940
Calexico II-B	732
Mount Signal Solar	1,431
Centinela Solar	2,067
Lyons Solar	138
Rockwood Solar	396
Ferrell Solar	367
Iris Solar Farm	520
Imperial Solar 1 (Heber)	80
Seville Solar (Allegretti)	1,222
Total Acres Without Proposed Project	**21,655**
Wistaria Ranch Solar	2,589
Total Acres With Proposed Project	**24,244**

*Source: ICPDSD 2014. *The total acres of conversion is less because not all the acres within these projects are agricultural lands.*

B. CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Water Quality, Quantity and Runoff Impacts

Impact 4.11.6 With the implementation of legally required SWRCB, RWQCB, and County policies, plans and ordinances governing land use activities that may degrade or contribute to the violation of water quality standards, the proposed Project, in combination with approved, proposed and other reasonably foreseeable projects in the Salton Sea watershed would not contribute to the cumulative effects of degradation of water quality, but would result in changes in water quantity runoff patterns ultimately discharging to the Salton Sea. This impact is considered **less than cumulatively considerable**.

Water Quality

All projects in the watershed in excess of one-acre, including, but not limited to, the proposed Project and the projects listed in **Table 4.11-8** and **Table 3.0-1**, are required to comply with the SWRCB NPDES general permit for activities associated with construction (2009-0009-DWQ), which is known as the Construction General Permit (CGP). Without laws requiring projects to obtain and comply with the CGP, grease, oils, sediment and heavy metals generated during construction and post-construction activities could enter the surrounding impaired waterways from the project site. The CGP requires development and implementation of rain event action plan, adherence to numeric effluent limits, monitoring and reporting, as well as implementation of numeric action plans. It also requires post-construction storm water runoff site planning to assure that the rate of water runoff does not exceed pre-project conditions. The SWRCB has determined that the CGP protects water quality, is consistent with the CWA, and addresses the cumulative impacts of construction activities throughout the state, which includes the cumulative impacts from construction of projects within the watershed.

Additionally, the transition from agricultural land to industrial land as embodied by the proposed solar energy center would result in a substantial reduction in pesticide, herbicide, and fertilizer application, and storm water discharge. The impacts to the water quality of the receiving earthen ditches, Greeson Drain and ultimately the impaired New River and Salton Sea, would be beneficial because of the reduction in organic compounds found in pesticides, agricultural waste, loose sediments and excess nutrients from fertilizers. Removal of these substances will result in a significant saline reduction in the receiving waters. The IID is currently implementing a drain water quality improvement plan (Resolution No 93-145) to achieve water quality objectives to comply with Section 303(d) of the CWA. A component of the IID plan is to reduce maintenance operations, which will result in a reduction of Total Suspended Solids (TSS).

Each CUP will be designed to include the following Site Design BMPs: minimize impervious footprint; conserve natural areas; flat topography will be retained; impervious areas will drain and be allowed to pond in the detention basins and/or under the solar arrays. This will effectively limit all directly connected impervious areas on the Project site (Fuscoe 2014, p. 28).

In addition to the Site Design BMPs, Source Control BMPs will minimize the contact between pollutants and urban runoff. Source controls include designing trash storage areas to reduce pollution introduction; restricting activities that have the potential to create adverse impacts on water quality; prohibiting non-storm water discharges; handling materials in such a way as to prevent storm water pollution; preparing a Spill Prevention, Control and Countermeasure Plan (SWPPP) and a Hazardous Materials Business Plan; educating employees regarding storm water pollution prevention; implementation of an Integrated Pest Management Plan to reduce the need for pesticide use; conducting vehicle and equipment fueling, cleaning and repair off site whenever possible and if on site, in an area that is isolated from storm drain inlets and drainage ditch inlets; and observing proper waste handling and disposal (Fuscoe 2014, p. 29). Treatment Control BMPs will also remove storm water pollutants via detention/ponding basins that will drain in less than 72 hours (Fuscoe 2014, p. 32). Inclusion of all of these features at each of the CUPs will ensure that the quality of the Project site's storm water runoff is improved. All other cumulative development projects would also be required to incorporate BMPs and source control to mitigate storm water runoff. As a result, the proposed Project would have **a less than cumulatively considerable impact** to water quality. Likewise, the proposed Project, in combination with other cumulative projects would have a **less than cumulatively considerable impact** to cumulative water quality.

