

PROJECT REPORT

**TO: ENVIRONMENTAL EVALUATION
COMMITTEE**

AGENDA DATE: May 13, 2021

FROM: PLANNING & DEVELOPMENT SERVICES DEPT. AGENDA TIME 1:30 PM/No. 1

Information Item Only

CUP20-0020/IS20-0029 VEGA 4

PROJECT TYPE: Solar Energy Generation & Storage Project SUPERVISOR DIST #1
059-300-015-000,

LOCATION: 2849 East Highway 98, APN -017 & 059-290-010-000

Holtville, CA PARCEL SIZE: Approx. 531 acres

GENERAL PLAN (existing) Agriculture GENERAL PLAN (proposed) N/A

ZONE (existing) A-3-RE (Heavy Agriculture-Renewable Energy Overlay) ZONE (proposed) N/A

GENERAL PLAN FINDINGS CONSISTENT INCONSISTENT MAY BE/FINDINGS

PLANNING COMMISSION DECISION:

HEARING DATE: _____

APPROVED DENIED OTHER

PLANNING DIRECTORS DECISION:

HEARING DATE: _____

APPROVED DENIED OTHER

ENVIROMENTAL EVALUATION COMMITTEE DECISION: HEARING DATE: 05/13/2021

INITIAL STUDY: 20-0029

NEGATIVE DECLARATION MITIGATED NEG. DECLARATION EIR

DEPARTMENTAL REPORTS / APPROVALS:

PUBLIC WORKS	<input type="checkbox"/> NONE	<input checked="" type="checkbox"/> ATTACHED
AG / APCD	<input type="checkbox"/> NONE	<input checked="" type="checkbox"/> ATTACHED
E.H.S.	<input type="checkbox"/> NONE	<input checked="" type="checkbox"/> ATTACHED
FIRE / OES	<input type="checkbox"/> NONE	<input checked="" type="checkbox"/> ATTACHED
OTHER	<u>CEO's Office, IID and Quechan</u>	

REQUESTED ACTION:

(See Attached)

Imperial County Planning & Development Services

(Jim Minnick, Director)

801 MAIN ST., EL CENTRO, CA, 92243 442-265-1736

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INFO ITEM ONLY



Initial Study and NOP

VEGA SES 4 Solar Energy Project

Imperial County, CA

April 2021

Reviewed by:

County of Imperial
Planning & Development
Services Department
801 Main Street
El Centro, CA 92243

Prepared by:

HDR Engineering, Inc.
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Introduction

A. Purpose

This document is a policy-level; project-level Initial Study for evaluation of potential environmental impacts resulting with the proposed VEGA SES 4 Solar Energy Project.

B. CEQA Requirements and the Imperial County's Rules and Regulations for Implementing CEQA

As defined by Section 15063 of the State California Environmental Quality Act (CEQA) Guidelines and Section 7 of the County's Rules and Regulations for Implementing CEQA, an **Initial Study** is prepared primarily to provide the Lead Agency with information to use as the basis for determining whether an Environmental Impact Report (EIR), Negative Declaration, or Mitigated Negative Declaration would be appropriate for providing the necessary environmental documentation and clearance for any proposed project.

- According to Section 15065, an **EIR** is deemed appropriate for a particular proposal if the following conditions occur:
 - The proposal has the potential to substantially degrade quality of the environment.
 - The proposal has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.
 - The proposal has possible environmental effects that are individually limited but cumulatively considerable.
 - The proposal could cause direct or indirect adverse effects on human beings.
- According to Section 15070(a), a **Negative Declaration** is deemed appropriate if the proposal would not result in any significant effect on the environment.
- According to Section 15070(b), a **Mitigated Negative Declaration** is deemed appropriate if it is determined that though a proposal could result in a significant effect, mitigation measures are available to reduce these significant effects to insignificant levels.

This Initial Study has determined that the proposed applications will result in potentially significant environmental impacts and therefore, an Environmental Impact Report is deemed as the appropriate document to provide necessary environmental evaluations and clearance for the proposed project.

This Initial Study and Notice of Preparation are prepared in conformance with the California Environmental Quality Act of 1970, as amended (Public Resources Code, Section 21000 et. seq.); the State CEQA Guidelines & County of Imperial's CEQA Regulations, Guidelines for the Implementation of CEQA; applicable requirements of the County of Imperial; and the regulations, requirements, and procedures of any other responsible public agency or an agency with jurisdiction by law.

Pursuant to the County of Imperial's CEQA Regulations, Guidelines for the Implementation of CEQA, depending on the project scope, the County of Imperial Board of Supervisors, Planning

Commission and/or Planning Director is designated the Lead Agency, in accordance with Section 15050 of the CEQA Guidelines. The Lead Agency is the public agency which has the principal responsibility for approving the necessary environmental clearances and analyses for any project in the County.

C. Intended Uses of Initial Study and Notice of Preparation

This Initial Study and Notice of Preparation are informational documents which are intended to inform County of Imperial decision makers, other responsible or interested agencies, and the general public of potential environmental effects of the proposed applications. The environmental review process has been established to enable public agencies to evaluate environmental consequences and to examine and implement methods of eliminating or reducing any potentially adverse impacts. While CEQA requires that consideration be given to avoiding environmental damage, the Lead Agency and other responsible public agencies must balance adverse environmental effects against other public objectives, including economic and social goals.

The Initial Study and Notice of Preparation, prepared for the project will be circulated for a period of no less than 35 days for public and agency review and comments.

D. Contents of Initial Study and Notice of Preparation

This Initial Study is organized to facilitate a basic understanding of the existing setting and environmental implications of the proposed applications.

SECTION 1

I. INTRODUCTION presents an introduction to the entire report. This section discusses the environmental process, scope of environmental review, and incorporation by reference documents.

SECTION 2

II. ENVIRONMENTAL CHECKLIST FORM contains the County's Environmental Checklist Form. The checklist form presents results of the environmental evaluation for the proposed applications and those issue areas that would have either a significant impact, potentially significant impact, or no impact.

PROJECT SUMMARY, LOCATION AND ENVIRONMENTAL SETTINGS describes the proposed project entitlements and required applications. A description of discretionary approvals and permits required for project implementation is also included. It also identifies the location of the project and a general description of the surrounding environmental settings.

ENVIRONMENTAL ANALYSIS evaluates each response provided in the environmental checklist form. Each response checked in the checklist form is discussed and supported with sufficient data and analysis as necessary. As appropriate, each response discussion describes and identifies specific impacts anticipated with project implementation.

SECTION 3

III. MANDATORY FINDINGS presents Mandatory Findings of Significance in accordance with Section 15065 of the CEQA Guidelines.

E. Scope of Environmental Analysis

For evaluation of environmental impacts, each question from the Environmental Checklist Form is summarized and responses are provided according to the analysis undertaken as part of the Initial Study. Impacts and effects will be evaluated and quantified, when appropriate. To each question, there are four possible responses, including:

1. **No Impact:** A “No Impact” response is adequately supported if the impact simply does not apply to the proposed applications.
2. **Less Than Significant Impact:** The proposed applications will have the potential to impact the environment. These impacts, however, will be less than significant; no additional analysis is required.
3. **Less Than Significant With Mitigation Incorporated:** This applies where incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.”
4. **Potentially Significant Impact:** The proposed applications could have impacts that are considered significant. Additional analyses and possibly an EIR could be required to identify mitigation measures that could reduce these impacts to less than significant levels.

F. Policy-Level or Project-Level Environmental Analysis

This Initial Study will be conducted under a policy-level, project-level analysis.

Regarding mitigation measures, it is not the intent of this document to “overlap” or restate conditions of approval that are commonly established for future known projects or the proposed applications. Additionally, those other standard requirements and regulations that any development must comply with, that are outside the County’s jurisdiction, are also not considered mitigation measures, and therefore, will not be identified in this document.

G. Tiered Documents and Incorporation by Reference

Information, findings, and conclusions contained in this document are based on incorporation by reference of tiered documentation, which are discussed in the following section.

1. Tiered Documents

As permitted in Section 15152(a) of the CEQA Guidelines, information and discussions from other documents can be included into this document. Tiering is defined as follows:

“Tiering refers to using the analysis of general matters contained in a broader EIR (such as the one prepared for a general plan or policy statement) with later EIRs and negative declarations on narrower projects; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration solely on the issues specific to the later project.”

Tiering also allows this document to comply with Section 15152(b) of the CEQA Guidelines, which discourages redundant analyses, as follows:

“Agencies are encouraged to tier the environmental analyses which they prepare for separate but related projects including the general plans, zoning changes, and development

projects. This approach can eliminate repetitive discussion of the same issues and focus the later EIR or negative declaration on the actual issues ripe for decision at each level of environmental review. Tiering is appropriate when the sequence of analysis is from an EIR prepared for a general plan, policy or program to an EIR or negative declaration for another plan, policy, or program of lesser scope, or to a site-specific EIR or negative declaration.”

Further, Section 15152(d) of the CEQA Guidelines states:

“Where an EIR has been prepared and certified for a program, plan, policy, or ordinance consistent with the requirements of this section, any lead agency for a later project pursuant to or consistent with the program, plan, policy, or ordinance should limit the EIR or negative declaration on the later project to effects which:

- (1) Were not examined as significant effects on the environment in the prior EIR; or
- (2) Are susceptible to substantial reduction or avoidance by the choice of specific revisions in the project, by the imposition of conditions, or other means.”

2. Incorporation by Reference

Incorporation by reference is a procedure for reducing the size of EIRs/MND and is most appropriate for including long, descriptive, or technical materials that provide general background information, but do not contribute directly to the specific analysis of the project itself. This procedure is particularly useful when an EIR or Negative Declaration relies on a broadly-drafted EIR for its evaluation of cumulative impacts of related projects (*Las Virgenes Homeowners Federation v. County of Los Angeles* [1986, 177 Ca.3d 300]). If an EIR or Negative Declaration relies on information from a supporting study that is available to the public, the EIR or Negative Declaration cannot be deemed unsupported by evidence or analysis (*San Francisco Ecology Center v. City and County of San Francisco* [1975, 48 Ca.3d 584, 595]).

When an EIR or Negative Declaration incorporates a document by reference, the incorporation must comply with Section 15150 of the CEQA Guidelines as follows:

- The incorporated document must be available to the public or be a matter of public record (CEQA Guidelines Section 15150[a]). The General Plan EIR is available, along with this document, at the County of Imperial Planning & Development Services Department, 801 Main Street, El Centro, CA 92243 Ph. (442) 265-1736.
- This document must be available for inspection by the public at an office of the lead agency (CEQA Guidelines Section 15150[b]). These documents are available at the County of Imperial Planning & Development Services Department, 801 Main Street, El Centro, CA 92243, Ph. (442) 265-1736.
- These documents must summarize the portion of the document being incorporated by reference or briefly describe information that cannot be summarized. Furthermore, these documents must describe the relationship between the incorporated information and the analysis in the tiered documents (CEQA Guidelines Section 15150[c]). As discussed above, the tiered EIRs address the entire project site and provide background and inventory information and data which apply to the project site. Incorporated information and/or data will be cited in the appropriate sections.



- These documents must include the State identification number of the incorporated documents (CEQA Guidelines Section 15150[d]). The State Clearinghouse Number for the 'County of Imperial General Plan EIR is SCH #93011023.

The material to be incorporated in this document will include general background information (CEQA Guidelines Section 15150[f])

Environmental Checklist Form

1. **Project Title:** VEGA SES 4 Solar Energy Project
2. **Lead Agency name and address:** Imperial County Planning & Development Services Department, 801 Main Street, El Centro, CA 92243
3. **Contact person and phone number:** Diana Robinson, Planner III, 442-265-1751
4. **Project location:** The project site is located on approximately 531 acres of privately-owned land in the southernmost portion of Imperial County, California. The project site is between the U.S./Mexico international border and the All-American Canal, on the California side (Figure 1). As depicted on Figure 2, the project site is on three parcels (Assessor Parcel Numbers 059-290-010, 059-300-015, and 059-300-017) that are contiguous with each other. It is approximately 10 miles east of the City of Calexico in Sections 10, 11, 14, 15, and 16 within Township 17 South, and Range 16 East of the San Bernardino Base and Meridian of the Bonds Corner topographic 7.5 minute quadrangle. As shown on Figure 1, the project site is located entirely within the County's Renewable Energy Overlay Zone.
5. **Project sponsor's name and address:** Apex Energy Solutions, LLC, 604 Sutter Street, Suite 250, Folsom, CA 95630
6. **General Plan Designation:** Agriculture
7. **Zoning:** A-3-RE (Heavy Agriculture with a Renewable Energy Zone Overlay)
8. **Description of project:** The proposed project consists of three primary components: 1) solar energy generation equipment and associated facilities including a substation and access roads (herein referred to as "solar energy facility"); 2) battery storage system; and, 3) gen-tie line that would connect the proposed on-site substation to the point of interconnection at the existing Imperial Irrigation District's 92-kV "P" line.

The proposed project involves the construction of a 100-megawatt (MW) alternating current (AC) photovoltaic (PV) solar energy facility with an integrated 100 MW battery storage system (not to exceed 200 MW) on approximately 531 acres of land. The project proposes to utilize either thin film or crystalline solar PV technology modules mounted either on fixed frames or horizontal single-axis tracker (HSAT) systems. The project would include electronic/electrical equipment, an on-site substation, access road(s) and fencing. The electrical energy produced by the project would be conducted through the project's interconnection facilities to the proposed 92 kV generator intertie (gen-tie) line and delivered to the existing IID approved point of interconnection on the 92-kV "P" Line.
9. **Surrounding land uses and setting: Briefly describe the project's surroundings:** The irregular shaped project site is bound by undeveloped land, portions of which have been disturbed associated with previous agricultural-related activities, to the west and east, the All-American Canal running southwest on the northern border of the project site, and the U.S./Mexico international border to the south. The project site is currently characterized by flat and undeveloped land, portions of which have been disturbed associated with previous agricultural-related activities.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.):

- Department of Public Works – Ministerial permits (building, grading, encroachment)
- Imperial County Air Pollution Control District – Fugitive dust control plan, Authority to construct
- California Regional Water Quality Control Board – Notice of Intent for General Construction Permit
- Imperial Irrigation District – Water supply agreement/permit for water use lease agreement

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

12. Yes, an AB 52 consultation request letter was sent to the Quechan Indian Tribe on March 26, 2021. On April 1, 2021, the Quechan Indian Tribe requested consultation with the County on the project.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Aesthetics | <input checked="" type="checkbox"/> Agriculture and Forestry Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology/Soils | <input checked="" type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials |
| <input checked="" type="checkbox"/> Hydrology / Water Quality | <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing | <input checked="" type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input checked="" type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input checked="" type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Wildfire | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

Environmental Evaluation Committee Determination

After Review of the Initial Study, the Environmental Evaluation Committee (EEC) has:

- Found that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- Found that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- Found that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- Found that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- Found that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

CALIFORNIA DEPARTMENT OF FISH AND GAME DE MINIMIS IMPACT FINDING:

Yes No

EEC VOTES

	YES	NO	ABSENT
PUBLIC WORKS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ENVIRONMENTAL HEALTH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OFFICE EMERGENCY SERVICES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
APCD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AG	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SHERIFF DEPARTMENT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICPDS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Jim Minnick, Director of Planning/EEC Chairman

Date:

Signature

Project Summary

Project Location

The project site is located on approximately 531 acres of privately-owned land in the southernmost portion of Imperial County, California. The project site is between the U.S./Mexico international border and the All-American Canal, on the California side (Figure 1). As depicted on Figure 2, the project site is on three parcels (Assessor Parcel Numbers 059-290-010, 059-300-015, and 059-300-017) that are contiguous with each other. It is approximately 10 miles east of the City of Calexico in Sections 10, 11, 14, 15, and 16 within Township 17 South, and Range 16 East of the San Bernardino Base and Meridian of the Bonds Corner topographic 7.5 minute quadrangle. As shown on Figure 1, the project site is located entirely within the County's Renewable Energy Overlay Zone.

Project Summary

The proposed project consists of three primary components: 1) solar energy generation equipment and associated facilities including a substation and access roads (herein referred to as "solar energy facility"); 2) battery storage system; and, 3) gen-tie line that would connect the proposed on-site substation to the point of interconnection at the existing Imperial Irrigation District's 92-kV "P" line.

The proposed project involves the construction of a 100-megawatt (MW) alternating current (AC) photovoltaic (PV) solar energy facility with an integrated 100 MW battery storage system (not to exceed 200 MW) on approximately 531 acres of land. The project proposes to utilize either thin film or crystalline solar PV technology modules mounted either on fixed frames or horizontal single-axis tracker (HSAT) systems. The project would include electronic/electrical equipment, an on-site substation, access road(s) and fencing. The electrical energy produced by the project would be conducted through the project's interconnection facilities to the proposed 92 kV generator intertie (gen-tie) line and delivered to the existing IID approved point of interconnection on the 92-kV "P" Line.

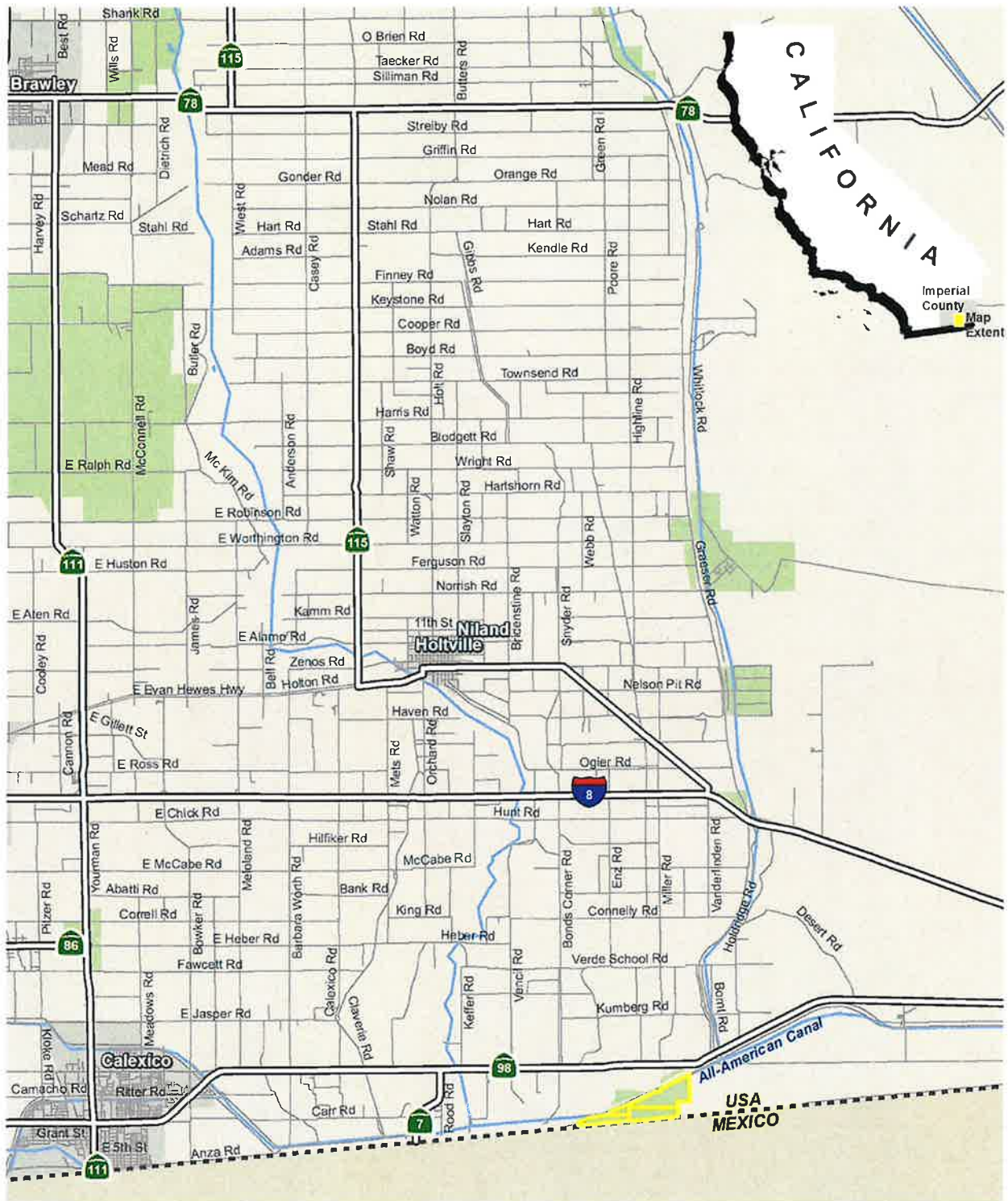
Environmental Setting

The irregular shaped project site is bound by undeveloped land, portions of which have been disturbed associated with previous agricultural-related activities to the west and east, the All-American Canal running southwest on the northern border of the project site, and the U.S./Mexico international border to the south. The project site is currently characterized by flat and undeveloped land, portions of which have been disturbed associated with previous agricultural-related activities.