Water Quantity/Runoff Patterns

While the water quality discharged from the proposed site will improve, the quantity and rate of water discharge will be reduced. Typically, a reduction in the rate and quantity of water discharge from a project site is beneficial because slower water does not pick up and deposit significant sediment loads that can adversely affect water quality. However, there is an indirect cumulative impact from the reduction of water quantity from the Project site that must be analyzed. As described in the Cumulative Setting, surface waters in the Imperial Valley ultimately drain into the Salton Sea via the New River and the Alamo River as well as via irrigation drains and canals. Until recently, the amount of water entering the Salton Sea was roughly balanced by the amount of water evaporating from its surface. However, due to increased demand for water supplies in the region and recent IID water transfer agreements, increasing amounts of water are being consumed in the Imperial Valley, as well as transferred out of the Valley to population centers such as San Diego County, thus reducing inflows to the Salton Sea. Implementation of the proposed Project and the projects listed in **Table 4.11-8** could potentially contribute to this cumulative diversion of water from the Salton Sea. This could potentially occur through the conversion of irrigated agricultural land that previously drained to the sea if it were to exceed historic fallowing rates or sea level changes (PMC 2011). Of the 2,793 acres that comprise the solar proposed field site parcels, approximately 2,589 acres of agricultural land would be temporarily converted (i.e., agricultural fields within the proposed Project site minus the acreage of roads and ditches currently on each parcel).

Agricultural runoff contributes significantly to total inflows to the Salton Sea. As irrigated agricultural land is converted to solar fields, the associated runoff ceases to drain into the New River and Alamo River potentially reducing the sea's total inflows. The cumulative projects listed in **Table 4.11-8,** including the proposed Project, contain a total of approximately 24,244 acres of irrigated agricultural land. The historical water consumption on agricultural land is 5.45 AF/Y per acre (IID 2013).

The total drainage area for the Salton Sea is 8,360 square miles (CRA 2007, p. H2-2). The Sea has a total volume of approximately 7,500,000 AF and a surface area of 376 square miles or 240,640 acres (saltonsea.ca.gov 2014). Agricultural irrigation drainage of approximately 1,300,000 million AF/Y is the primary source of maintaining the sea's elevation (IID 2014).

From 1950 to 2002 average annual inflow into the Salton Sea was 1,300,000 AF (CRA 2007, p. H2-2). Approximately 80 percent of this total came from the Imperial Valley via the following sources (approximately 311,452 AF/Y or 24 percent of 1,300,000 AF from the New River; 624,315 AF/Y or 48 percent of 1,300,000 AF/Y from the Alamo River; 93,848 AF/Y or 24 percent of 1,300,000 AF from IID Direct Drains; and 1,000 AF/Y or approximately 1 percent of 1,300,000 AF from groundwater) (CRA 2006, pp. H2-11 – H2-12).

Assuming that flows have been reduced due to the Quantification Settlement Agreement (QSA)[1] (approximately 150,000 AF less), current annual inflow to the Salton Sea is approximately 1,150,000 AF (1,300,000 AF – 150,000 AF). Based on the assumption that an average acre of agricultural land uses 5.45 AF/Y (IID 2013) and assuming implementation of all the cumulative projects listed in **Table 4.11-8** (including the proposed Project) results in the temporary conversion of the entire 24,244 acres, under

1 In 2003, the San Diego County Water Authority, Coachella Valley Water District, IIID, Metropolitan Water District of Southern California, the State of California and the U.S. Department of the Interior entered into the Quantification Settlement Agreement (QSA) for the Colorado River. The QSA enabled California to implement major Colorado River water conservation and transfer programs, stabilizing water supplies for 75 years and reducing the states demand on the river to its 4.4 million acre-foot entitlement. The QSA also provides a restoration path for the Salton Sea (SDCWA 2014a).

average irrigation practices this represents a total water consumption of 128,320 AF of water (24,244 acres x 5.45 AF/A = 132,130 AF). Again, one third of this (132,130 AF ÷ 3 = 44,043 AF) is returned to the drainage system and ultimately the Salton Sea. Thus, the removal of 24,244 acres of agricultural land could potentially result in a reduction of approximately 0.59 percent of water volume in the Salton Sea ([44,244 AF ÷ 7,500,000 AF] x 100). This estimate is considered conservative because it assumes all Project acreage is in agricultural production (i.e., it does not take into account roads, canals, etc.). In reality, small percentages of each project in **Table 4.11-8** contain land that is not in agricultural production. The proposed Project's contribution would account for 4,703 AF ([2,589 acres x 5.45 AF/Y] = 14,110 AF ÷ 3 = 4,703 AF) of the annual reduction in flows to the Salton Sea and a corresponding reduction of 0.06 percent ([4,703 ÷ 7,500,000] x 100 = 0.063 percent) of the water surface elevation. The equivalent reduction in inches attributable to the proposed Project is approximately 0.23 inches ([4,703 AF/Y ÷ 240,640] x 12 = 0.23 inches).

As described above, from 1950 to 2002 average annual inflow into the Salton Sea was 1,300,000 AF with approximately 80 percent of this total coming from the Imperial Valley. Assuming that flows have been reduced by approximately 150,000 AF due to the QSA, current annual inflow to the Salton Sea is approximately 1,150,000 AF. The cumulative projects listed in **Table 4.11-8** would result in a reduction of 44,043 AF/Y (132,130 AF ÷ 3 = 44,043 AF) of runoff to the Salton Sea. This amount represents approximately 3.83 percent of the annual average inflow to the Salton Sea ([44,043 AF ÷ 1,150,000 AF per year of inflow] x 100), and approximately five tenths of one percent (0.59 percent) of the total volume in the Salton Sea ([44,043 AF ÷ 7,500,000 AF/Y of inflow] x 100). Given a total surface area of 376 square miles (240,640 acres) and a total volume of 7,500,000 AF/Y, the reduction of 44,043 AF/Y is estimated to reduce the surface elevation of the Salton Sea by 2.13 inches ([44,043 AF/Y ÷ 240,640] x 12 = 2.20 inches).

Impacts to the Salton Sea associated with reduced water inflows resulting from cumulative projects in **Table 4.11-8** are **less than cumulatively considerable** for several reasons. First, the surface elevation of the Salton Sea already fluctuates by approximately 12 inches annually as a result of irrigation practices, including farmers' decisions on how much land to fallow. The sea reaches its maximum annual elevation between March and June and its minimum elevation between October and November. Given the seasonal fluctuation, a drop in surface elevation of between 0.23 and 2.20 inches is negligible and would not result in significant impacts on water quality or habitat. Habitat and water quality impacts from the reduction of flows and the minor water elevation change would be well within the seasonal fluctuation in surface elevation. The proposed Project's effect would be within the habitat conditions currently experienced (and adjusted to) along the shoreline of the Salton Sean (PMC 2011). This is not surprising because the fallowing/idling of 24,244 acres of farmland is well within the historical trends for fallowing and idling land in Imperial County. According to Figure 32, "Fallow and Idle Acreage, 1991 to 2006," in the IID Equitable Distribution Plan Negative Declaration, between 20,000 to 30,000 acres are fallowed in any given year. Likewise, between 20,000 to 140,000 acres are idled in any given year. As discussed below, the proposed Project and cumulative projects reduce the need to fallow other lands in the County.

Second, the combined reduction in agricultural runoff of the proposed Project in combination with other cumulative projects would result in a reduction in agricultural water use. This reduction would support IID in fulfilling its legal obligations under SWRCB orders, the QSA and the IID Water Transfer Agreement[3]

2 http://www.iid.com/Modules/ShowDocument.aspx?documentid=240

3 A critical component of the 2003 Colorado River Quantification Settlement Agreement was the Water Transfer Agreement between the IID and the San Diego County Water Authority. The transfer agreement established that, through a combination of land fallowing and efficiency-based water conservation measures, the San Diego region would receive up to 200,000 AF of water per year for up to 75 years. The water

(which includes mitigation of water quality and biological impacts to the Salton Sea) because IID would have approximately 133,241 AF/Y (24,244 acres x 5.45 AF/Y = 132,130AF/Y) of conserved clean water that was no longer needed to irrigate 24,244acres of farmland. The clean water could be used to mitigate habitats, improve water quality in the Salton Sea, or address a supply/demand imbalance. Both the Full Build-out Scenario and the Phased CUP Scenario are consistent with the IID Water Conservation and Transfer Project and Draft Habitat Conservation Plan/Natural Communities Conservation Plan Subsequent EIR/Supplemental EIS (SCH. No. 1999091142), the existing Section 7 Biological Opinion, and IID CESA Permit 20814.