General Plan Consistency

The proposed project is located within an unincorporated area of the County. The existing General Plan land use designation is "Agriculture." The project site is currently zoned A-3-RE (Heavy Agriculture with a Renewable Energy Zone Overlay). Construction of a solar facility would be allowed within the existing zoning under a Conditional Use Permit.

Figure 1. Regional Location

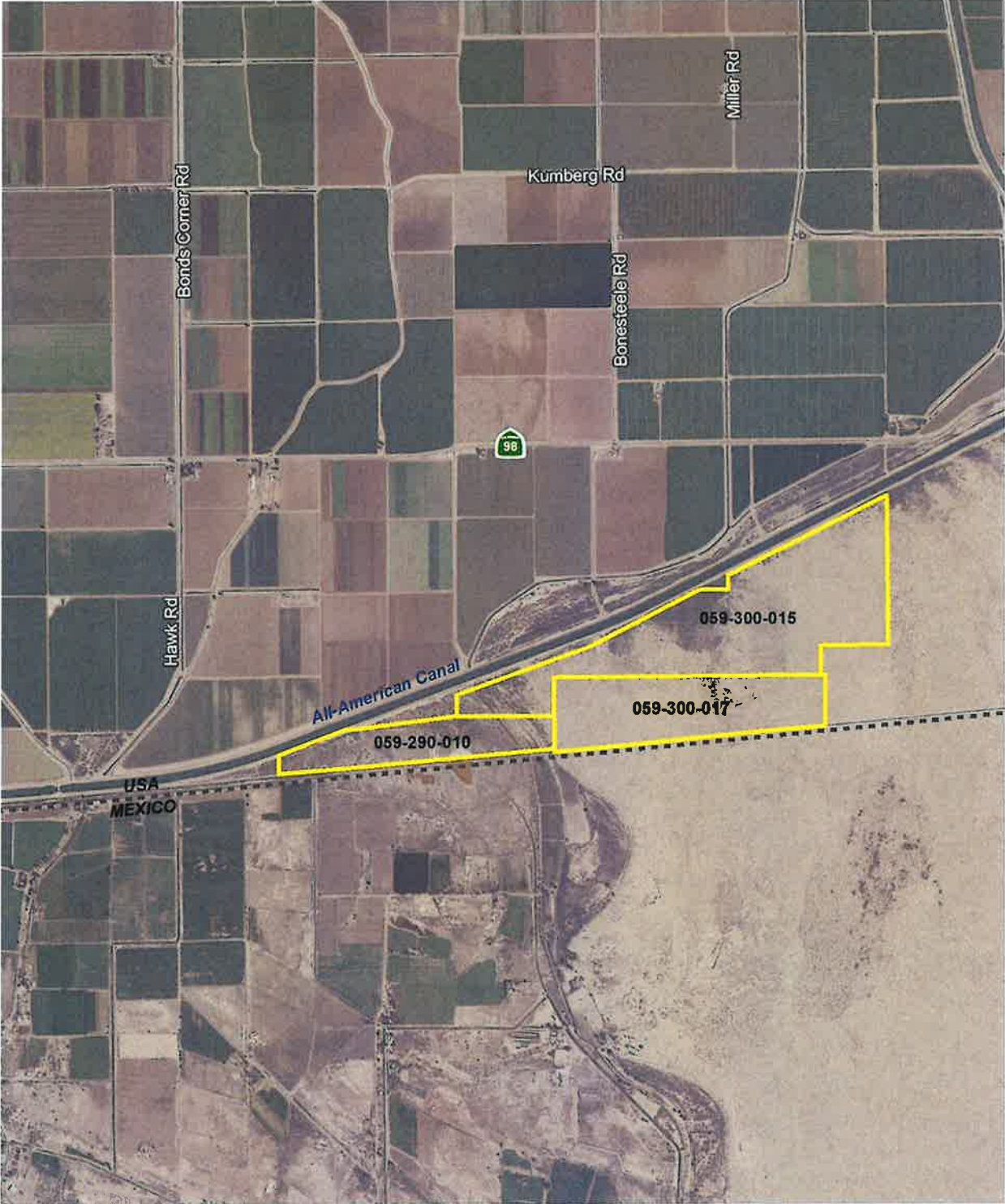


LEGEND

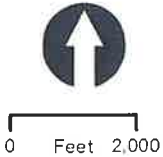
- VEGA SES 4 Project Area
- Renewable Energy Overlay Zone



Figure 2. Project Site



Legend
 VEGA SES 4 Project Parcels



Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors, as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - a. Earlier Analysis Used. Identify and state where they are available for review.
 - b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
 - a. The significance criteria or threshold, if any, used to evaluate each question; and
 - b. The mitigation measure identified, if any, to reduce the impact to less than significance.

I. Aesthetics

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact Analysis

- a) **No Impact.** The project site is not located within an area that has been formally identified as a federal, state, or county scenic vista. No scenic vistas or areas with high visual quality would be disrupted. Thus, no impact is identified for this issue area and no further analysis is warranted.
- b) **No Impact.** According to the California Department of Transportation (Caltrans) California Scenic Highway Mapping System (Caltrans 2018), the project site is not located within a state scenic highway corridor, nor are there any state scenic highways located in proximity to the project site. The proposed project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway. Therefore, no impact is identified for this issue area and no further analysis is warranted.
- c) **Potentially Significant Impact.** Although the project site is not located near a scenic highway or designated scenic vista, the proposed project may result in a change to the look and rural character of the area. Therefore, a potentially significant impact is identified for this issue area. A visual assessment will be prepared for the project and this issue will be addressed in the EIR.
- d) **Potentially Significant Impact.** Minimal lighting is required for project operation and is limited to safety and security functions. All lighting will be directed away from any public right-of-way; however, there is no heavily traveled public roadway in immediate proximity to the project site. The solar panels will be constructed of low reflective materials; therefore, it is not anticipated that they would result in creating glare. The proposed project is located in a rural undeveloped area of Imperial County. There are no established residential neighborhoods immediately adjacent to the project site. Although the proposed project is not expected to create a new source of substantial light or glare affecting day or nighttime views, this issue will be analyzed further in the EIR. Therefore, a potentially significant impact is identified for this issue area.

II. Agriculture and Forestry Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<p><i>In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:</i></p>				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

- a) **No Impact.** According to the farmland maps prepared by the California Department of Conservation (2016), the majority of the project site is designated as Other Land. A portion of the project site is designated as Farmland of Local Importance. Farmland of Local Importance is not considered an “agricultural land” per CEQA Statute Section 21060.1(a). Furthermore, the project site does not contain Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. Therefore, no impact would result from the conversion of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland to non-agricultural use.

- b) **Potentially Significant Impact.** The project site is currently designated by the General Plan as "Agriculture" and is zoned A-3-RE (Heavy Agriculture with a Renewable Energy Zone Overlay). Pursuant to Title 9, Division 5, Chapter 9, "Solar Energy Plants" and "Transmission lines, including supporting towers, poles microwave towers, utility substations" are uses that are permitted in the A-3 Zone, subject to approval of a CUP. Because the project site is located on lands designated for agricultural uses, this issue will be analyzed in further detail in the EIR.

According to the 2016/2017 Imperial County Williamson Act Map produced by the California Department of Conservation's Division of Land Resource Protection, the project site is not located on Williamson Act contracted land. Therefore, the proposed project would not conflict with a Williamson Act contract and no impact would occur.

- c) **No Impact.** There are no existing forest lands, timberlands, or timberland zoned "Timberland Production" within or immediately adjacent to the project site that would conflict with existing zoning or cause rezoning. Therefore, no impact is identified for this issue area.
- d) **No Impact.** There are no existing forest lands within or immediately adjacent to the project site. The proposed project would not result in the loss of forest land or conversion of forest land to non-forest use. Therefore, no impact is identified for this issue area.
- e) **No Impact.** Refer to response II. a) above.



III. Air Quality

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.				
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

- a) **Potentially Significant Impact.** The project site is located within the jurisdiction of Imperial County Air Pollution Control District (ICAPCD) in the Imperial County portion of the Salton Sea Air Basin. Construction of the proposed project would create temporary emissions of dust, fumes, equipment exhaust, and other air contaminants that may conflict with the ICAPCD's rules and regulations. No stationary source emissions are proposed from the proposed project; however, temporary construction emissions have the potential to result in a significant air quality impact.
- b) **Potentially Significant Impact.** Currently, the Salton Sea Air Basin is either in attainment or unclassified for all federal and state air pollutant standards, with the exception of the federal ozone (O₃), particulate matter less than 10 microns in diameter (PM₁₀) and particulate matter less than 2.5 microns in diameter (PM_{2.5}) standards, and state standards for O₃ and PM₁₀. Air pollutants transported into the Salton Sea Air Basin from the adjacent South Coast Air Basin (Los Angeles County, San Bernardino County, Orange County, and Riverside County) and Mexicali (Mexico) substantially contribute to the non-attainment conditions in the Salton Sea Air Basin. A potentially significant impact is identified for this issue area. An air quality and greenhouse gas study will be prepared to analyze the proposed project's potential air quality impacts and will be included in the EIR analysis.
- c) **Potentially Significant Impact.** The project site is located in a rural agricultural area of Imperial County. Sensitive receptors consisting of a few scattered rural homes along SR-98 are located within one mile north of the project site. This issue will be addressed in the air quality and greenhouse gas study and EIR analysis.
- d) **No Impact.** Land uses commonly considered to be potential sources of odorous emissions include wastewater treatment plants, sanitary landfills, food processing facilities, chemical manufacturing plants, rendering plants, paint/coating operations, and concentrated agricultural feeding operations and dairies. The construction and operation of a solar facility is not an odor producer and the project site is not located near an odor producer. Therefore, no impact is identified for this issue area.

IV. Biological Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

- a) **Potentially Significant Impact.** According to the Conservation and Open Space Element of the General Plan (County of Imperial 2016), numerous special-status species occur in the County of Imperial, and of particular concern are the western burrowing owl and flat-tailed horned lizard which may have the potential to occur within the project site. The project site has the potential to support native habitats and/or sensitive species. Burrowing owls and burrows are commonly found along canals and drains. Although there are no IID canals located within the project site, access roads, canals, and other drainages are located in the project vicinity, such as the All American Canal immediately north of the proposed project. Thus, a potentially



significant impact is identified for this issue area. A biological resources technical study that will address the proposed project's potential impacts on biological resources will be prepared and included in the EIR analysis.

- b) **Potentially Significant Impact.** Refer to response IV. a) above.
- c) **Potentially Significant Impact.** According to the National Wetlands Inventory, there are two wetland features mapped within the project site. An aquatic resources delineation that will address the proposed project's potential impacts on state or federally protected wetlands will be prepared and included in the EIR analysis.
- d) **Potentially Significant Impact.** Refer to response IV. a) above.
- e) **Potentially Significant Impact.** Refer to response IV. a) above.
- f) **No Impact.** The project site is not located in a Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No impact is identified for this issue area.

V. Cultural Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact Analysis

- a) **Potentially Significant Impact.** The project site consists of undeveloped land that appears to have been historically altered. The disturbed nature of the site, including the existence of old agricultural-use related foundations and farming equipment including an irrigation system, indicates that portions of the land may have been historically used for agricultural purposes. Thus, the presence of significant or undamaged cultural resources on the site is unlikely. Although the proposed project is not expected to cause a substantial adverse change in the significance of a historical resource or archaeological resource, this issue will be analyzed further in the EIR. Therefore, a potentially significant impact is identified for this issue area. A cultural resources report that will address the proposed project's potential impacts on historic and prehistoric resources will be prepared and this issue will be addressed in the EIR.
- b) **Potentially Significant Impact.** Refer to response V. a) above.
- c) **Potentially Significant Impact.** Although unlikely, there is a potential for unknown human remains to be unearthed during earthwork activities. This issue is potentially significant and will be addressed in the EIR.

VI. Energy

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

- a) **Less than Significant Impact.** The use of energy associated with the proposed project includes both construction and operational activities. Construction activities consume energy through the use of heavy construction equipment and truck and worker traffic. The proposed project will use energy-conserving construction equipment, including standards for construction combustion equipment recommended in the ICAPCD CEQA Air Quality Handbook. The use of better engine technology, in conjunction with the ICAPCD's standards will reduce the amount of energy used for the proposed project. Additionally, implementation and operation of the proposed project would promote the use of renewable energy and contribute incrementally to the reduction in demand for fossil fuel use for electricity-generating purposes. Therefore, the proposed project would generate renewable energy resources and is considered a beneficial effect.

Based on these considerations, the proposed project would not result in significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation. A less than significant impact has been identified for this issue area.

- b) **No Impact.** The proposed project would help California meet its Renewable Portfolio Standard of 60 percent of retail electricity sales from renewable sources by the end of 2030 and 100 percent by 2045. The electricity generation process associated with the project would utilize solar technology to convert sunlight directly into electricity. Solar PV technology is consistent with the definition of an "eligible renewable energy resource" in Section 399.12 of the California Public Utilities Code (CPUC) and the definition of "in-state renewable electricity generation facility" in Section 25741 of the CPUC. Therefore, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. No Impact is identified for this issue area and no further analysis is warranted.

VII. Geology and Soils

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Strong seismic ground shaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial direct or indirect risk to life or property?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact Analysis

- a) **No Impact.** The project site is not located within a State of California, Alquist-Priolo Earthquake Fault Zone. Therefore, no impact is identified for this issue area.
- aii) **Potentially Significant Impact.** The project site is located in the seismically-active Imperial Valley in Southern California and considered likely to be subjected to moderate to strong ground motion from earthquakes in the region. The project site could be affected by the occurrence of seismic activity to some degree but no more than the surrounding properties. A potentially significant impact has been identified for this issue area. A geotechnical report that will address the proposed project's potential impacts on geology and soils will be prepared and this issue will be addressed in the EIR.
- aiii) **Potentially Significant Impact.** Liquefaction occurs when granular soil below the water table is subjected to vibratory motions, such as vibratory motion produced by earthquakes. With strong ground shaking, an increase in pore water pressure develops as the soil tends to reduce in volume. If the increase in pore water pressure is sufficient to reduce the vertical effective stress (suspending the soil particles in water), the soil strength decreases, and the soil behaves as a liquid (similar to quicksand). Liquefaction can produce excessive settlement, ground rupture, lateral spreading, or failure of shallow bearing foundations.

Four conditions are generally required for liquefaction to occur:

- 1) The soil must be saturated (relatively shallow groundwater).
- 2) The soil must be loosely packed (low to medium relative density).
- 3) The soil must be relatively cohesionless (not clayey).
- 4) Groundshaking of sufficient intensity must occur to function as a trigger mechanism.

All these conditions may exist to some degree at the project site. Therefore, there is a potentially significant impact associated with liquefaction. A geotechnical report that will address the proposed project's potential impacts on geology and soils will be prepared and this issue will be addressed in the EIR.

- aiv) **No Impact.** According to Figure 2: Landslide Activity in the Seismic and Public Safety Element of the General Plan (County of Imperial 1997), the project site is not located in an area that is prone to landslide hazards. Furthermore, the project site and surrounding area is relatively flat. Therefore, no impact is identified for this issue area.
- b) **Less than Significant Impact.** According to Figure 3: Erosion Activity in the Soil the Seismic and Public Safety Element of the General Plan (County of Imperial 1997), the project site is within a generally flat area with low levels of natural erosion. However, soil erosion can result during construction as grading and construction can loosen surface soils and make soils susceptible to wind and water movement across the surface. Impacts are not considered significant because erosion would be controlled on-site in accordance with Imperial County standards including preparation, review, and approval of a grading plan by the Imperial County Engineer. Implementation of Imperial County standards would reduce the potential impacts to a less than significant level.
- c) **Potentially Significant Impact.** Near surface soils within the project site will need to be identified to determine if the soils are unstable. Therefore, this issue is potentially significant and will be analyzed in the EIR.
- d) **Potentially Significant Impact.** Near surface soils within the project site will need to be identified to determine if they consist of soils having expansion potential. Therefore, this issue is potentially significant and will be analyzed in the EIR.
- e) **No Impact.** The proposed project would not require the installation of septic tanks or alternative wastewater disposal systems. The proposed solar facility would be remotely operated, controlled and monitored and with no requirement for daily on-site employees. Therefore, no impact is identified for this issue area.
- f) **Potentially Significant Impact.** Many paleontological fossil sites are recorded in Imperial County and have been discovered during construction activities. Paleontological resources are typically impacted when earthwork activities, such as mass excavation cut into geological deposits (formations) with buried fossils. It is not known if any paleontological resources are located on the project site. The proposed project's potential to impact paleontological resources will be addressed in the EIR.

VIII. Greenhouse Gas Emissions

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact Analysis

- a) **Potentially Significant Impact.** In the long-term, the project is expected to provide a benefit with respect to reduction of greenhouse gas emissions. However, the proposed project has the potential to generate greenhouse gas emissions during construction, in addition to construction worker trips to and from the project site. Thus, a potentially significant impact is identified for this issue area. A greenhouse gas emissions/climate change technical report will be prepared for the proposed project, and this issue will be addressed in the EIR.
- b) **Potentially Significant Impact.** Refer to response VIII. a) above.



IX. Hazards and Hazardous Materials

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Impact Analysis

- a) **Less than Significant Impact.** Construction of the proposed project will involve the limited use of hazardous materials, such as fuels and greases to fuel and service construction equipment. No extremely hazardous substances are anticipated to be produced, used, stored, transported, or disposed of as a result of project construction. Operation of the project will be conducted remotely. Therefore, no habitable structures (e.g. housing or operation and maintenance [O&M] building) are proposed on-site. Regular and routine maintenance of the proposed project may result in the potential to handle hazardous materials. However, the hazardous materials handled on-site would be limited to small amounts of everyday use cleaners and common chemicals used for maintenance. The applicant will be required to comply with State

laws and County Ordinance restrictions, which regulate and control hazardous materials handled on-site. Such hazardous wastes would be transported off-site for disposal according to applicable State and County restrictions and laws governing the disposal of hazardous waste during construction and operation of the project. Therefore, this is considered a less than significant impact.

- b) **Less than Significant Impact.** Refer to response IX. a) above.
- c) **No Impact.** The project site is not located within 0.25 mile of an existing or proposed school. No impact is identified for this issue area.
- d) **No Impact.** Based on a review of the Cortese List conducted in March 2021, the project site is not listed as a hazardous materials site. No impact is identified for this issue area.
- e) **No Impact.** The project site is not located within 2 miles of a public airport. The nearest airports to the project site are the Calexico International Airport located approximately 10 miles west of the project site and Holtville Airport located approximately 10 miles north of the project site. Therefore, implementation of the proposed project would not result in a safety hazard or excessive noise for people residing or working in the project area. No impact is identified for this issue area.
- f) **Less than Significant Impact.** The proposed project is not expected to impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The project applicant will be required, through the conditions of approval, to prepare a street improvement plan for the project that will include emergency access points and safe vehicular travel. In addition, local building codes would be followed to minimize flood, seismic, and fire hazard. Therefore, the proposed project would result in a less than significant impact associated with the possible impediment to emergency plans.
- g) **Less than Significant Impact.** The project site is located in the unincorporated area of Imperial County. According to the Seismic and Public Safety Element of the General Plan (County of Imperial 1997), the potential for a major fire in the unincorporated areas of the County is generally low. A 10,000-gallon aboveground water storage tank will be installed on-site as required by the Imperial County Fire Department. The water tank(s) would be sized to meet the requirements of the County of Imperial to supply sufficient fire suppression water during operations. Furthermore, proposed project facilities would be designed, constructed, and operated in accordance with applicable fire protection and other environmental, health, and safety requirements. Based on these considerations, a less than significant impact is identified for this issue area.

X. Hydrology and Water Quality

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

- a) **Potentially Significant Impact.** The proposed project has the potential to create urban non-point source discharge (e.g., synthetic/organic chemicals). Potentially significant water quality impacts have been identified and will be addressed in the EIR.
- b) **Less than Significant Impact.** During construction, potable water would be brought to the site for drinking and domestic needs, while construction water would be brought to the project site for soil conditioning and

dust suppression. During operations, potable water would be trucked onto the project site. Because the solar panels will be pole-mounted above ground, they are not considered "hardscape", such as roads, building foundations, or parking areas, as they do not require a substantial amount of impervious material. The panels and their mounting foundation would not impede groundwater recharge. Therefore, impacts would be less than significant.

- ci) **Less than Significant Impact.** The proposed project would not substantially alter the existing drainage pattern of the site. It is anticipated that the proposed drainage patterns would be similar to the existing site conditions. The project applicant would be required to implement on-site erosion control measures in accordance with Imperial County standards including preparation, review, and approval of a grading plan by the Imperial County Engineer. The proposed project is not anticipated to generate a significant increase in the amount of runoff water from water use involving solar panel washing. Water will continue to percolate through the ground, as a majority of the surface on the project site will remain pervious. Therefore, the proposed project would not substantially increase the rate of runoff, in a manner which would exceed the capacity of existing or planned stormwater drainage systems and result in flooding on- or off-site. A less than significant impact is identified for this issue area.
- cii) **Less than Significant Impact.** Refer to response X. ci) above.
- ciii) **Less than Significant Impact.** Refer to response X. ci) above.
- civ) **No Impact.** According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (Panel 06025C2125C) (FEMA 2008), the project site is within Zone X, which is an area determined to be outside of the 0.2 percent annual chance of a flood. The proposed project does not propose the placement of structures within a 100-year flood hazard area. Therefore, the proposed project would not impede or redirect flood flows. No impact is identified for this issue area and no further analysis is warranted.
- d) **No Impact.** The project site is within Zone X, which is an area determined to be outside of the 0.2 percent annual chance of a flood. The project site is not located near any large bodies of water. The Salton Sea is located approximately 37 miles northwest of the project site. Furthermore, the relatively flat project site is over 100 miles inland from the Pacific Ocean. Therefore, the proposed project would not risk release of pollutants due to project inundation by flood, tsunami or seiche. No impact is identified for this issue area.
- e) **No Impact.** The proposed project will not involve the use of groundwater nor require dewatering activities. Water to be used during project-related construction activities will be brought to the site and limited to the amount necessary for soil conditioning and to conduct dust control activities. Water is anticipated to be provided by adjacent IID irrigation canals or laterals in conformance with IID construction water acquisition requirements. Therefore, the proposed project will not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. No impact is identified for this issue area.

XI. Land Use and Planning

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Impact Analysis

- a) **No Impact.** The proposed project is located in a sparsely populated, agriculturally zoned portion of Imperial County. There are no established residential communities located within or in the vicinity of the project site. Therefore, implementation of the proposed project would not divide an established community. No impact is identified for this issue area.
- b) **Less than Significant Impact.** The project site is currently designated by the General Plan as "Agriculture" and is zoned A-3-RE (Heavy Agriculture with a Renewable Energy Zone Overlay). Pursuant to Title 9, Division 5, Chapter 9, "Solar Energy Plants" and "Transmission lines, including supporting towers, poles microwave towers, utility substations" are uses that are permitted in the A-3 Zone, subject to approval of a CUP.

The County Land Use Ordinance, Division 17, includes the Renewable Energy Overlay Zone, which authorizes the development and operation of renewable energy projects, with an approved CUP. As shown on Figure 1, the project site is located entirely within the County's Renewable Energy Overlay Zone. With approval of a CUP, the proposed solar facility would be consistent with the Imperial County Land Use Ordinance. Based on these considerations, the proposed project would not conflict with any applicable land use plan, policy, or regulation. Thus, a less than significant impact is identified for this issue area.

XII. Mineral Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

- a) **No Impact.** The project site is not used for mineral resource production. According to Figure 8: Imperial County Existing Mineral Resources of the Conservation and Open Space Element of the General Plan (County of Imperial 2016), no known mineral resources occur within the project site nor does the project site contain mapped mineral resources. Therefore, the proposed project would not result in the loss of availability of any known mineral resources that would be of value to the region and the residents of California nor would the proposed project result in the loss of availability of a locally important mineral resource. Thus, no impact is identified for this issue area and no further analysis is warranted.
- b) **No Impact.** Refer to response XIII. a) above.

XIII. Noise

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

- a) **Less than Significant Impact.** The Imperial County Title 9 Land Use Ordinance, Division 7, Chapter 2, Section 90702.00 - Sound level limits, establishes one-hour average sound level limits for the County's land use zones. Agricultural/industrial operations are required to comply with the noise levels prescribed under the general industrial zones. Therefore, the proposed project will be required to maintain noise levels below 75 decibels (dB) (averaged over one hour) during any time of day.

The proposed project will also be expected to comply with the Noise Element of the General Plan which states that construction noise, from a single piece of equipment or a combination of equipment, shall not exceed 75 dB, when averaged over an eight hour period, and measured at the nearest sensitive receptor. Construction equipment operation is also limited to the hours of 7 a.m. to 7 p.m., Monday through Friday, and 9 a.m. to 5 p.m on Saturday. Nevertheless, the proposed project will result in the increase in ambient noise levels during construction. A noise report that will address the proposed project's potential noise impacts will be prepared and this issue will be addressed in the EIR.
- b) **Less than Significant Impact.** Groundborne vibration and noise could originate from earth movement during the construction phase of the proposed project. However, significant vibration is typically associated with activities such as blasting or the use of pile drivers, neither of which would be required during project construction. The proposed project would be expected to comply with all applicable requirements for long-term operation, as well as with measures to reduce excessive groundborne vibration and noise to ensure that the proposed project would not expose persons or structures to excessive groundborne vibration. Therefore, a less than significant impact has been identified for this issue area.
- c) **No Impact.** The project site is not located within 2 miles of a public airport or private airstrip. The nearest airport to the project site is the Calexico International Airport, located approximately 10 miles west of the project site. Therefore, the proposed project would not expose people residing or working in the project area to excess noise levels and no impact is identified for this issue area.

XIV. Population and Housing

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis


- a) **No Impact.** Development of housing is not proposed as part of the proposed project. No full-time employees are required to operate the proposed project since the project facility will be monitored remotely. However, it is anticipated that maintenance of the facility will require minimal site presence to perform periodic visual inspections and minor repairs. On intermittent occasions, the presence of additional workers may be required for repairs or replacement of equipment and panel cleaning; however, due to the nature of the facility, such actions will likely occur infrequently. Therefore, the proposed project would not result in a substantial growth in the area, as the number of employees required to operate and maintain the facility is minimal. No impact is identified for this issue area.
- b) **No Impact.** No housing exists within the project site. Therefore, the proposed project would not displace any existing people or housing, which would require the construction of replacement housing elsewhere. No impact is identified for this issue area.

XV. Public Services

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Police Protection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

- ai) **Less than Significant Impact.** Fire protection and emergency medical services in the project area are provided by the Imperial County Fire Department. The proposed site is located in the unincorporated area of Imperial County. According to the Seismic and Public Safety Element of the General Plan (County of Imperial 1997), the potential for a major fire in the unincorporated areas of the County is generally low. A 10,000-gallon aboveground water storage tank(s) would be installed on the project site as required by the Imperial County Fire Department. The water tank(s) would be sized to meet the requirements of the County of Imperial to supply sufficient fire suppression water during operations. Both the access and service roads (along the perimeter of the project facility) would have turnaround areas to allow clearance for fire trucks per fire department standards (70 feet by 70 feet, and minimum 20-foot-wide access road). The project applicant will be required to consult with the Fire Department to address any fire safety and service concerns so that adequate service is maintained. Based on these considerations, the project would not result in a need for fire facility expansion and a less than significant impact is identified for this issue area.
- a ii) **Potentially Significant Impact.** Police protection services in the project area is provided by the Imperial County Sheriff's Department. Although the potential is low, the proposed project may attract vandals or other security risks and the increase in construction related traffic could increase demand on law enforcement services. Therefore, on-site security systems would be provided and access would be limited to the areas surrounding the project site during construction and operation, thereby minimizing the need for police surveillance. The proposed project's potentially significant impacts on sheriff services will be addressed in the EIR.
- a iii) **No Impact.** The proposed project does not include the development of residential land uses that would result in an increase in population or student generation. Additionally, construction of the proposed project would not result in an increase in student population within the Imperial County's School District since it is anticipated that construction workers would commute in during construction operations. Therefore, no impact is identified for this issue area and no further analysis is warranted.
- a iv) **No Impact.** Although maintenance of the project facility will require minimal site presence to perform periodic visual inspections and minor repairs, no full-time employees are required to operate the proposed project because the project facility will be monitored remotely. Therefore, substantial permanent increases in population that would adversely affect local parks is not expected. No impact is identified for this issue area and no further analysis is warranted.

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- av) **No Impact.** Although maintenance of the project facility will require minimal site presence to perform periodic visual inspections and minor repairs, no full-time employees are required to operate the proposed project because the project facility will be monitored remotely. Therefore, substantial permanent increases in population that would adversely affect libraries and other public facilities (such as post offices) is not expected. The proposed project is not expected to have an impact on other public facilities such as post offices, and libraries. No impact is identified for this issue area and no further analysis is warranted.



XVI. Recreation

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

- a) **No Impact.** The proposed project would not generate new employment on a long-term basis. As such, the proposed project would not significantly increase the use or accelerate the deterioration of regional parks or other recreational facilities. The temporary increase of population during construction that might be caused by an influx of workers would be minimal and not cause a detectable increase in the use of parks. Additionally, the proposed project would not include or require the expansion of recreational facilities. No impact is identified for this issue area and no further analysis is warranted.
- b) **No Impact.** Refer to response XVI. a) above.

XVII. Transportation

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Impact Analysis

- a) **Potentially Significant Impact.** Construction of the proposed project would result in a small increase of traffic to the area, which may result in a potentially significant impact. Therefore, a traffic impact study that will address the proposed project's potential impacts on transportation will be prepared, and this issue will be addressed in the EIR.
- b) **Potentially Significant Impact.** Section 15064.3(b) of the CEQA Guidelines provides guidance on determining the significance of transportation impacts and focuses on the use of vehicle miles traveled (VMT), which is defined as the amount and distance of automobile travel associated with a project. Given the nature of the project, after construction, there would be a nominal amount of vehicle trips generated by the project. Once the proposed project is implemented, the proposed project would require intermittent maintenance requiring a negligible amount of traffic trips on an annual basis. However minimal, the proposed project would increase the number of vehicular trips related to construction and the need for intermittent maintenance on an annual basis. Therefore, this issue is potentially significant and will be addressed in the traffic impact study and EIR analysis.
- c) **No Impact.** To accommodate emergency access, PV panels would be spaced to maintain proper clearance. Internal access roads, up to 30-feet wide, would be constructed along the perimeter fence and solar panels to facilitate vehicle access and maneuverability for emergency unit vehicles. Access roads would be graded and compacted (native soils) as required for construction, operations, maintenance, and emergency vehicle access. These access roads would not increase hazards because of design features or incompatible uses. Therefore, no impact will occur.
- d) **Less than Significant Impact.** To accommodate emergency access, PV panels would be spaced to maintain proper clearance. 30-foot wide internal access roads would be constructed along the perimeter fence and solar panels to facilitate vehicle access and maneuverability for emergency unit vehicles. The internal access roads would be graded and compacted (native soils) as required for construction, operations, maintenance, and emergency vehicle access. The access and service roads would also have turnaround areas at any dead-end to allow clearance for fire trucks per fire department standards. Based on this context, impacts are considered less than significant.

XVIII. Tribal Cultural Resources

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Would the project cause a substantial adverse change in the significance of a tribal cultural resource defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:</i>				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact Analysis

a-b) **Potentially Significant Impact.** Assembly Bill 52 was passed in 2014 and took effect July 1, 2015. It established a new category of environmental resources that must be considered under CEQA called tribal cultural resources (Public Resources Code 21074) and established a process for consulting with Native American tribes and groups regarding those resources. Assembly Bill 52 requires a lead agency to begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project.

In accordance with AB 52, Imperial County, as the CEQA lead agency, sent an AB 52 consultation request letter to the Quechan Indian Tribe on March 26, 2021. On April 1, 2021, the Quechan Indian Tribe requested consultation with the County on the project. The County is in the process of consulting with the Quechan Indian Tribe on the project. This issue will be further analyzed in the EIR.

XIX. Utilities and Service Systems

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Impact Analysis

- a) **Potentially Significant Impact.** No IID drains or canals will be impacted by the proposed project. The proposed project does not require expanded or new storm drainage facilities because the proposed solar facility would not generate a significant increase in the amount of impervious surfaces that would increase runoff during storm events and exceed the capacity of existing or planned stormwater drainage systems. Water from solar panel washing would continue to percolate through the ground, as a majority of the surfaces within the project site would remain pervious.

The wastewater generated during construction would be contained within portable toilet facilities and disposed of at an approved site. The minimal volume of wastewater generated during construction would not require the relocation expansion, or construction of wastewater treatment facilities. Further, no habitable structures (e.g. housing or O&M buildings) are proposed on the project site. Therefore, the proposed project would not require or result in the relocation or construction of new or expanded electric power, natural gas, or telecommunications facilities.

Although water for solar panel washing and fire protection (on-site storage) during project operation is not anticipated to result in a significant increase in water demand/use, IID would provide the water required for operations and maintenance and potable water will be trucked onto the site. Thus, a potentially significant impact is identified for the availability of sufficient water supplies to serve the proposed project for the reasonably foreseeable future. A water supply assessment that will address the proposed project's potential impacts on water supplies will be prepared and included in the EIR analysis.

- b) **Potentially Significant Impact.** Refer to response XIX. a) above.
- c) **Less than Significant Impact.** The proposed project would generate a minimal volume of wastewater during construction. During construction activities, wastewater would be contained within portable toilet facilities and disposed of at an approved site. Further, no habitable structures (e.g. housing or O&M buildings) are proposed on the project site; therefore, there would be no wastewater generation from the proposed project during operation. The proposed project would not exceed wastewater treatment requirements of the RWQCB. Therefore, a less than significant impact is identified for this issue area.
- d) **Less than Significant Impact.** Solid waste generation would be minor for the construction and operation of the proposed project. Solid waste will be disposed of using a locally-licensed waste hauling service, most likely Allied Waste. Trash would likely be hauled to the Calexico Solid Waste Site (13-AA-0004) located approximately 13 miles west of the proposed project in Calexico. The Calexico Solid Waste Site has approximately 1,561,235 cubic yards of remaining capacity and is estimated to remain in operation through 2179 (CalRecycle n.d.). Therefore, there is ample landfill capacity in the County to receive the minor amount of solid waste generated by construction and operation of the proposed project.

Additionally, because the proposed project would generate solid waste during construction and operation, they will be required to comply with state and local requirements for waste reduction and recycling; including the 1989 California Integrated Waste Management Act and the 1991 California Solid Waste Reuse and Recycling Access Act of 1991. Also, conditions of the conditional use permit will contain provisions for recycling and diversion of Imperial County construction waste policies. Therefore, a less than significant impact is identified for this issue area.

- e) **Less than Significant Impact.** Refer to response XIX. d) above.

XX. Wildfire

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:</i>				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Impact Analysis

- a) **No Impact.** According to the Fire Hazard Severity Zone Viewer provided by the California Department of Forestry and Fire Protection, the proposed project is not located in or near state responsibility areas or lands classified as very high hazard severity zones (California Department of Forestry and Fire Protection 2020). Therefore, the proposed project would not substantially impair an adopted emergency response plan or emergency evacuation plan. No impact is identified for this issue area.
- b) **No Impact.** The proposed project is not located in or near state responsibility areas or lands classified as very high hazard severity zones (California Department of Forestry and Fire Protection 2020). Therefore, the proposed project would not exacerbate wildfire risks. No impact is identified for this issue area.
- c) **Less than Significant Impact.** Fire protection and emergency medical services in the area are provided by the Imperial County Fire Department. The proposed project is not located in or near state responsibility areas or lands classified as very high hazard severity zones (California Department of Forestry and Fire Protection 2020). Further, the proposed project is located in an unincorporated area of Imperial County, which has a generally low potential for a major fire (County of Imperial 2016).

The project involves the installation of solar PV panels on fixed frames or single-axis horizontal trackers, an on-site substation and inverters, transformers, underground electrical cables, and 10,000-gallon aboveground water storage tank as required by the Imperial County Fire Department. The water tank(s) would be sized to meet the requirements of the County of Imperial to supply sufficient fire suppression water during operations. Further, the project site would be accessible from a primary and secondary (if required) access driveway that would have turnaround areas to allow clearance for fire trucks per fire department standards (30-foot-wide access road) and 30-foot double swing gates with keyed entry. In addition, operation and maintenance would not affect the ability of fire personnel to respond to fires. Therefore, the



proposed project would not exacerbate fire risk and would continue to be adequately supported by the existing fire protection services. A less than significant impact is identified for this issue area.

- d) **No Impact.** The proposed project is not located in or near state responsibility areas or lands classified as very high hazard severity zones (California Department of Forestry and Fire Protection 2020). Additionally, the proposed project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. No impact is identified for this issue area and no further analysis is warranted.

XXI. Mandatory Findings of Significance

Environmental Issue Area:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact Analysis

- a) **Potentially Significant Impact.** The proposed project has the potential to result in significant environmental effects on biological resources and cultural resources, which could directly or indirectly cause adverse effects on the environment. These issues will be further evaluated in the EIR.
- b) **Potentially Significant Impact.** Implementation of the proposed project has the potential to result in impacts related to: aesthetics, agricultural resources, air quality, biological resources, cultural resources, geology/soils, greenhouse gas emissions, hydrology and water quality, public services, transportation, tribal cultural resources, and utilities/service systems.. The proposed project has the potential to result in cumulative impacts with regards to the identified issue areas. Cumulative impacts will be discussed and further analyzed in the EIR.
- c) **Potentially Significant Impact.** Implementation of the proposed project has the potential to result in impacts related to: air quality and geology/soils. These potential environmental effects could cause substantial adverse effects on human beings. These issues will be further evaluated in the EIR.

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APR 05 2021

IMPERIAL COUNTY

PLANNING & DEVELOPMENT SERVICES

March 29, 2021

RE: VEGA 4 SES Solar – Conditional Use Permit (CUP) #20-0020
2849 E. Hwy 98, Holtville, CA; APN 059-300-015, -017 & 059-290-010

Imperial County Fire Department Fire Prevention Bureau would like to thank you for the opportunity to review and comment on Vega 4 SES Solar Project – Conditional Use Permit (CUP) #20-0020.

The project description is developing and operating a one hundred (100) megawatt (MW) alternating current (AC) solar photovoltaic (PV) energy generation and Four hundred (400) megawatt hour (MWh) battery storage project. This project is located on approximately 531,53 acres.