Third, more specifically, IID has created an Equitable Distribution Plan (EDP) to allow flexibility in meeting changing circumstances in supply and demand. The EDP creates an agricultural fallowing incentive program in the event of a supply/demand imbalance. By October of each year, IID staff must forecast water demand and available supply and recommend whether there will be a supply/demand imbalance (SDI). With the knowledge that the proposed Project is anticipated to use up to 60 AF of water during its lease period (instead of a more intense agricultural water use), and the combined conserved water from the cumulative projects (approximately 132,130AF/Y), IID can account for this lower water demand when determining whether there would be a SDI and may help prevent the need to activate the EDP. This decrease in demand would allow more agricultural landowners to continue to use their agricultural water supply instead of enrolling in IID's fallowing program. The end result is a neutral net impact on water flowing to the sea (ESA 2012).

Similarly, if the IID did not account for that water savings and instead triggers the EDP, water conservation from the proposed Project and other cumulative projects would reduce the need to induce fallowing on as many agricultural acres to generate the additional water conservation needed to meet transfer obligations and Salton Sea mitigation obligations. According to IID's EDP Negative Declaration, in 2003, IID implemented a rotation fallowing program of up to 25,000 acres to successfully create conserved water to deliver to the Salton Sea. With the knowledge that the approved, proposed, and reasonably foreseeable development projects listed in **Table 4.11-8** will be using less water, IID can fallow less than the 25,000 acres needed (24,244 acres less) to produce the same amount of water needed to meet its transfer obligations and conserve water to deliver to the Salton Sea (PMC 2011). In fact, IID acknowledged in its Negative Declaration adopting the EDP that the fallowing necessary to provide the transfer and Salton Sea mitigation water would not have a significant impact on water quality or biology. Specifically, the Negative Declaration states, "Implementation of the EDP would not have an effect on any biological resources within the IID water service area. The EDP could result in minor short-term changes in the location of water use and therefore, the volume of flows in the drains. However, any changes in the location of flows would be temporary and negligible, and well within historic variations, and therefore are not expected to result in any adverse effects on biological resources that rely on the drains for habitat....[i]t is expected that under an SDI [state and federal refuges in the IID service area] will have sufficient supply to maintain current uses and operations and/or to fulfill obligations under environmental permits issued to IID" (ESA 2012). Previous environmental documentation has made a similar finding, that there would be no impact as a result of cumulative development related to the EDP (see Imperial Solar Energy Center South Project EIR/EA 2010061038). As for water quality, it states, "The proposed EDP would not result in any impacts

transfer is considered the cornerstone of the broader QSA plan to reduce California's use of Colorado River water to its basic annual apportionment of 4,400,000 AF (SDCWA 2014b).

4 IID CESA Permit 2081 supports IID's application for an Incidental Take Permit (ITP) in conformance with Section 2081 (b) of the California Endangered Species Act (CESA). CESA Permit 2081 identifies the management actions that will be implemented to mitigate the impacts of any take of state-listed species associated with IID's implementation of the IID/San Diego County Water Authority (SDCWA) Transfer Agreement and Quantification Settlement Agreement (QSA).

associated with hydrology and water quality...the magnitude of any potential change is anticipated to be minimal and, due to constant variation in cropping patterns and locations of idled lands, most likely will be undetectable when compared to the existing condition" (PMC 2011; IID Equitable Distribution Plan Negative Declaration at pp. 16-17).

For all of these reasons, the cumulative water quantity and quality impacts to the Salton Sea, IID's drainage system and the New River are considered **less than significant**, and the Project's contribution to these impacts is considered to be **less than cumulatively considerable**.

Mitigation Measures

None required.

Significance After Mitigation

Not applicable.

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