Energy storage facilities create extreme hazards for firefighters and emergency responders with possibility of explosions, flammable gases, toxic fumes, water-reactive materials, electrical shock, corrosives, chemical burns. The hazards listed can create a potential significant impact on Imperial County Fire Department due personnel staffing to safely perform firefighting operations and Hazardous Material Response for a utility-scale energy storage facility. The location of the project will lead to longer response times. These longer response times can create incidents that can create difficulties in incident stabilization; therefore requiring additional personnel to safely manage the incident. Utility-scale energy storage will require specialized and reliable equipment to perform firefighting operations safely and effectively to NFPA, OSHA and ICFD standards and requirements.

Standards and requirements for energy storage system includes but not limited to:

NFPA:

- 1 Fire Code
- 70 National Electrical Code
- 855 Standard for the installation of Energy Storage System
- 111 Stored Electrical Energy Emergency and Standby Power System
- 1710 Standard for Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments.

OSHA:

- 29 CFR 1910.134(g)(4)

AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER

INFO ITEM ONLY

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CFC:

Chapter 12 section 1206 Electrical Energy Storage System
Chapter 9 Fire Protection and Life Safety System

NFPA 1710 Chapter 5 section 5.2.3.1.2.1 states: In first –due response zones with tactical hazards, high hazard occupancies, or dense urban areas, as identified by the AHJ, these fire companies shall be staffed with a minimum of six on duty members. OSHA 29 CFR 1910.134(g)(4) states: Procedures for interior structural firefighting. In addition to the requirements set forth under paragraphs (g)(3), in interior structural fires, the employer shall ensure that:

1910.134(g)(4)(i): At least two employees enter the IDLH atmosphere and always remain in visual or voice contact with one another.

1910.134(g)(4)(ii): At least two employees are located outside the IDHL atmosphere; and

1910.134(g)(4)(iii): All employees engage in interior structural firefighting use SCBAs.

Mitigation Measure #1: Imperial County Fire Department is requiring the applicant in conjunction with the County of Imperial and Imperial County Fire Department provide cost to cover three (3) additional fulltime firefighter position at Imperial County Fire Department station 2 located in Heber CA. The cost of these positions shall be provided before issuance of the first building permit and extend for the life of the project. The County of Imperial and Imperial County Fire Department shall be responsible for managing of these cost and positions. These positions shall allow Imperial County Fire Department to maintain National Standards and OSHA requirements.

Mitigation Measure #2: Imperial County Fire Department is requiring the applicant to purchase a Type 1 fire engine, which will meet NFPA standard for structural firefighting. The fire engine cost estimate will be at current market value for the approved Fire Engine. Final cost, conditions and equipment of the fire engine shall be determined prior to the issuance of the initial grading permit

Mitigation Measure #3: Imperial County Fire Department is requiring the applicant to purchase hazardous Material equipment to respond emergencies within electrical energy storage systems. Air monitoring should be a priority for responders during and after any electrical energy storage system. 4-meter or other gas detection equipment to determine toxic gas levels determine by Imperial County Fire Department and Imperial County Heat Team. Additional equipment may be required upon determining the energy storage technology that will be used for the project. The applicant and Imperial County Fire Department shall make the determination of what is required to provide operational safety of emergency responders. This equipment will be

AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER

INFO ITEM ONLY

ADMINISTRATION / TRAINING

1078 Dogwood Road
Heber, CA 92249

Administration

Phone: (442) 265-6000
Fax: (760) 482-2427

Training

Phone: (442) 265-6011

**OPERATIONS/PREVENTION**

2514 La Brucherie Road
Imperial, CA 92251

Operations

Phone: (442) 265-3000
Fax: (760) 355-1482

Prevention

Phone: (442) 265-3020

maintain by Imperial County Fire Department and Imperial County Heat Team. This equipment shall be determined and provided to Imperial County Fire Department before the issuance of the first electrical energy storage system permit.

Fiscal Impacts and requirements for solar array farm installation within the project: For operation and maintenance, fees associated with Fire Department/OES.

(a) Permittee shall pay a fee of \$50 per acre per year prior to commencement of the construction period to address the Imperial County Fire/OES expenses for service calls within the project Utility/Transmission area. Said amount shall be prorated monthly for periods of time less than a full year. Permittee shall provide advance, written notice to County Executive Office of the construction schedule and all revisions thereto.

Permittee shall pay an annual fee of \$20 per acre per year during the post-construction, operational phase of the project to address the Imperial County Fire/OES expenses for service calls within the Project Utility/Transmission area. Said fee will be paid to the Fire Department to cover on-going maintenance and operations cost created by the project.

(b) Cost associated with items two above items shall annually adjusted on January 1st to add a CPI (Los Angeles) increase. Such costs associated with these items can be readjusted in the County's sole discretion if a new service analysis is prepared and that service analysis is approved by both the County and the Permittee.

Fire- In lieu of providing all-weather access roads for fire protection vehicles, the permittee shall be permitted to provide compacted dirt roads (in compliance with ICAPCD's rules and regulations) for fire protection vehicles if prior to the issuance of any grading permit for the Project shall purchase a Fire Engine with All Terrain Capabilities as specified and approved by the Fire Department. The Fire Engine cost estimate will be at Current Market Value for approved Fire Engine. Final Cost, conditions and equipment of the Fire Engine shall be determined prior to the issuance of the initial grading permit. The County agrees to require, as a condition of approval, other developers in the area to reimburse the Applicant for the expenses associated with the purchase of the Fire Engine. The Permittee shall be reimbursed only for those expenses more than their proportionate share for the purchase of the Fire Engine that the Permittee would have been required to pay. Furthermore, if a Fire Engine was already purchased by another developer in the area, then the Permittee shall only be required to pay a fire mitigation in the amount of up to \$100 per acre that would represent their proportionate share to reimburse the purchaser of the Fire Engine. The County shall be responsible for the managing the reimbursement component of this condition of approval.

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Further requirements and condition may be required for any solar installation within the project. Imperial County Fire Department reserve the right to comment on solar components within the project.

Other impacts from this project shall be evaluated by Imperial County Fire Department Fire Chief and Fire Code Official in determining any impacts of the project can or will cause a negative effect on Imperial County Fire Department and/or County of Imperial. Any impacts will be address between Imperial County Fire Department official, County of Imperial officials, applicants and/or developers which may include but not limited to:

- Capital purchases which may be required in providing services to this project
- Hazmat Operational Equipment
- Training
- Fiscal and operational costs

Additional requirements to follow but not limited to:

- An approved water supply capable of supplying the required fire flow determined by appendix B in the California Fire Code shall be installed and maintained. Private fire service mains and appurtenance shall be installed in accordance with NFPA 24.
- An approved automatic fire suppression system shall be installed on all required structures as per the California Fire Code. All fire suppression systems will be installed and maintained to the current adapted fire code and regulations.
- An approved automatic fire detection system shall be installed on all required structures as per the California Fire Code. All fire detection systems will be installed and maintained to the current adapted fire code and regulations.
- Fire department access roads and gates will be in accordance with the current adapted fire code and the facility will maintain a Knox Box for access on site.
- Compliance with all required sections of the fire code.
- Applicant shall provide product containment areas(s) for both product and water run-off in case of fire applications and retained for removal
- A Hazardous Waste Material Plan shall be submitted to Certified Unified Program Agency (CUPA) for their review and approval.
- All hazardous material and wastes shall be handled, store, and disposed as per the approved Hazardous Waste Materials Plan. All spills shall be documented and reported to Imperial County Fire Department and CUPA as required by the Hazardous Waste Material Plan

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Again thank you for the opportunity to comment. Imperial County Fire Department reserves the right to comment and request additional requirements pertaining to this project regarding fire and life safety measures, California building and fire code, and National Fire Protection Association standards at a later time as we see necessary.

If you have any questions, please contact the Imperial County Fire Prevention Bureau at 442-265-3020 or 442-265-3021.

Sincerely

Robert Malek
Deputy Chief
Imperial County Fire Department
Fire Prevention Bureau

Andrew Loper
Lieutenant/Fire Prevention Specialist
Imperial County Fire Department
Fire Prevention Bureau

CC: Alfredo Estrada Jr. Fire Chief
Imperial County Fire Department

AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER

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April 13, 2021

Ms. Diana Robinson
Planner III
Planning & Development Services Department
County of Imperial
801 Main Street
El Centro, CA 92243

SUBJECT: Vega SES 4 Project; CUP Application No. 20-0020

Dear Ms. Robinson:

On April 5, 2021, the Imperial Irrigation District received from the Imperial County Planning & Development Services Department, a request for agency comments on Conditional Use Permit application no. 20-0020 for the Vega SES 4 Solar Energy Storage Project. The applicant, Apex Energy Solutions, LLC; proposes to develop a 100MW solar PV energy generation facility with a 100MW integrated battery storage on approximately 531.53 acres of land located between the U.S./Mexico border and the All-American Canal on the California side, 10 miles east of Calexico, CA (APNs 059-300-015-000, -300-017-000, -290-10-000). The project's electrical output would be conveyed through a proposed 92kV gen-tie line interconnection to the IID's 92kV "P" transmission line

The Imperial Irrigation District has reviewed the information and has the following comments:

1. If the project requires temporary construction or permanent electrical service at the distribution level, the applicant should be advised to contact Joel Lopez, IID Customer Project Development Planner, at (760) 482-3300 or e-mail Mr. Lopez at jflopez@iid.com to initiate the customer service application process. In addition to submitting a formal application (available for download at the district website <http://www.iid.com/home/showdocument?id=12923>), the applicant will be required submit a complete set of plans approved by the County of Imperial (in hardcopy and AutoCad formats) including site plan, plan & profile drawings, one-line diagrams, and electrical loads, panel size, voltage requirements, project schedule, and the estimated in-service date, in addition to the applicable fees, permits, easements and environmental compliance documentation pertaining to the provision of electrical service to the project. The applicant shall be responsible for all costs and mitigation measures related to providing electrical service to the project.

2. Distribution-rated electrical service is limited in the area. A circuit study may be required. Any improvements or mitigation identified in the circuit study to enable the provision of electrical service shall be the financial responsibility of the applicant.
3. To insure there are no impacts to IID facilities, applicant should submit project plans, including grading & drainage and fencing plans, to IID Water Department Engineering Services for review and comment prior to final project design and CUP approval. IID WDES can be contacted at (760) 339-9265 for further information on this matter.
4. The project may impact IID drains with project site runoff flows draining into IID drains. To mitigate impacts, the project may require a comprehensive IID hydraulic drainage system analysis. IID's hydraulic drainage system analysis includes an associated drain impact fee.
5. A construction storm water permit from the California Regional Water Quality Control Board is required before commencing construction and an industrial storm water permit from CRWQCB is required for the operation of the proposed facility. The project's Storm Water Pollution Prevention Plan and storm water permits from CRWQCB should be submitted to IID for review.
6. In order to obtain a water supply from IID for a non-agricultural project, the project proponent will be required to comply with all applicable IID policies and regulations and may be required to enter into a water supply agreement. Such policies and regulations require, among other things, that all potential environmental and water supply impacts of the project be adequately assessed, appropriate mitigation developed if warranted, including any necessary approval conditions adopted by the relevant land use and permitting agencies.
7. If IID implements a water allocation or apportionment program pursuant to the IID Equitable Distribution Plan, or any amending or superseding policy for the same or similar purposes, during all or any part of the term of said water supply agreement, IID shall have the right to apportion the project's water as an industrial water user. Information on how to obtain a water supply agreement can be found at the IID website <https://www.iid.com/water/municipal-industrial-and-commercial-customers> or by contacting Justina Gamboa-Arce, Water Resources Planner at (760) 339-9085 or jgamboarce@iid.com.
8. For information on procuring construction water, the applicant should contact IID South End Division at (760) 482-9800.

9. Any construction or operation on IID property or within its existing and proposed right of way or easements including but not limited to: surface improvements such as proposed new streets, driveways, parking lots, landscape; and all water, sewer, storm water, or any other above ground or underground utilities; will require an encroachment permit, or encroachment agreement (depending on the circumstances). A copy of the IID encroachment permit application and instructions for its completion are available at <https://www.iid.com/about-iid/department-directory/real-estate>. The IID Real Estate Section should be contacted at (760) 339-9239 for additional information regarding encroachment permits or agreements.
10. In addition to IID's recorded easements, IID claims, at a minimum, a prescriptive right of way to the toe of slope of all existing canals and drains. Where space is limited and depending upon the specifics of adjacent modifications, the IID may claim additional secondary easements/prescriptive rights of ways to ensure operation and maintenance of IID's facilities can be maintained and are not impacted and if impacted mitigated. Thus, IID should be consulted prior to the installation of any facilities adjacent to IID's facilities. Certain conditions may be placed on adjacent facilities to mitigate or avoid impacts to IID's facilities
11. The applicant may not use IID's canal or drain banks to access the project site. Any abandonment of easements or facilities shall be approved by IID based on systems (Irrigation, Drainage, Power, etc.) needs.
12. An IID encroachment permit is required to utilize existing surface-water drainpipe connections to drains and receive drainage service from the district. Surface-water drainpipe connections are to be modified in accordance with IID Water Department Standards.
13. The applicant should be advised to apply for and obtain two (2) encroachment permits for the proposed primary entrance, one from the U.S. Bureau of Reclamation and the second from IID. The applicant should not solely rely on the East Highline Canal check gate at the All-American Canal as the primary entrance to the project site. The IID Water Department reviews all encroachment applications on a case-by-case basis and the encroachment application will need to include detailed facility usage information at the time of applying for the encroachment permit. For further information on this matter, contact Hilda Romo, Senior Engineer, at (760) 339-9459 or at hmromo@iid.com.
14. Any new, relocated, modified or reconstructed IID facilities required for and by the project (which can include but is not limited to electrical utility substations, electrical transmission and distribution lines, water deliveries, canals, drains, etc.) need to be included as part of the project's CEQA and/or NEPA documentation,

Diana Robinson
April 13, 2021
Page 4

environmental impact analysis and mitigation. Failure to do so will result in postponement of any construction and/or modification of IID facilities until such time as the environmental documentation is amended and environmental impacts are fully analyzed. **Any and all mitigation necessary as a result of the construction, relocation and/or upgrade of IID facilities is the responsibility of the project proponent.**

Should you have any questions, please do not hesitate to contact me at 760-482-3609 or at dvargas@iid.com. Thank you for the opportunity to comment on this matter.

Respectfully,



Donald Vargas
Compliance Administrator II

Enrique B. Martinez – General Manager
Mike Pacheco – Manager, Water Dept.
Marilyn Del Bosque Gilbert – Manager, Energy Dept.
Constance Bergmark – Mgr. of Planning & Eng./Chief Elect. Engineer, Energy Dept.
Enrique De Leon – Asst. Mgr., Energy Dept., Distr., Planning, Eng. & Customer Service
Jamie Asbury – Assoc. General Counsel
Vance Taylor – Asst. General Counsel
Michael P. Kemp – Superintendent, Regulatory & Environmental Compliance
Laura Cervantes – Supervisor, Real Estate

INFO ITEM ONLY

Diana Robinson

From: Timothy Reilly
Sent: April 6, 2021 10:47 AM
To: Diana Robinson
Cc: John Robb; Michael Abraham; Patricia Valenzuela
Subject: RE: Request for Comments CUP20-0020 Vega SES 4

Follow Up Flag: Follow up
Flag Status: Completed

Good Morning Diana,

There are several survey corner monuments located within the interior of the proposed project. The survey monuments control the boundaries of all properties in the vicinity, not just the project's property. Because of the reliance upon them, the survey monuments must remain available throughout the project duration and after the project is completed. The monuments cannot be destroyed because their locations are inconvenient.

I have already received a record of survey establishing the project's boundaries. But, because there are limitations on the review of a record of survey by a county surveyor, monument preservation cannot be required at this time. Monument preservation is triggered by a permit application. In advance of a permit application, and in an effort to avoid costly delays, the Applicant should consult with their land surveyor at the earliest opportunity to determine if monument preservation requirements will affect the overall design of the project.

Again, there are survey monuments within the interior of the project. The monuments are not private property. The monuments must remain available for reference by any surveyor, for any survey, throughout project construction and after project completion.

I hope this helps.

Timothy J. Reilly, PLS
Certified Federal Surveyor
Imperial County Surveyor
CLSA Desert Chapter President Elect
(442) 265-1839 Direct
155 South 11th Street
El Centro, CA 92243

From: Diana Robinson <DianaRobinson@co.imperial.ca.us>
Sent: Tuesday, April 6, 2021 9:26 AM
To: Timothy Reilly <TimothyReilly@co.imperial.ca.us>
Cc: John Robb <JohnRobb@co.imperial.ca.us>; Michael Abraham <MichaelAbraham@co.imperial.ca.us>; Patricia Valenzuela <PatriciaValenzuela@co.imperial.ca.us>
Subject: FW: Request for Comments CUP20-0020 Vega SES 4

Hello Tim,

As per our phone call, please see attached files for review and comment.

Thank you,
Diana

From: Diana Robinson <DianaRobinson@co.imperial.ca.us>
Sent: March 25, 2021 5:10 PM
To: Valerie Grijalva <ValerieGrijalva@co.imperial.ca.us>
Subject: Re: Request for Comments CUP20-0020 Vega SES 4

Thank you.

From: Valerie Grijalva <ValerieGrijalva@co.imperial.ca.us>
Sent: Thursday, March 25, 2021 4:12 PM
To: Carlos Ortiz <CarlosOrtiz@co.imperial.ca.us>; Sandra Mendivil <SandraMendivil@co.imperial.ca.us>; Matt Dessert <MattDessert@co.imperial.ca.us>; Monica Soucier <MonicaSoucier@co.imperial.ca.us>; Michael Kelley <MichaelKelley@co.imperial.ca.us>; Adam Crook <AdamCrook@co.imperial.ca.us>; Tony Rouhotas <TonyRouhotas@co.imperial.ca.us>; Esperanza Colio <EsperanzaColio@co.imperial.ca.us>; Jorge Perez <JorgePerez@co.imperial.ca.us>; Jeff Lamoure <JeffLamoure@co.imperial.ca.us>; Mario Salinas <MarioSalinas@co.imperial.ca.us>; Robert Menvielle <RobertMenvielle@co.imperial.ca.us>; Robert Malek <RobertMalek@co.imperial.ca.us>; Andrew Loper <AndrewLoper@co.imperial.ca.us>; John Gay <JohnGay@co.imperial.ca.us>; Carlos Yee <CarlosYee@co.imperial.ca.us>; Guillermo Mendoza <GuillermoMendoza@co.imperial.ca.us>; scottshepheard@icso.org <scottshepheard@icso.org>; tgarcia@icso.org <tgarcia@icso.org>; Leal, Rudy Z <rzleal@IID.com>; Jurg Heuberger (jurgh@iclafco.com) <jurgh@iclafco.com>
Cc: Diana Robinson <DianaRobinson@co.imperial.ca.us>; Patricia Valenzuela <PatriciaValenzuela@co.imperial.ca.us>; Michael Abraham <MichaelAbraham@co.imperial.ca.us>; Carina Gomez <CarinaGomez@co.imperial.ca.us>; John Robb <JohnRobb@co.imperial.ca.us>; Kimberly Noriega <KimberlyNoriega@co.imperial.ca.us>; Maria Scoville <mariascoville@co.imperial.ca.us>; Rosa Soto <RosaSoto@co.imperial.ca.us>
Subject: Request for Comments CUP20-0020 Vega SES 4

Good Afternoon All,

Please see attached "Request for Review and Comment" and Application Submittal Documents for the proposed **Conditional Use Permit #20-0020 VEGA SES 4** Solar Project.

An Environmental Impact Report (EIR) will be prepared for this project and the project will later be scheduled to be heard at the EEC meeting as an informational item only. However, the intent of sending the attached "Request for review and comments package" now, is to have a preliminary consultation and input from your departments prior to the Notice of Proceed in an effort to allow more time for each agency to review and provide information (i.e. about your requirements, potential issues, questions) as we would on a Pre-Application Meeting. We are trying to get a list of each agency's requirements as early in the stages of the EIR as possible.

Comments are due by **April 5, 2021** at 5:00 PM.

Should you have any questions regarding this project, please feel free to contact Planner Diana Robinson at (442)265-1736 ext. 1751 or submit your comment letters to icpdscommentletters@co.imperial.ca.us

Thank you,

Valerie Grijalva

Office Assistant II
Planning and Development Services
801 Main Street
El Centro, CA 92243
Office: (442)265-1779
Fax: (442) 265-1735



Valerie Grijalva

From: Quechan Historic Preservation Officer <historicpreservation@quechantribe.com>
Sent: Thursday, April 1, 2021 9:49 AM
To: Valerie Grijalva
Cc: CommentLetters@co.imperial.ca.us
Subject: RE: AB 52 Letter Notice of Opportunity for CUP20-0020

CAUTION: This email originated outside our organization; please use caution.

The Ft. Yuma Quechan Historic Preservation Office is requesting consultation regarding the VEGA 4 Solar Energy Project in Imperial County; Conditional Use Permit (CUP 20-0029).

From: Quechan Historic Preservation [mailto:historicpreservation@quechantribe.com]
Sent: Thursday, April 01, 2021 9:47 AM
To: historicpreservation@quechantribe.com
Subject: FW: AB 52 Letter Notice of Opportunity for CUP20-0020

From: Valerie Grijalva [mailto:ValerieGrijalva@co.imperial.ca.us]
Sent: Friday, March 26, 2021 2:45 PM
To: Jim Minnick; Michael Abraham; historicpreservation@quechantribe.com
Cc: Diana Robinson; Patricia Valenzuela; Carina Gomez; John Robb; Kimberly Noriega; Maria Scoville; Rosa Soto
Subject: AB 52 Letter Notice of Opportunity for CUP20-0020

Good Morning,

Attached hereto please find copy of CUP20-0020 AB 52 Letter sent to President Jordan D. Joaquin from Quechan Indian Tribe.

Document has been saved under the following pathway:

S:\AllUsers\APN\059\300\015\CUP20-0020\AB52

Thank you,

Valerie Grijalva
Office Assistant II
Planning and Development Services
801 Main Street
El Centro, CA 92243
Office: (442)265-1779
Fax: (442) 265-1735



RECEIVED
APR 01 2021
IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES

LETTER OF TRANSMITTAL:

October 15, 2020

TO: Jim Minnick, Director of ICPDS

FROM: Jurg Heuberger, Consultant 

RE: VEGA SES 2, 3, 4 and 5

Jim:

Attached are four (4) applications for four solar projects. They are titled VEGA SES 2, VEGA SES 3, VEGA SES 4 and VEGA SES 5.

We are requesting that VEGA 2, 3 and 5 be processed under one EIR and VEGA 4 under one EIR.

The fees per your office are \$ \$16,500.00 for processing VEGA 2, 3 & 5, and \$ 14,500.00 for VEGA 4.

These applications are not complete in the sense that they do not have the accompanying technical studies. They are however complete enough for your office to commence the RFP process to retain appropriate consultant(s) for the preparation of the EIR's.

At this time, we are requesting that your office start the process to retain appropriate EIR Consultant(s).

Time is of the essence on these projects which is why we are requesting your cooperation and assistance in expediting this portion of the process.

We will have the technical studies plus any other documentation you need well before you have a contract for a CEQA consultant. To that end however we would also appreciate having your staff begin the review of these applications and advising me of what other information they feel is lacking aside from the "preliminary title reports", the original owners affidavits, and the technical studies which will include the following: traffic, biological, cultural, visual, air quality/GHG, Noise and AG/LESA.

Lastly, I am the primary point of contact on all of these applications and would respectfully request that all correspondence on these be directed to me at jurgheuberger@gmail.com, or 760-996-0313 or PO Box 4151, El Centro, Ca. 92244. I understand that you have to notify the property owners that a permit application has been filed on their land, however all other correspondence should be directed exclusively to me.

Thank you.

RECEIVED

OCT 19 2020

**IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES**

INFO ITEM ONLY

CONDITIONAL USE PERMIT

I.C. PLANNING & DEVELOPMENT SERVICES DEPT.
801 Main Street, El Centro, CA 92243 (760) 482-4236

- APPLICANT MUST COMPLETE ALL NUMBERED (black) SPACES - Please type or print -

1. PROPERTY OWNER'S NAME Jimmy R. Doyle and Tammi Cheri Slater	EMAIL ADDRESS	
2. MAILING ADDRESS (Street / P O Box, City, State) See attached Property Owner Exhibit	ZIP CODE See attached Property Owner Exhibit	PHONE NUMBER See attached Property Owner Exhibit
3. APPLICANT'S NAME Apex Energy Solutions, LLC	EMAIL ADDRESS ziad@zglobal.biz	
4. MAILING ADDRESS (Street / P O Box, City, State) 604 Sutter Street, Suite 250, Folsom, CA	ZIP CODE 95630	PHONE NUMBER (916) 985-9461
4. ENGINEER'S NAME To be determined	CA. LICENSE NO. To be determined	EMAIL ADDRESS To be determined
5. MAILING ADDRESS (Street / P O Box, City, State) To be determined	ZIP CODE To be determined	PHONE NUMBER To be determined
6. ASSESSOR'S PARCEL NO. 059-300-015-000, 059-300-017-000, 059-290-010-000	SIZE OF PROPERTY (In acres or square foot) Approximately 531.53 acres	ZONING (existing) A-3-RE
7. PROPERTY (site) ADDRESS none available <u>2849 E. Hwy 98, Holtville, CA 92250</u>		
8. GENERAL LOCATION (i.e. city, town, cross street) Approximately ten (10) miles east of Calexico situated between the All American Canal and US/Mexico border		
9. LEGAL DESCRIPTION <u>See attached Property Owner Exhibit for detailed legal descriptions. (also see Attachment 1 [Project Description]) for additional detail.</u>		

PLEASE PROVIDE CLEAR & CONCISE INFORMATION (ATTACH SEPARATE SHEET IF NEEDED)

10. DESCRIBE PROPOSED USE OF PROPERTY (list and describe in detail)	<u>Develop the Vega SES 4 Solar BESS Project, a nominal 100-megawatt (MW) alternating current (AC) solar photovoltaic energy generation and 100MW/400 megawatt hour (MWh) battery energy storage project (see Attachment 1 [Project Description])</u>
11. DESCRIBE CURRENT USE OF PROPERTY	<u>Idle land (see Attachment 1)</u>
12. DESCRIBE PROPOSED SEWER SYSTEM	<u>See Attachment 1</u>
13. DESCRIBE PROPOSED WATER SYSTEM	<u>See Attachment 1</u>
14. DESCRIBE PROPOSED FIRE PROTECTION SYSTEM	<u>See Attachment 1</u>
15. IS PROPOSED USE A BUSINESS? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	IF YES, HOW MANY EMPLOYEES WILL BE AT THIS SITE? <u>0 (see Attachment 1)</u>

I / WE THE LEGAL OWNER (S) OF THE ABOVE PROPERTY CERTIFY THAT THE INFORMATION SHOWN OR STATED HEREIN IS TRUE AND CORRECT.

See attached owner's affidavit

Print Name _____ Date _____
Applicant: Apex Energy Solutions, LLC
Signature _____ Date 10/14/2020
Ziad Alaywan, P.E.
Print Name _____ Date _____
Signature _____

REQUIRED SUPPORT DOCUMENTS

A. SITE PLAN	_____
B. FEE	_____
C. OTHER	_____
D. OTHER	_____

APPLICATION RECEIVED BY: <u>JH</u>	DATE <u>10/20/2020</u>	REVIEW / APPROVAL BY OTHER DEPT'S required.
APPLICATION DEEMED COMPLETE BY: _____	DATE _____	<input type="checkbox"/> P. W.
APPLICATION REJECTED BY: _____	DATE _____	<input type="checkbox"/> E. H. S.
TENTATIVE HEARING BY: _____	DATE _____	<input type="checkbox"/> A. P. C. D.
FINAL ACTION: <input type="checkbox"/> APPROVED <input type="checkbox"/> DENIED	DATE _____	<input type="checkbox"/> O. E. S.
	DATE _____	<input type="checkbox"/> _____

CUP #
20-0020

INFO ITEM ONLY

<p>1. PROPERTY OWNER'S NAME Jimmie R. Doyle and Tammy Cheri Slater, Successor Co-Trustees of the Exemption Trust under the Doyle Family 2010 Trust, dated August 13, 2010, as to an undivided 92.9% interest; and Jimmie R. Doyle and Tammy Cheri Slater, Successor Co-Trustees of the Survivor's Trust under the Doyle Family 2010 Trust, dated August 13, 2010, as to an undivided 7.1% interest</p>	<p>EMAIL ADDRESS</p>	
<p>2. MAILING ADDRESS (Street / P O Box, City, State) Tammy Slater/12204 E. Del Norte, Yuma, AZ</p>	<p>ZIP CODE 85367</p>	<p>PHONE NUMBER</p>
<p>2B. MAILING ADDRESS (Street / P O Box, City, State) Jim R. Doyle/39537 Old Hwy 80, PBX 1442, Boulevard, CA</p>	<p>ZIP CODE 91905</p>	<p>PHONE NUMBER</p>
<p>6. ASSESSOR'S PARCEL NO. 059-300-015-000, 059-300-017-000 and 059-290-010-000</p>	<p>SIZE OF PROPERTY (in acres of square foot) 531.53 acres</p>	<p>ZONING (Existing) A-3-RE</p>
<p>7. PROPERTY (site) ADDRESS None available</p>		
<p>8. GENERAL LOCATION (i.e. city, town, cross street) Approximately ten (10) miles east of the Calexico situated between the All-American Canal and US/Mexico border</p>		
<p>9. LEGAL DESCRIPTION <u>PARCEL 1:</u> THOSE PORTIONS OF LOTS 13, 20 AND 21, AND THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 10, LYING SOUTH OF THE ALL-AMERICAN CANAL, TOWNSHIP 17 SOUTH, RANGE 16 EAST, S.B.M., IN AN UNINCORPORATED AREA OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.</p> <p><u>PARCEL 2:</u> LOTS 11, 13, 15 AND THE NORTH HALF OF THE SOUTHEAST QUARTER OF SECTION 11, TOWNSHIP 17 SOUTH, RANGE 16 EAST, S.B.M., IN AN UNINCORPORATED AREA OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.</p> <p><u>PARCEL 3:</u> THOSE PORTIONS OF LOTS 6, 7 AND 10, AND THE NORTHEAST QUARTER OF SECTION 11, LYING SOUTH OF THE ALL-AMERICAN CANAL, TOWNSHIP 17 SOUTH, RANGE 16 EAST, S.B.M., IN AN UNINCORPORATED AREA OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.</p>		

PARCEL 4:

TRACT 41, TOWNSHIP 17 SOUTH, RANGE 16 EAST, S.B.M., IN AN UNINCORPORATED AREA OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

EXCEPTING THEREFROM ONE-HALF OF ALL STEAM, MINERALS, OILS, GAS, WATER, CARBONS AND HYDROCARBONS ON OR UNDER THE HEREIN DESCRIBED PROPERTY, AS RESERVED BY NATALIE KAPLAN BY DEED RECORDED APRIL 5, 1979 AS DOCUMENT NO. 3 IN BOOK 1431, PAGE 1454 OF OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM THE SOUTH 60 FEET THEREOF AS TAKEN BY THE UNITED STATES OF AMERICA IN DECLARATION OF TAKING RECORDED AUGUST 8, 2008 AS DOCUMENT NO. 2008-023038 OF OFFICIAL RECORDS.

PARCEL 5:

LOTS 2, 3, 4 AND 7, SECTION 15 AND THAT PORTION OF LOT 3, SECTION 16, LYING SOUTHERLY OF THE ALL- AMERICAN CANAL, ALL IN TOWNSHIP 17 SOUTH, RANGE 16 EAST, S.B.M., IN AN UNINCORPORATED AREA OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

EXCEPTING THEREFROM ANY PORTIONS THEREOF LYING WITHIN THE PUBLIC RESERVE, BEING THE SOUTH 60 FEET, LYING ADJACENT TO THE INTERNATIONAL BORDER BETWEEN THE UNITED STATES AND MEXICO, AS SET OUT BY PRESIDENTIAL PROCLAMATION DATED MAY 27, 1907 (35 STATS, 2186).

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OCT 19 2020

**IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES**

VEGA SES 4 SOLAR ENERGY STORAGE PROJECT DESCRIPTION

October 2020

Submitted to:

County of Imperial
Planning and Development Services Department
801 Main Street
El Centro, CA 92243-2811

RECEIVED

OCT 19 2020

**IMPERIAL COUNTY
PLANNING & DEVELOPMENT SERVICES**

Submitted by:

APEX ENERGY SOLUTIONS, LLC.
750 W. Main Street
El Centro, CA 92243

VEGA SES 4
SOLAR PROJECT DESCRIPTION

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VEGA SES 4
SOLAR PROJECT DESCRIPTION

Introduction

Apex Energy Solutions LLC. is proposing to develop the Vega SES 4 Solar Energy Storage (Project), a nominal 100-megawatt alternating current (MWAC) solar photovoltaic (PV) energy generation project with an integrated 100 MW battery storage project on approximately 531.53 acres of land in the County of Imperial, California. The Project would be located between the California/Mexico border and the All-American Canal, on the California side. It is approximately 10 miles east of Calexico in Sections 10, 11, 14, 15 and 16 all within Township 17 South, and Range 16 East of the San Bernardino Base and Meridian (SBB&M) of the “Bonds Corner” topographic quadrangles 7.5-minute quadrangle (U.S. Department of the Interior, Geological Survey 2005). The electrical energy produced by the Project would be conducted through the proposed 92 kilovolt (kV) generator intertie (“gen-tie”) line and delivered to the Imperial Irrigation District (IID) 92 kV “P” line.

Property Description

The Project would be located on Imperial County Assessor’s Parcel Numbers (APNs) 059-300-015-000 (approximately 301.73 acres), 059-300-017-000 (approximately 148.88 acres) and 059-290-010-000 (approximately 80.92 acres), all of which are currently owned by Tammy Cheri Slater and Jimmie R. Doyle (Co-trustees of the survivors Trust under the Doyle Family 2010 Trust dated August 13, 2010).

All three of the Project area parcels are designated as “Agriculture” in the Imperial County General Plan and are zoned A-3-RE (Heavy Agriculture with a Renewable Energy Overlay-areas that are suitable for agricultural land uses; to prevent the encroachment of incompatible uses onto and within agricultural lands; and to prohibit the premature conversion of such lands to non-agricultural uses). Pursuant to Section 91703.02 (CONDITIONAL USE PERMITS), Renewable Energy Projects must be located within the Renewable Energy Overlay Zone and may be permitted only through the issuance of a Conditional Use Permit (CUP) as approved by the Approving Authority unless otherwise allowed by applicable law. At present, the project is located within the Renewable Energy Zone. This Project Description is intended to support Apex Energy Solutions LLC’s requested approval of a Conditional Use Permit for the Vega SES 4 Project. Representative photographs of the Project areas will be provided.

Solar Technology

The Project proposes to utilize either thin film or crystalline solar photovoltaic (PV) technology modules mounted either on fixed frames or horizontal single-axis tracker (HSAT) systems. The fixed frame PV module arrays would be mounted on racks that would be supported by driven piles. The depth of the piles would be dependent on the recommendations of the geotechnical report prepared for the Project. The fixed-frame racks would be secured at a fixed tilt of 20° to 30° from horizontal facing a southerly direction. Current Project designs would have individual PV modules, mounted two high on a fixed frame, providing a two-foot ground clearance and resulting in the tops of the panels at approximately 7.5 feet above the ground. The fixed PV modules would be arranged in arrays spaced approximately 15 to 25 feet apart (pile-to-pile) to maximize performance and to allow access for panel cleaning (if necessary). These arrays would be separated from each other and the perimeter security fence by up to 30-foot wide interior roads. If HSAT technology is used, the PV modules would rotate around the north-south HSAT axis so that the PV modules would continue to face the sun as the sun moves across the sky throughout the day. The PV modules would reach their maximum height (up to nine (9) feet above the ground, depending on the final design) at both sunrise and sunset, when the HSAT is rotated to point the modules at the rising or setting sun. At noon, or when stowed during high winds, when the HSAT system is rotated so that the PV modules are horizontal, the nominal height would be about six (6) feet above the ground, depending on the final design. The individual PV systems would be arranged in large arrays by placing them in columns spaced approximately ten feet apart to maximize operational performance and to allow access for panel cleaning and maintenance. Current Project designs would have individual HSAT PV modules, each approximately two feet wide by four feet long (depending on the specific PV technology selected), mounted on a frame which is attached to an HSAT system. These HSAT arrays would be separated from each other and the perimeter security fence by up to 30-foot wide roads, consistent with agency emergency access requirements.

Project Facilities

Electrical Power System: Electricity generated by the PV modules would be collected by a direct current (DC) collection system routed underground in trenches. This DC power would be delivered to one of the pad-mounted inverters in weatherproof enclosures located within the arrays. The inverters would convert the DC power to three-phase alternating current (AC). The inverters could be connected to AC interconnection facilities which, if needed, would raise the voltage to 34.5 kV, or the interconnection voltage selected by the Projects. Underground or overhead 12.5 kV or 34.5-kV collection lines would transmit the electricity to the new Project substations.

Interconnection Facilities:

A new Project substation would be constructed on the northern boundary of APN 059-300-015 (See Figure 3). This substation would take the delivery of the up to 34.5 kV power from the Project and increase the voltage of the electricity to 92 kV, where it would feed into the interconnection switching station for metering and delivery to the IID 92 kV "P" Line. The

substation would include a transformer, circuit breakers, meters, disconnect switches, and microwave or other communication facilities.

A new interconnection switching station would be constructed at the northern boundary of APN 059-300-015, immediately adjacent to the Project substation. The interconnection switching station would include circuit breakers, switches, overhead bus work, protective relay equipment and an electrical control building. This station would operate at 92 kV and be equipped with two circuit breakers, allowing for looping in of the IID 92 kV "P" Transmission line as well as connection to the Project gen-tie line. The Project substation and interconnection switching station would be connected via a single overhead 92 kV line, tie line. The interconnection switching station would be enclosed within its own fence.

To connect to the Projects' interconnection facilities, the medium voltage power produced by the Project would be conveyed underground, or above ground where necessary, to cross over any sensitive site features. The Projects' interconnection facilities design would meet all necessary utility standards and requirements. As required, surge arrestors would be used to protect facilities and auxiliary equipment from lightning strikes or other disturbances. Distribution from the site would be via an overhead connection.

Transmission Lines: The electrical energy produced by the Project would be conducted through the Project interconnection facilities to the proposed 92kV generator intertie ("gen-tie") line and delivered to the existing IID approved point of interconnection (POI) on the 92 kV "P" Line (See Figure 3).

Security: Six-foot high security fencing would be installed around the perimeter of each of the Project sites at the commencement of construction and site access would be limited to authorized site workers. In addition, a motion detection system and closed-circuit camera system may also be installed. The site would be remotely monitored 24 hours per day, 7 days per week. In addition, routine unscheduled security rounds may be made by the security team monitoring the site security.

Battery System: The proposed battery energy storage system (BESS or ESS) would be constructed adjacent to the projects solar facilities and would consist of either lithium ion (Li-ion) or flow batteries. The batteries will either be housed in storage containers or buildings fitted with HVAC and fire suppression systems as necessary, depending on the final selection of battery technology. Inside the housing the batteries will be placed on racks, the orientation of which depends on the type of housing. Underground trenches with conduits will be used to connect the batteries to the control and monitoring systems, and inverters to convert the PV produced DC power to AC power.

Site Access

The Project site would include one primary access driveway, currently contemplated across the East Highline Check of the All-American Canal, in the far northeastern corner of the Project area and a secondary access driveway (if required) with a to be determined location (see Figure 3). This driveway would be provided with a minimum of 30-foot double swing gates with "Knox

Box” for keyed entry. Internal to the Project site up to 30-foot wide roads would be provided between the PV arrays, as well as around the perimeter of each Project site inside the perimeter security fence to provide access to all areas of each site for maintenance and emergency vehicles (see Figure 3).

Site Construction

Construction Activities: Construction activities would primarily involve demolition and grubbing; grading of the Project area to establish access roads and pads for electrical equipment (inverters and step-up transformers); trenching for underground electrical collection lines; and the installation of solar equipment and security fencing. Dust generated during construction would be controlled by watering and, as necessary, the use of other dust suppression methods and materials accepted by the Imperial County Air Pollution Control District (ICAPCD) or the California Air Resources Board (CARB). A temporary, portable construction supply container would be located at the Project sites at the beginning of construction and removed at the end of construction. The number of on-site construction workers for the solar project facilities is not expected to exceed 150 workers at any one time. The number of on-site construction workers for the battery storage facility and the substation is not expected to exceed 100 workers at any one time. Onsite parking would be provided for all construction workers.

Traffic: The construction worker traffic is expected to travel to the site from Highway 98 east to the East Highline Check of the All-American Canal crossing to the project entrance.

Delivery trucks are expected to follow the same routes as the construction workers. An estimated two trucks would arrive at the Project sites each day during the first few weeks of construction of the solar generating facility.

Storm Water: Areas of the solar energy storage facilities where small amounts of contaminants could be released, such as the paved areas surrounding the containers, would be constructed in compliance with storm water quality management measures (i.e., basins and infiltration areas, where required) designed to meet State and local storm water management plan requirements. These paved areas would be maintained, and any vehicle leaks or spills would be periodically cleaned with absorbent materials to minimize the potential for contamination. All applicable local RWQCB discharge requirements and County of Imperial’s water quality regulations would be adhered to in the development and maintenance of the project sites. A drainage study and preliminary grading plan for the project will be prepared by a local civil engineering firm to address the potential environmental impacts of site drainage and stormwater.

Site Operations

Once construction is completed the Project would be remotely controlled. No employees would be based at the Project sites. Primary security-related monitoring would be done remotely. Security personnel may conduct unscheduled security rounds, and would be dispatched to the site in response to a fence breach or other alarm. Site maintenance workers may access the Project site periodically to clean the panels and maintain the equipment and Project area. The public would not have access to the facility. Access to the Project site would be infrequent and limited to authorized personnel.

Periodic washing of the PV modules is not expected to be necessary but could be needed to remove dust in order to maintain power generation efficiency. The amount of water needed for this purpose is conservatively estimated at 5 acre-feet per washing, with up to two washings per year, or a total of up to 10 acre-feet per year. This water would be water purchased from the IID. Each washing is expected to take one to two weeks to complete. Vegetation growing on the site would periodically (approximately every three months) be removed manually and/or treated with herbicides.

Water Resource Requirements

Water for Construction: Water for construction (primarily dust control) would be obtained from local IID irrigation canals or laterals in conformance with IID construction water acquisition requirements. Water would be picked up from a nearby lateral canal and delivered to the construction location by a water truck which would be capable of carrying approximately 4,000 gallons per load. It is estimated that up to 275 acre-feet of water would be needed for site grading and dust control over the expected Project construction period.

Water for Operations: Water for washing the PV modules, if required, would be purchased from the IID and delivered to the Project site by water trucks. The volume of water to be used for PV module washing and dust control, if needed, is estimated at up to 10 acre-feet per year.

Waste

Relatively small amounts of trash would be generated during construction from packaging materials delivered to the site. Construction related waste would be transported to a local landfill authorized to receive this waste for disposal. Portable toilets would be located on-site during construction and sanitary waste would be removed from the site by a local contractor.

No general waste is expected to be generated during normal operations. Sanitary waste generated during Project maintenance operations would be handled by bringing portable toilets to the Project sites, with waste removed periodically by a local contractor.

No hazardous waste is expected to be generated from the Project during either construction or normal Project operations.

Permit Requirements

The following permits/approvals may be required for the Project from the specified agencies, although some may not be applicable:

- Conditional Use Permit (Imperial County Planning & Development Services Department)
- Grading Permits (Imperial County Planning & Development Services Department)
- Building Permits (Imperial County Planning & Development Services Department)
- Dust Control Plan (Imperial County Air Pollution Control District)
- Rule 310 Exemption (Imperial County Air Pollution Control District)
- Encroachment Permits (Imperial County Public Works Department)
- Encroachment Permits (Imperial Irrigation District)
- Right-of-Way Permit (U.S. Bureau of Reclamation)
- Water Supply Agreement (Imperial Irrigation District)
- General Construction Storm Water Permit Notice of Intent/Storm Water Pollution Prevention Plan (California State Water Resource Control Board)
- Consultation for Sensitive Species (California Department of Fish and Wildlife)
- Consultation for Bird and Bat Conservation Strategy (U.S. Fish and Wildlife Service)

Environmental Protection Measures and Baseline Information

All Project construction and contractor personnel would be informed of Vega SES 4 policy regarding undue degradation of the environment. These measures are intended to prevent all unacceptable impacts from occurring as a result of the proposed construction and ongoing operations.

Aesthetics:

Visibility: Project lighting for security purposes would be directed on-site and would incorporate shielding as necessary to minimize illumination of the night sky and potential impacts to surrounding viewers. The solar panels would be constructed to absorb light and minimize any potential glare. There are no panoramic scenic views from the Project area. Visual simulations of the proposed Project will be provided.

Glare Effects: The Project PV modules are specifically designed to absorb light, rather than reflect it, as reflected light results in the loss of solar energy input, and thus electrical energy output. Modules are dark in color and have a coating that enables the panel to absorb as much of the available light as possible, which directly increases electrical energy production. The glare and reflectance levels from the PV panels are decisively lower than the glare and reflectance by standard glass and other common reflective surfaces. A solar glare analysis will be prepared to determine the potential for glare from the Project.

Odors: No malodorous chemicals or substances would be used or generated during Project construction or operations.

Agricultural Land: The current agricultural map for Imperial County prepared by the California Farmland Mapping and Monitoring Program will be used to determine the amount of the Project lands that have been mapped in each of the eight mapping categories.

The California Department of Conservation (CDOC) Land Evaluation Site Assessment (LESA) model will be used to evaluate the potential for impacts from conversion of Project area agricultural land to solar use.

There are no Williamson Act lands within or adjacent to the Project area.

Air Quality: Fugitive dust would be controlled during construction and operations as required by Imperial County Air Pollution Control District (ICAPCD) Regulation VIII. A Dust Control Plan would be prepared in conformance with ICAPCD requirements to address construction and earthmoving activities, track-out, open areas and unpaved roads. It would include information on the dust suppressants to be applied and the specific surface treatment(s) and/or control measures to be utilized to control track-out where unpaved and/or access points join paved public access roads. There would be no air pollutant emissions from stationary sources from the Project during solar power generation operations.

Air pollutant emissions would be estimated using the California Emission Estimator Model (CalEEMod) and other emission estimating tools from both Project construction and operation activities.

Biological Resources: A biological resources survey of the Project area and a 500-foot buffer (the "Biological Survey Area," or BSA) will be conducted to identify plant associations and animals present; identify dominant tree, shrub and herbaceous flora; and identifying potential habitat for "sensitive" or "special status" species (or documenting the lack thereof).

A jurisdictional delineation of the BSA for potential "state" and/or "federal" waters that may be subject to regulatory compliance relative to the California Department of Fish and Wildlife's (CDFW's) implementation of Section 1600 of the California Fish and Game Code and/or Section 404 and Section 401 of the Clean Water Act (CWA), respectively, will also be conducted.

Focused breeding season surveys of the BSA for burrowing owl may also be conducted in accordance with the methodologies provided in the California Department of Fish and Wildlife's (CDFW's) "2012 Staff Report on Burrowing Owl Mitigation."

Cultural Resources: A baseline cultural resources survey of the Project area will be conducted.

Flood Hazard: According to the applicable Federal Emergency Management Agency (FEMA) flood hazard map (06025C2125C, effective 09/26/2008), the Project area is not located within a special flood hazard area.

Geology, Soils and Mineral Resources:

- *Geologic Hazards:* The Project is not located in a seismically active area. No other potential geologic hazards are known within the Project area, and the preliminary geotechnical survey report will provide mitigation recommendations for any identified geologic hazards.
- *Soils:* Soils within the Project area will be evaluated, and the preliminary geotechnical survey report will provide mitigation recommendations for any identified geologic hazards.
- *Mineral Resources:* There are no known developed or potential mineral resources within or adjacent to the Project area.

Hazardous Materials: The Project would not use nor store any hazardous chemicals on site during normal operations. Fuel that may be used on site during construction would be stored in secondary containment. A Phase I Environmental Site Assessment will be conducted to evaluate the potential for hazardous substance or petroleum hydrocarbon contamination at the site.

Hydrology and Water Quality: A drainage study will be prepared for the Project area which will be used to complete the preliminary grading plan in conformance with Imperial County Public Works Department (ICPWD) requirements. A Notice of Intent to comply with the general permit for construction activities would be filed with the State Water Resources Control Board, and the required Storm Water Pollution Prevention Plan (SWPPP) would be prepared and implemented consistent with the requirements of the State Water Resources Control Board general permit.

Noise: The Project would not generate any appreciable noise during normal operations. Construction noise would be limited to the short-term use of heavy equipment operated during daylight hours and to construction traffic.

Traffic: An analysis of the potential traffic-related impacts associated with the construction and day-to-day operations of the proposed Project will be prepared and provided.

Public Services: The following Project measures would minimize the potential need for public fire and police services.

- *Fire Prevention:* The construction site and access roads would be cleared of all vegetation. The cleared areas would be maintained throughout site construction and solar plant operations. Fire extinguishers would be available around the construction sites. Up to three 10,000-gallon fire water tanks would be constructed across the Project sites and kept filled during operations to fight potential fires. Water that is used for construction would also be available for firefighting. Personnel would be allowed to smoke only in designated areas.
- *Emergency Services:* The Project preliminary site plans have been prepared to accommodate the requirements of emergency services which may need to respond to an emergency at the Project. The Project site would be accessible from both a primary and secondary (if required) access driveway. These driveways would each be provided with a minimum of 30-foot double swing gates with "Knox Box" for keyed entry. Nominal 20-foot wide roads would be provided between the PV arrays, as well as around the

perimeter of the Project site inside the perimeter security fence, to provide access for operational and emergency vehicles.

- *Security:* The entirety of each Project site would be enclosed within a gated security fence. Each site may also be monitored by a motion detection system and closed-circuit camera system.

Site Restoration: The Project areas is zoned A-3-RE, which are intended to provide for agricultural uses. At the end of the Project life, all facilities would be removed, and the Project sites restored to a condition for future agricultural use. A proposed Project site restoration plan will be prepared and provided.

Utilities and Service Systems: Electricity for site security facilities when the panels are not generating power would be provided by the IID through interconnection with the existing IID distribution lines.

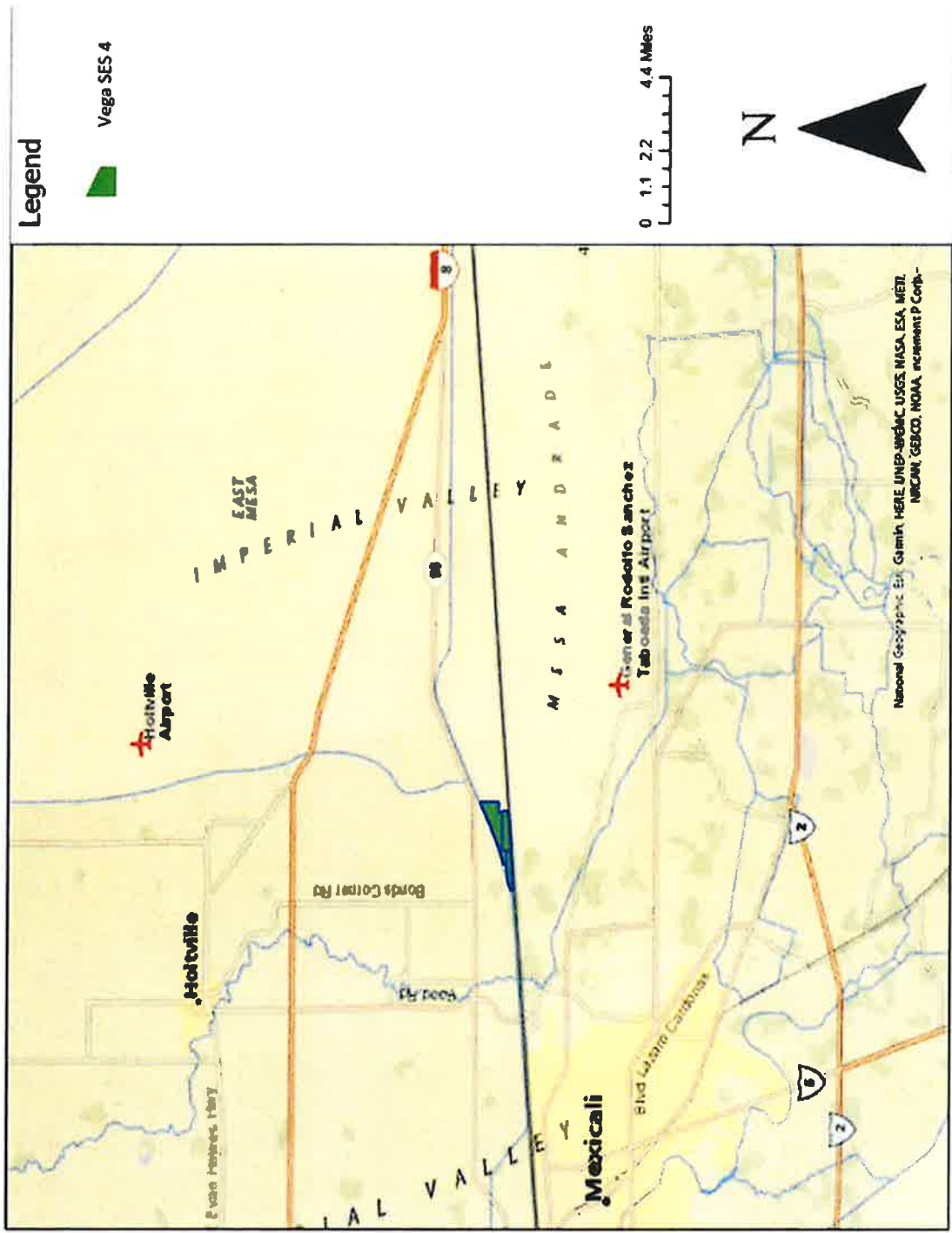


Figure 1 Project Location Map



Figure 2 Project Vicinity Map

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Assessment Information

Assessment No.	059-290-010-000	camera No Images	Land	37481	
Parcel Number	059-290-010-000		Structure	0	
Asmt Desc	LOTS 2 3 4&7 SEC15& POR LOT 3 SEC 16:17-16 80.92AC			Fixtures	0
Status	A	Date	Growing	0	
Taxability	000	TRA	068012	Total L&I	37481
Supl Cnt.	1	Base Date	1/1/2000	Fix R/P	0
Zoning		Dwelling	0	MM PP	0
Acres	80.92	N/C	2601	PP	
Flags				Hox Exmpt.	0
Ag Preserve	N	ETAI	N	Other Exmpt.	0
Notes	Y	Bonds	Y	Net	37481
Multiple Situses		Flag1	N	RC No.	
Flag2	N	Asmt PP Pen		T/R Date	
Tax PP Pen		Appeal Pend	N	R/C Status	
Split Pend	N				
Address	12204 EAST DEL NORTE YUMA AZ 85367				

Situs

Document	Number	Date
Creating	1900I9999999	
Current	2019R016567	8/30/2019
Terminating		
Comments	From 0592901001 07/25/2005	

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Assessment Information		Taxroll Values	
Assessment No.	059-300-017-000  camera No Images	Land	68720
Parcel Number	059-300-017-000	Structure	0
Asmt Desc	TR 41 T17S R16E 148.88 AC	Fixtures	0
Status	A	Date	Growing
Taxability	000	TRA	068012
Supl Cnt.	1	Base Date	1/1/2000
Zoning		Dwelling	0
Acres	148.88	N/C	2601
Flags		PP	
Ag Preserve	N	EtAl	N
Notes	Y	Bonds	Y
Multiple Situses		Flag1	N
Flag2	N	Asmt PP Pen	
Tax PP Pen		Appeal Pend	N
Split Pend	N		
Address			
12204 EAST DEL NORTE			
YUMA AZ 85367			

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Assessment Information

Assessment No. 059-300-015-000

Parcel Number 059-300-015-000

Asmt Desc THAT POR OF SECTIONS 10 & 11 T17S R16E 301.73 AC M

Status A

Taxability 000

Supl Cnt. 1

Zoning

Acres 301.73

Flags

Ag Preserve N

Notes Y

Multiple Situses

Flag2 N

Tax PP Pen

Split Pend N

[No Images](#)

Date

TRA 068012

Base Date 1/1/2000

Dwelling 0

N/C 059

EtAI N

Bonds Y

Flag1 N

Asmt PP Pen

Appeal Pend N

Taxroll Values

Land 230689

Structure 12739

Fixtures 0

Growing 0

Total L&I 243428

Fix R/P 0

MM PP 0

PP

Hox Exmpt. 0

Other Exmpt. 0

Net 243428

RC No.

T/R Date

R/C Status

Address

12204 EAST DEL NORTE
YUMA AZ 85367

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Document	Number	Date
Creating	190019999999	
Current	2019R016567	8/30/2019
Terminating		
Comments	From 0593001501 07/25/2005	

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Air Quality and Greenhouse Gas Assessment

Vega SES 4 Solar Energy Storage Project

Imperial County, California

Prepared For:

Vega SES 4, LLC
604 Sutter Street
Suite 250
Folsom, California 95630

February 2021



INFO ITEM ONLY

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LIST OF ACRONYMS AND ABBREVIATIONS

°F	Degrees Fahrenheit
µg/m3	Micrograms per cubic meter; ppm = parts per million
1992 CO Plan	1992 Federal Attainment Plan for Carbon Monoxide
AB	Assembly Bill
AQMD	Air Quality Management District
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CH ₄	Methane
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
County	Imperial County

LIST OF ACRONYMS AND ABBREVIATIONS

CUP	Conditional Use Permit
DPM	Diesel particulate matter
EO	Executive Order
GHG	Greenhouse gas
GWP	Global warming potential
HSAT	Horizontal Single-Axis Tracker
ICAPCD	Imperial County Air Pollution Control District
IPCC	Intergovernmental Panel on Climate Change
MWAC	Megawatt Alternating Current
N ₂ O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NO ₂	Nitrogen dioxide
NO _x	Nitric oxides
O ₃	Ozone
PM	Particulate matter
PM ₁₀	Coarse particulate matter
PM _{2.5}	Fine particulate matter
ppb	Parts per billion
Project	Clubhouse (Salton Sea Plot Studies) Project
PV	Photovoltaic
ROGs	Reactive organic gases
SB	Senate Bill
SIP	State Implementation Plan
SO ₂	Sulfur dioxide
SO _x	Sulfur oxides
SR	State Route
SRA	Source receptor area
SSAB	Salton Sea Air Basin
TACs	Toxic air contaminants
USEPA	U.S. Environmental Protection Agency
VOCs	Volatile organic compounds
VMT	Vehicle Miles Traveled

1.0 INTRODUCTION

This report documents the results of an assessment of both air quality and greenhouse gas (GHG) emissions completed for the Vega SES 4 Solar Energy Storage Project (Project), which includes the construction of a nominal 100-megawatt (MW) alternating current solar photovoltaic (PV) energy generation system with an integrated 100 MW battery storage project on approximately 531.53 acres of land in the Imperial County (County), California. The purpose of this assessment is to estimate Project-generated criteria air pollutants and GHG emissions attributable to the Project and to determine the level of impact the Project would have on the environment. This assessment was prepared using methodologies and assumptions recommended in the rules and regulations promulgated by the Imperial County Air Pollution Control District (ICAPCD). Regional and local existing conditions are presented, along with pertinent emissions standards and regulations.

1.1 Project Overview

The Project proposes to construct a nominal 100 MW alternating current PV energy generation system, accompanied by a 100 MW battery storage, utilizing either thin film or crystalline solar PV technology modules mounted either on fixed frames or horizontal single-axis tracker (HSAT) systems. The fixed frame PV module arrays would be mounted on racks that would be supported by driven piles. The individual PV systems would be arranged in large arrays by placing them in columns spaced approximately ten feet apart to maximize operational performance and to allow access for panel cleaning and maintenance.

1.2 Project Location

The Project site is an approximately 531.53-acre site located between the California/Mexico border and the All-American Canal (Aqueduct), on the California side in southcentral Imperial County (see Figure 1). The Project site is located approximately 1.92 miles southeast of the Bonds Corner Road/East Cedar Street/California State Route (SR) 98 intersection near the unincorporated community of Bonds Corner. The Project would be located on Imperial County Assessor's Parcel Numbers (APNs) 059-300-015-000 (approximately 301.73 acres), 059-300-017-000 (approximately 148.88 acres) and 059-290-010-000 (approximately 80.92 acres). The irregular shaped site is bound by undeveloped agricultural land to the south, west and east, and the Aqueduct running southwest on the northern border of the proposed Project site. The Project site is currently characterized by flat and undeveloped agricultural land.

1.3 Applicable Land Use Regulations

All three of the Project area parcels are designated as "Agriculture" in the Imperial County General Plan and are zoned A-3-RE (Heavy Agriculture with a Renewable Energy Overlay-areas that are suitable for agricultural land uses; to prevent the encroachment of incompatible uses onto and within agricultural lands; and to prohibit the premature conversion of such lands to non-agricultural uses). Pursuant to Section 91703.02 (*Conditional Use Permits*), Renewable Energy Projects must be located within the Renewable Energy Overlay Zone and may be permitted only through the issuance of a Conditional Use Permit (CUP) as approved by the Approving Authority unless otherwise allowed by applicable law. At present, the Project is located within the Renewable Energy Zone.

1.4 Project Site Access

The Project site would include one primary access driveway, currently contemplated across the East Highline Check of the Aqueduct, in the far northeastern corner of the Project area and a secondary access driveway (if required) with a to-be-determined location. This driveway would be provided with a minimum of 30-foot double swing gates with “Knox Box” for keyed entry. Internal to the Project site up to 30-foot wide roads would be provided between the PV arrays, as well as around the perimeter of each Project site inside the perimeter security fence to provide access to all areas of each site for maintenance and emergency vehicles.

1.5 Project Construction

Construction activities would primarily involve demolition and grubbing; grading of the Project area to establish access roads and pads for electrical equipment (inverters and step-up transformers); trenching for underground electrical collection lines; and the installation of solar equipment and security fencing. The construction of the site is estimated to take 12-18 months and would begin in 2022. A temporary, portable construction supply container would be located at the Project site at the beginning of construction and removed at the end of construction. The number of on-site construction workers for the solar project facilities is not expected to exceed 150 workers at any one time. The number of on-site construction workers for the battery storage facility and the substation is not expected to exceed 100 workers at any one time. Onsite parking would be provided for all construction workers.

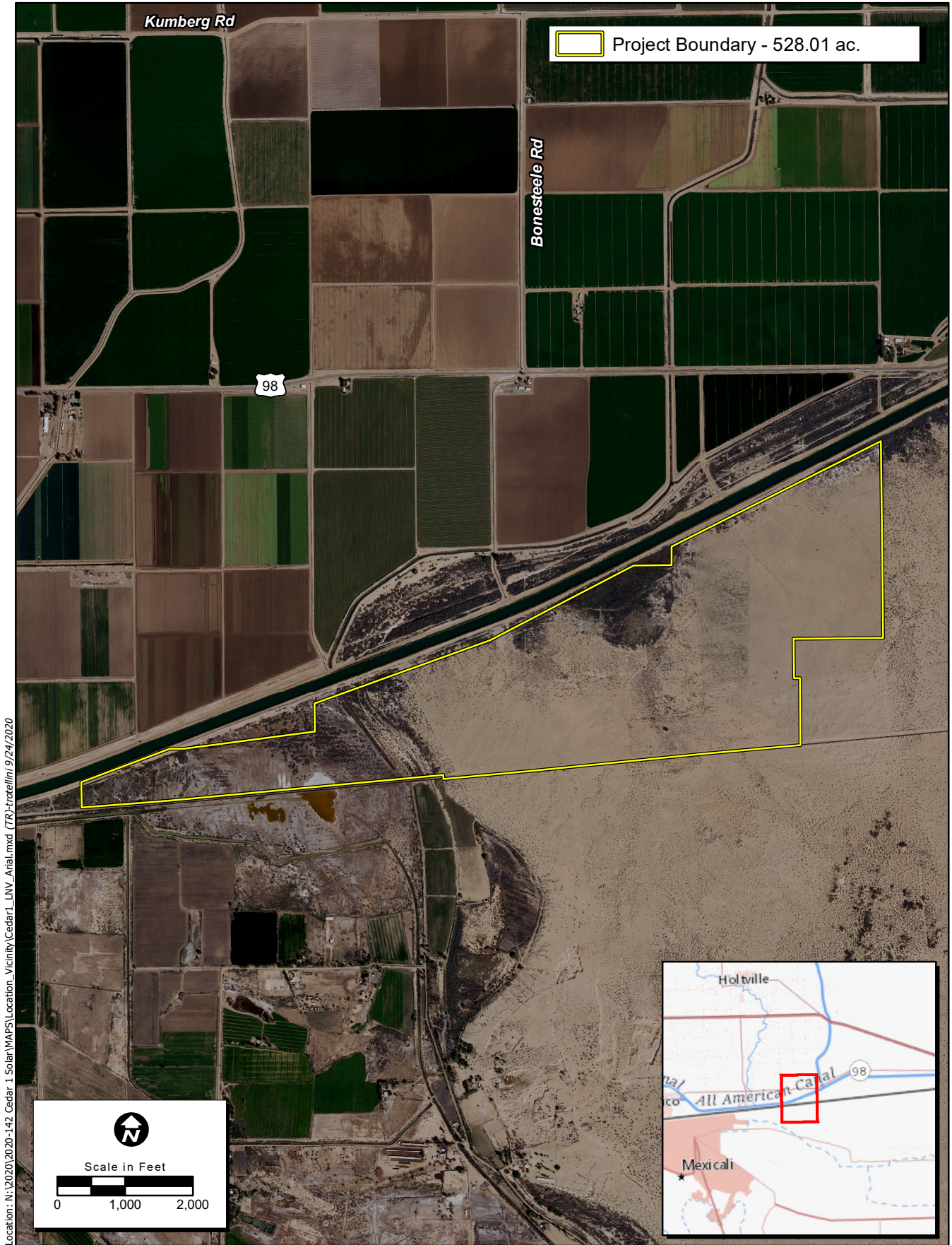


Figure 1. Project Location and Vicinity

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2.0 AIR QUALITY

2.1 Air Quality Setting

Air quality in a region is determined by its topography, meteorology, and existing air pollutant sources. These factors are discussed below, along with the current regulatory structure that applies to the Salton Sea Air Basin (SSAB), which encompasses the Project site, pursuant to the regulatory authority of the ICAPCD.

Ambient air quality is commonly characterized by climate conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The air basin is subject to a combination of topographical and climatic factors that reduce the potential for high levels of regional and local air pollutants. The following section describes the pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the Project area.

2.1.1 Salton Sea Air Basin

The California Air Resources Board (CARB) divides the State into air basins that share similar meteorological and topographical features. Imperial County, which extends over 4,482 square miles in the southeastern corner of California, lies in the SSAB, which includes the Imperial Valley and the central part of Riverside County, including the Coachella Valley. The province is characterized by the large-scale sinking and warming of air within the semi-permanent subtropical high-pressure center over the Pacific Ocean. The elevation in Imperial County ranges from about 230 feet below sea level in the Salton Sea to more than 2,800 feet on the mountain summits to the east.

Temperature and Precipitation

The flat terrain near the Salton Sea, intense heat from the sun during the day, and strong radiational cooling at night create deep convective thermals during the daytime and equally strong surface-based temperature inversions at night. The temperature inversions and light nighttime winds trap any local air pollution emissions near the ground. The area is subject to frequent hazy conditions at sunrise, followed by rapid daytime dissipation as winds pick up and the temperature warms. The lack of clouds and atmospheric moisture creates strong diurnal and seasonal temperature variations ranging from an average summer maximum of 108 degrees Fahrenheit (° F) down to a winter morning minimum of 38° F. The most pleasant weather occurs from about mid-October to early May when daily highs are in the 70s and 80s with very infrequent cloudiness or rainfall. Imperial County experiences rainfall on an average of only four times per year (>0.10 inches in 24 hours). The local area usually has three days of rain in winter and one thunderstorm day in August. The annual rainfall in this region is less than three inches per year (ICAPCD 2010).

Wind

Winds in the area are driven by a complex pattern of local, regional and global forces, but primarily reflect the temperature difference between the cool ocean to the west and the heated interior of the entire desert southwest. For much of the year, winds flow predominantly from the west to the east. In summer,

intense solar heating in the Imperial Valley creates a more localized wind pattern, as air comes up from the southeast via the Gulf of California. During periods of strong solar heating and intense convection, turbulent motion creates good mixing and low levels of air pollution. However, even strong turbulent mixing is insufficient to overcome the limited air pollution controls on sources in the Mexicali, Mexico area. Imperial County is predominately agricultural land. This is a factor in the cumulative air quality of the SSAB. The agricultural production generates dust and small particulate matter through the use of agricultural equipment on unpaved roads, land preparation, and harvest practices. The Imperial County experiences unhealthy air quality from photochemical smog and from dust due to extensive surface disturbance and the very arid climate (ICAPCD 2010).

Inversion

The entire county is affected by inversion layers, where warm air overlays cooler air. Inversion layers trap pollutants close to the ground. In the winter, these pollutant-trapping, ground-based inversions are formed during windless, clear-sky conditions, as cold air collects in low-lying areas such as valleys and canyons. Imperial County experiences surface inversions almost every day of the year. Due to strong surface heating, these inversions are usually broken allowing pollutants to be more easily dispersed (ICAPCD 2010).

2.1.2 Criteria Air Pollutants

Criteria air pollutants are defined as those pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health with a determined margin of safety. Ozone (O₃), coarse particulate matter (PM₁₀), and fine particulate matter (PM_{2.5}) are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as carbon monoxide (CO), nitrogen dioxide (NO₂), and sulfur dioxide (SO₂) are considered to be local pollutants because they tend to accumulate in the air locally. PM is also considered a local pollutant. Health effects commonly associated with criteria pollutants are summarized in Table 2-1.

Table 2-1. Criteria Air Pollutants- Summary of Common Sources and Effects		
Pollutant	Major Manmade Sources	Human Health & Welfare Effects
CO	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
NO ₂	A reddish-brown gas formed during fuel combustion for motor vehicles, energy utilities and industrial sources.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Causes brown discoloration of the atmosphere.
O ₃	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrous oxides (N ₂ O) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
PM ₁₀ & PM _{2.5}	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
SO ₂	A colorless, nonflammable gas formed when fuel containing sulfur is burned. Examples are refineries, cement manufacturing, and locomotives.	Respiratory irritant. Aggravates lung and heart problems. Can damage crops and natural vegetation. Impairs visibility.

Source: California Air Pollution Control Officers Association (CAPCOA 2013)

Carbon Monoxide

CO in the urban environment is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can cause headaches, aggravate cardiovascular disease and impair central nervous system functions. CO concentrations can vary greatly over comparatively short distances. Relatively high concentrations of CO are typically found near crowded intersections and along heavy roadways with slow moving traffic. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within relatively short distances of the source. Overall CO emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973. CO levels in the SSAB are in compliance with the state and federal one- and eight-hour standards.

Nitrogen Oxides

Nitrogen gas comprises about 80 percent of the air and is naturally occurring. At high temperatures and under certain conditions, nitrogen can combine with oxygen to form several different gaseous compounds collectively called nitric oxides (NO_x). Motor vehicle emissions are the main source of NO_x in urban areas. NO_x is very toxic to animals and humans because of its ability to form nitric acid with water in the eyes, lungs, mucus membrane, and skin. In animals, long-term exposure to NO_x increases susceptibility to respiratory infections, and lowering resistance to such diseases as pneumonia and

influenza. Laboratory studies show that susceptible humans, such as asthmatics, who are exposed to high concentrations can suffer from lung irritation or possible lung damage. Precursors of NO_x , such as NO and NO_2 , attribute to the formation of O_3 and $\text{PM}_{2.5}$. Epidemiological studies have also shown associations between NO_2 concentrations and daily mortality from respiratory and cardiovascular causes and with hospital admissions for respiratory conditions.

Ozone

O_3 is a secondary pollutant, meaning it is not directly emitted. It is formed when volatile organic compounds (VOCs) or ROGs and NO_x undergo photochemical reactions that occur only in the presence of sunlight. The primary source of ROG emissions is unburned hydrocarbons in motor vehicle and other internal combustion engine exhaust. NO_x forms as a result of the combustion process, most notably due to the operation of motor vehicles. Sunlight and hot weather cause ground-level O_3 to form. Ground-level O_3 is the primary constituent of smog. Because O_3 formation occurs over extended periods of time, both O_3 and its precursors are transported by wind and high O_3 concentrations can occur in areas well away from sources of its constituent pollutants.

People with lung disease, children, older adults, and people who are active can be affected when O_3 levels exceed ambient air quality standards. Numerous scientific studies have linked ground-level O_3 exposure to a variety of problems including lung irritation, difficult breathing, permanent lung damage to those with repeated exposure, and respiratory illnesses.

Particulate Matter

PM includes both aerosols and solid particulates of a wide range of sizes and composition. Of concern are those particles smaller than or equal to 10 microns in diameter size (PM_{10}) and small than or equal to 2.5 microns in diameter ($\text{PM}_{2.5}$). Smaller particulates are of greater concern because they can penetrate deeper into the lungs than larger particles. PM_{10} is generally emitted directly as a result of mechanical processes that crush or grind larger particles or form the resuspension of dust, typically through construction activities and vehicular travel. PM_{10} generally settles out of the atmosphere rapidly and is not readily transported over large distances. $\text{PM}_{2.5}$ is directly emitted in combustion exhaust and is formed in atmospheric reactions between various gaseous pollutants, including NO_x , sulfur oxides (SO_x) and VOCs. $\text{PM}_{2.5}$ can remain suspended in the atmosphere for days and/or weeks and can be transported long distances.

The principal health effects of airborne PM are on the respiratory system. Short-term exposure of high $\text{PM}_{2.5}$ and PM_{10} levels are associated with premature mortality and increased hospital admissions and emergency room visits. Long-term exposure is associated with premature mortality and chronic respiratory disease. According to the U.S. Environmental Protection Agency (USEPA), some people are much more sensitive than others to breathing PM_{10} and $\text{PM}_{2.5}$. People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worse illnesses; people with bronchitis can expect aggravated symptoms; and children may experience decline in lung function due to breathing in PM_{10} and $\text{PM}_{2.5}$. Other groups considered sensitive include smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive because many breathe through their mouths.

2.1.3 Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Additionally, diesel engines emit a complex mixture of air pollutants composed of gaseous and solid material. The solid emissions in diesel exhaust are known as diesel particulate matter (DPM). In 1998, California identified DPM as a TAC based on its potential to cause cancer, premature death, and other health problems (e.g., asthma attacks and other respiratory symptoms). Those most vulnerable are children (whose lungs are still developing) and the elderly (who may have other serious health problems). Overall, diesel engine emissions are responsible for the majority of California's known cancer risk from outdoor air pollutants. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

Diesel Exhaust

Most recently, CARB identified DPM as a TAC. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Diesel exhaust is a complex mixture of particles and gases produced when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. DPM includes the particle-phase constituents in diesel exhaust. The chemical composition and particle sizes of DPM vary between different engine types (heavy-duty, light-duty), engine operating conditions (idle, accelerate, decelerate), fuel formulations (high/low sulfur fuel), and the year of the engine (USEPA 2002). Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the TACs; due to their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

Total Organic Gases

Total organic gases (TOG) emissions are compounds of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. Specifically, TOG emissions include all organic gas compounds emitted to the atmosphere, including the low reactivity compounds (methane, ethane, various chlorinated fluorocarbons, acetone, perchloroethylene, volatile methyl siloxanes, etc.). TOG emissions also include low volatility or "low vapor pressure" organic

compounds (e.g., some petroleum distillate mixtures). TOG includes all organic compounds that can become airborne (through evaporation, sublimation, as aerosols, etc.), excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.

Various subsets of TOG cause headaches, dizziness, upper respiratory tract irritation, nausea, and cancer. Vehicular traffic traveling on area roadways, such as SR 98, are sources of TOG.

2.1.4 Asbestos

The term "asbestos" describes naturally occurring fibrous minerals found in certain types of rock formations. It is a mineral compound of silicon, oxygen, hydrogen, and various metal cations. When mined and processed, asbestos is typically separated into very thin fibers. When these fibers are present in the air, they are normally invisible to the naked eye. Once airborne, asbestos fibers can cause serious health problems. If inhaled, asbestos fibers can impair normal lung functions, and increase the risk of developing lung cancer, mesothelioma, or asbestosis.

Naturally-occurring asbestos, which was identified as a TAC in 1986 by CARB, is located in many parts of California and is commonly associated with ultramafic rock. The Project site is not located in an area of known or suspected naturally-occurring asbestos (DOC 2000).

2.1.5 Ambient Air Quality

Ambient air quality at the Project site can be inferred from ambient air quality measurements conducted at nearby air quality monitoring stations. CARB maintains more than 60 monitoring stations throughout California. O₃, PM₁₀ and PM_{2.5} are the pollutant species most potently affecting the Project region. As described in detail below, the Project region is designated as a nonattainment area for the federal O₃, PM_{2.5} and PM₁₀ standards and is also a nonattainment area for the state standards for O₃ and PM₁₀ (CARB 2019). The Calexico-Ethel Street air quality monitoring station (1085 Andrade Ave, Calexico), located approximately 10.3 miles west of the Project site, monitors ambient concentrations of O₃, PM_{2.5} and PM₁₀. Ambient emission concentrations will vary due to localized variations in emission sources and climate and should be considered "generally" representative of ambient concentrations in the Project area.

Table 2-2 summarizes the published data concerning O₃, PM_{2.5} and PM₁₀ from the Calexico-Ethel Street monitoring station for each year that the monitoring data is provided. O₃, PM₁₀ and PM_{2.5} are the pollutant species most potently affecting the Project region.

Table 2-2. Summary of Ambient Air Quality Data			
Pollutant Standards	2017	2018	2019
O₃- Calexico-Ethel Street			
Max 1-hour concentration (ppm)	0.122	0.103	0.106
Max 8-hour concentration (ppm) (state/federal)	0.093 / 0.092	0.085 / 0.084	0.089 / 0.089
Number of days above 1-hour standard (state/federal)	6 / 0	2 / 0	4 / 0
Number of days above 8-hour standard (state/federal)	17 / 17	10 / 9	18 / 17
PM₁₀- Calexico-Ethel Street			
Max 24-hour concentration (µg/m ³) (state/federal)	410.2 / 409.7	419.0 / 407.5	146.1 / 141.1
Number of days above 24-hour standard (state/federal)	* / 6.2	* / 9.3	112.0 / 0.0
PM_{2.5}- Calexico-Ethel Street			
Max 24-hour concentration (µg/m ³) (state/federal)	187.5 / 49.1	90.6 / 90.6	53.1 / 53.1
Number of days above federal 24-hour standard	5.5	*	1.1

Source: CARB 2020a
 µg/m³ = micrograms per cubic meter; ppm = parts per million
 * = Insufficient data available

The USEPA and CARB designate air basins or portions of air basins and counties as being in “attainment” or “nonattainment” for each of the criteria pollutants. Areas that do not meet the standards are classified as nonattainment areas. The National Ambient Air Quality Standards (NAAQS) (other than O₃, PM₁₀ and PM_{2.5} and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O₃, PM₁₀, and PM_{2.5} are based on statistical calculations over one- to three-year periods, depending on the pollutant. The California Ambient Air Quality Standards (CAAQS) are not to be exceeded during a three-year period. The attainment status for the portion of the SSAB encompassing the Project site is included in Table 2-3.

Table 2-3. Attainment Status of Criteria Pollutants in the Imperial County Portion of the SSAB		
Pollutant	State Designation	Federal Designation
O ₃	Nonattainment	Nonattainment
PM ₁₀	Nonattainment	Nonattainment
PM _{2.5}	Attainment	Nonattainment
CO	Attainment	Unclassified/Attainment
NO ₂	Attainment	Unclassified/Attainment
SO ₂	Attainment	Unclassified/Attainment

Source: CARB 2019

The determination of whether an area meets the state and federal standards is based on air quality monitoring data. Some areas are unclassified, which means there is insufficient monitoring data for determining attainment or nonattainment. Unclassified areas are typically treated as being in attainment. Because the attainment/nonattainment designation is pollutant-specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the state and federal standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the state standards of the same pollutant. The region is designated as a nonattainment area for the federal O₃, PM_{2.5} and PM₁₀ standards and is also a nonattainment area for the state standards for O₃ and PM₁₀ (CARB 2019).

2.1.6 Sensitive Receptors

Sensitive receptors are defined as facilities or land uses that include members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptor to the Project site is a single-family residence located 1,342 feet from the northeastern corner of Project site.

2.2 Regulatory Framework

2.2.1 Federal

Clean Air Act

The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the USEPA to establish the NAAQS, with states retaining the option to adopt more stringent standards or to include other specific pollutants. On April 2, 2007, the Supreme Court found that carbon dioxide (CO₂) is an air pollutant covered by the CAA; however, no NAAQS have been established for CO₂.

These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those “sensitive receptors” most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

The USEPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether or not the NAAQS have been achieved. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. Table 2-3 lists the federal attainment status of the SSAB for the criteria pollutants.

2.2.2 State

California Clean Air Act

The California Clean Air Act (CCAA) allows the state to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California, including setting the CAAQS. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts.

California State Implementation Plan

The CCAA (and its subsequent amendments) requires the state to prepare an air quality control plan referred to as the SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The USEPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAA. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the USEPA for approval and publication in the Federal Register.

Local air districts, such as the ICAPCD, prepare air quality attainment plans or air quality management plans and submit them to CARB for review, approval, and incorporation into the applicable SIP. The air districts develop the strategies stated in the SIPs for achieving air quality standards on a regional basis.

For 8-Hour O₃, the ICAPCD adopted the 2017 8-hour Ozone State Implementation Plan in October 2018. The plan includes control measures which are an integral part of how the ICAPCD currently controls the ROG and NO_x emissions within the O₃ nonattainment areas. The overall strategy includes programs and control measures which represent the implementation of Reasonable Available Control Technology (40 CFR 51.912) and the assurance that stationary sources maintain a net decrease in emissions.

For PM₁₀, the ICAPCD adopted the PM₁₀ State Implementation Plan in 2018, which maintained previously adopted fugitive dust control measures (Regulation VIII). The USEPA had previously approved Regulation VIII fugitive dust rules into the Imperial County portion of the California SIP in 2013.

For PM_{2.5}, the ICAPCD adopted the PM_{2.5} SIP in April 2018. This SIP concluded that the majority of the PM_{2.5} emissions resulted from transport in nearby Mexico. Specifically, the SIP demonstrates attainment of the 2006 PM_{2.5} NAAQS "but for" transport of international emissions from Mexicali, Mexico. In accordance

with the CCAA, the PM_{2.5} SIP satisfies the attainment demonstration requirement satisfying the provisions of the CCAA.

The ICAPCD is working cooperatively with counterparts from Mexico to implement emissions reductions strategies and projects for air quality improvements at the border. The two countries strive to achieve these goals through local input from states, County governments, and citizens. Within the Mexicali and Imperial Valley area, the Air Quality Task Force (AQTF) has been organized to address those issues unique to the border region known as the Mexicali/Imperial air shed. The AQTF membership includes representatives from Federal, State, and local governments from both sides of the border, as well as representatives from academia, environmental organizations, and the general public. This group was created to promote regional efforts to improve the air quality monitoring network, emissions inventories, and air pollution transport modeling development, as well as the creation of programs and strategies to improve air quality.

Tanner Air Toxics Act & Air Toxics “Hot Spots” Information and Assessment Act

CARB’s Statewide comprehensive air toxics program was established in 1983 with Assembly Bill (AB) 1807, the Toxic Air Contaminant Identification and Control Act (Tanner Air Toxics Act of 1983). AB 1807 created California’s program to reduce exposure to air toxics and sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an airborne toxics control measure (ATCM) for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions.

CARB also administers the state’s mobile source emissions control program and oversees air quality programs established by state statute, such as AB 2588, the Air Toxics “Hot Spots” Information and Assessment Act of 1987. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment (HRA) and, if specific thresholds are exceeded, required to communicate the results to the public in the form of notices and public meetings. In September 1992, the “Hot Spots” Act was amended by Senate Bill (SB) 1731, which required facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.

2.2.3 Local

Imperial County Air Pollution Control District

The ICAPCD is the local air quality agency and shares responsibility with CARB for ensuring that state and federal ambient air quality standards are achieved and maintained in the SSAB. Furthermore, ICAPCD adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs and regulates agricultural burning. Other ICAPCD responsibilities include monitoring ambient air quality, preparing clean air plans, planning activities such as modeling and maintenance of the emission inventory, and responding to citizen air quality complaints.

To achieve and maintain ambient air quality standards, the ICAPCD has adopted various rules and regulations for the control of airborne pollutants. The ICAPCD Rules and Regulations that are applicable to the proposed project include, but are not limited to, ICAPCD Rule 801 requirements for construction activities. The purpose of this rule is to reduce the amount of PM₁₀ entrained in the ambient air as a result of emissions generated from construction and other earthmoving activities by requiring actions to prevent, reduce, or mitigate PM₁₀ emissions. In addition, the project is required to adopt best available control measures to minimize emissions from surface-disturbing activities to comply with ICAPCD Regulation VIII (Fugitive Dust Rules). These measures include the following (ICAPCD 2017):

- All disturbed areas, including bulk material storage which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps, or other suitable material such as vegetative ground cover.
- All on-site and off-site unpaved roads will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.
- All unpaved traffic areas of 1 acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emissions by paving, chemical stabilizers, dust suppressants, and/or watering.
- The transport of bulk materials shall be completely covered unless 6 inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks is to be cleaned and/or washed at the delivery site after removal of bulk material.
- All track-out or carry-out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an urban area.
- Bulk material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers, or by sheltering or enclosing the operation and transfer line.
- The construction of any new unpaved road is prohibited within any area with a population of 500 or more unless the road meets the definition of a temporary unpaved road. Any temporary unpaved road shall be effectively stabilized and visible emissions shall be limited to no greater than 20 percent opacity for dust emission by paving, chemical stabilizers, dust suppressants and/or watering.

In addition, there are other ICAPCD rules and regulations, not detailed here, which may apply to the proposed Project but are administrative or descriptive in nature. These include rules associated with fees, enforcement and penalty actions, and variance procedures.

2.3 Air Quality Emissions Impact Assessment

2.3.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to air quality if it would do any of the following:

- 1) Conflict with or obstruct implementation of any applicable air quality plan.
- 2) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- 3) Expose sensitive receptors to substantial pollutant concentrations.
- 4) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people).

ICAPCD Thresholds

The significance criteria established by the applicable air quality management or air pollution control district (ICAPCD) may be relied upon to make the above determinations. The ICAPCD has identified significance thresholds for use in evaluating project impacts under CEQA. Accordingly, the ICAPCD-recommended thresholds of significance are used to determine whether implementation of the proposed Project would result in a significant air quality impact. Significance thresholds for evaluation construction and operational air quality impacts are listed in Table 2-4.

Criteria Pollutant and Precursors	Construction Activities	Operations	
	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	
		Tier I Threshold	Tier II Threshold
ROG	75	<137	>137
NO _x	100	<137	>137
PM ₁₀	150	<150	>150
PM _{2.5}	N/A	<550	>550
CO	550	<550	>550
SO ₂	N/A	<150	>150

Source: ICAPCD 2017

Projects that are predicted to exceed Tier I thresholds require implementation of applicable ICAPCD standard mitigation measures to be considered less than significant. Projects exceeding Tier II thresholds are required to implement applicable ICAPCD standard mitigation measures, as well as applicable

discretionary mitigation measures. Projects that exceed the Tier II thresholds after implementation of standard and discretionary mitigation measures would be considered to have a potentially significant impact to human health and welfare.

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's individual emissions exceed its identified significance thresholds, the project would be cumulatively considerable. Projects that do not exceed significance thresholds would not be considered cumulative considerable.

2.3.2 Methodology

Air quality impacts were assessed in accordance with methodologies recommended by the ICAPCD. Where criteria air pollutant quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. Project construction-generated air pollutant emissions were calculated using CalEEMod model defaults for Imperial County as well as timing and equipment identified by the Project proponent. Operational air pollutant emissions were based on the Project site plans.

2.3.3 Impact Analysis

Project Construction-Generated Criteria Air Quality Emissions

Emissions associated with Project construction would be temporary and short-term but have the potential to represent a significant air quality impact. Two basic sources of short-term emissions will be generated through Project construction: operation of the heavy-duty equipment (i.e., excavators, loaders, haul trucks) and the creation of fugitive dust during clearing and grading. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive PM emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place, and the nature of dust control efforts. The dry climate of the area during the summer months creates a high potential for dust generation. Construction activities would be subject to ICAPCD Rule 801 which, as previously described, requires taking reasonable precautions to reduce the amount of PM₁₀ entrained in the ambient air as a result of emissions generated from construction and other earthmoving activities by requiring actions to prevent, reduce, or mitigate PM₁₀ emissions. In addition, the Project is required to adopt best available control measures to minimize emissions from surface-disturbing activities to comply with ICAPCD Regulation VIII (Fugitive Dust Rules).

Emissions associated with Project off-road equipment, worker commute trips, and ground disturbance were calculated using the CARB-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. See Attachment

A for more information regarding the construction assumptions, including types of construction equipment used and Project duration used in this analysis.

Predicted maximum daily emissions attributable to Project construction are summarized in Table 2-5. Such emissions are short-term and of temporary duration, lasting only as long as Project construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the ICAPCD thresholds of significance.

Table 2-5. Project Construction-Generated Emissions						
Construction Year	Pollutant (pounds per day)					
	ROG	NO_x	CO	SO₂	PM₁₀	PM_{2.5}
Construction 2022	6.29	66.17	48.92	0.10	16.55	7.59
Construction 2023	9.03	82.74	77.82	0.15	18.37	8.62
<i>ICAPCD Significance Threshold</i>	<i>75</i>	<i>100</i>	<i>550</i>	<i>N/A</i>	<i>150</i>	<i>N/A</i>
Exceed ICAPCD Threshold?	No	No	No	No	No	No

Source: CalEEMod version 2016.3.2. Refer to Attachment A for Model Data Outputs.

Notes: Pounds per day taken from the season with the highest output.

As shown in Table 2-5, emissions generated during Project construction would not exceed the ICAPCD's thresholds of significance. Therefore, criteria pollutant emissions generated during Project construction would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard, and no health effects from Project criteria pollutants would occur.

Operational Criteria Air Quality Emissions

Although limited, implementation of the Project would result in long-term operational emissions of criteria air pollutants such as PM₁₀, PM_{2.5}, CO, and SO₂ as well as O₃ precursors such as ROG and NO_x. Project-generated increases in emissions would be predominately associated with motor vehicle use for routine maintenance work and site security as well as panel upkeep and cleaning. Long-term operational emissions attributable to the Project are identified in Table 2-6 and compared to the operational significance thresholds promulgated by the ICAPCD.

Table 2-6. Operational-Related Emissions (Regional Significance Analysis)						
Emission Source	Pollutant (pounds per day)					
	ROG	NO_x	CO	SO₂	PM₁₀	PM_{2.5}
Summer Emissions						
Area	10.85	0.00	0.05	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.01	0.03	0.00	0.45	0.04
Total:	10.85	0.01	0.03	0.00	0.45	0.04
<i>ICAPCD Significance Threshold</i>	137	137	150	550	550	150
Exceed ICAPCD Significance Threshold?	No	No	No	No	No	No
Winter Emissions						
Area	10.85	0.00	0.05	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.01	0.02	0.00	0.45	0.04
Total:	10.85	0.1	0.7	0.00	0.45	0.04
<i>ICAPCD Significance Threshold</i>	137	137	150	550	550	150
Exceed ICAPCD Significance Threshold?	No	No	No	No	No	No

Source: CalEEMod version 2016.3.2. Refer to Attachment A for Model Data Outputs.

Notes: Operational emissions account for one vehicle trip per day. It is noted that this is a conservative estimate and many days will have no operational related vehicle trips.

As shown in Table 2-6, the Project’s emissions would not exceed any ICAPCD’s thresholds for any criteria air pollutants during operation. Additionally, the purpose of the Project is the construction of a renewable energy and storage facility. Once in operation, it will decrease the need for energy from fossil fuel–based power plants in the state (see Table 2-7). Thus, once operational the Project would represent a beneficial impact to air quality.

Conflict with an Applicable Air Quality Management Plan

As previously described, the Project region is classified as nonattainment for federal ozone, O₃, PM_{2.5} and PM₁₀ standards (CARB 2019). The USEPA, under the provisions of the CAA, requires each state with regions that have not attained the federal air quality standards to prepare a SIP, detailing how these standards are to be met in each local area. The SIP is a legal agreement between each state and the federal government to commit resources to improving air quality. It serves as the template for conducting regional and project-level air quality analysis. CARB is the lead agency for developing the SIP in California. Local air districts, such as the ICAPCD, prepare air quality attainment plans or air quality management

plans and submit them to CARB for review, approval, and incorporation into the applicable SIP. The air districts develop the strategies stated in the SIPs for achieving air quality standards on a regional basis.

The region's SIP is constituted of the ICAPCD air quality plans: 2018 PM₁₀ SIP, the 2018 Annual PM_{2.5} SIP, the 2017 8-Hour Ozone SIP, 2013 24-Hour PM_{2.5} SIP, the 2009 1997 8-hour Ozone RACT SIP, the 2009 PM₁₀ SIP and the 2008 Ozone Early Progress Plans. Project compliance with all of the ICAPCD rules and regulations results in conformance with the ICAPCD air quality plans. These air quality attainment plans are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls describing how the state will attain ambient air quality standards. These SIP plans and associated control measures are based on information derived from projected growth in Imperial County in order to project future emissions and then determine strategies and regulatory controls for the reduction of emissions. Growth projections are based on the general plans developed by Imperial County and the incorporated cities in the county.

As previously described, the Project is proposing the development of a 100 MW alternating current PV energy generation system with an integrated 100 MW battery on approximately 531.53 acres of land. The Project would not result in population growth and would not cause an increase in currently established population projections. The Project does not include residential development or large local or regional employment centers, and thus would not result in significant population or employment growth.

Furthermore, the operation of the Project would create renewable energy over its planned lifetime and decrease the need for energy from fossil fuel-based power plants in the state, which is considered a beneficial impact to statewide air quality. The energy produced by the Project would displace the criteria pollutant emissions which would otherwise be produced by existing business-as-usual power generation resources (including natural gas and coal).

Table 2-7 shows the emissions that would potentially be displaced by the proposed Project. Note that this estimate only includes that associated with the combustion of fossil fuels; it does not include the vehicle trips associated with the Project's operations, and it similarly does not include operational employee trips associated with natural gas or coal combustion nor the emissions associated with extracting and transporting those power sources. In addition, this estimate only includes the displacement of that portion of the California market that comes from fossil fuels and does not include the approximate 50 percent of the California electricity generated by non-combustion sources (wind, solar, nuclear, hydro-electric) (California Energy Commission [CEC] 2019a). Displacement of fossil fuel emissions has a direct beneficial effect on human health for those receptors downwind of the location of the fossil fuel power plants.

Table 2-7. Proposed Project Displaced Criteria Pollutant Emissions (Tons)

Construction Year	Emissions (Tons)					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Emissions Displaced Annually (tons)						
Displaced Natural Gas-Source Emissions	0	0.17	0.05	0.12	0.17	0.07
Displaced Coal-Source Emissions	0	1.23	0.05	0.06	0.01	0.01
Total	0	1.40	0.10	0.18	0.18	0.08
Emissions Displaced over 30 Years (tons)						
Displaced Natural Gas-Source Emissions	0	5.10	1.50	3.60	5.10	2.10
Displaced Coal-Source Emissions	0	36.9	1.50	1.80	0.30	0.30
Total	0	42.00	3.00	5.40	5.40	2.40

Source: Displaced emissions calculated by ECORP using USEPA's AP-42 Fifth Edition Compilation of Air Emissions Factors 1995; 2015. See Attachment B.

Notes: In order to provide a conservative analysis, the proposed Project is assumed to generate electricity 50 percent of the time available (4,380 hours annually). Heat Rate indicates the energy generator efficiency of existing fossil-fuel based energy generators. The heat rate of a power plant measures the amount of fuel used to generate one unit of electricity. Power plants with lower heat rates are more efficient than plants with higher heat rates. The CEC's "Updated Thermal Power Plant Efficiency Measures and Operational Characteristics for Production Cost Modeling" (2019) estimates heat rates and operating ranges for thermal power plants supplying energy to California. The average heat rate of power plants types are as follows:

**Steam Boiler fueled by coal: 10,800 heat rate. **Steam Boiler fueled by natural gas: 10,200 heat rate. **Gas Turbine: 10,100 heat rate.

**Combined natural gas Boiler and Turbine: 7,640 heat rate.

By omitting steam boilers fueled by coal since so little of California's energy is derived from coal, the average heat rate = 9,313 [(10,100 + 10,200 + 7,640) ÷ 3 = 9,313].

4.2 MW (18,250,146 annual kWh) x 9,313 heat rate = 169,963,609,698 Btu displaced from fossil fuel production. Fossil fuel-based energy consumption in California is predominately derived from natural gas (34.23 percent). Coal constitutes 2.96 percent of all fossil fuel-based energy. Therefore, 70,653,872,551 of the displaced Btu is displaced natural gas consumption and 4,928,944,681 is displaced Btu is displaced coal. The heat content of coal is assumed at 24 million Btu per ton of coal burned. At a rate of 24 million Btu per ton of coal burned, the Project would displace 205 tons of burned coal annually.

As shown, the Project would potentially displace just under 42 tons of NO_x, 3 tons of CO, just over 5 tons of SO₂, just over 45 tons of PM₁₀, and over 2 tons of PM_{2.5} over the course of 30 years. Furthermore, as demonstrated in Table 2-5 and Table 2-6, the Project would not exceed the applicable ICAPCD significance thresholds for construction or operational-source emissions.

Exposure of Sensitive Receptors to Toxic Air Contaminants

As previously described, sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over age 65, children under age 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive

receptor to the Project site is a single-family residence located 1,342 feet from the northeastern corner of Project site boundary.

Construction-Generated Air Contaminants

Construction of the Project would result in temporary, short-term proposed Project-generated emissions of diesel particulate matter (DPM), ROG, NO_x, CO, and PM₁₀ from the exhaust of off-road, heavy-duty diesel equipment for Project construction; soil hauling truck traffic; paving; and other miscellaneous activities. The portion of the SSAB which encompasses the Project area is designated as a nonattainment area for federal O₃, PM_{2.5} and PM₁₀ standards and is also a nonattainment area for the state standards for O₃ and PM₁₀ (CARB 2019). Thus, existing O₃ and PM₁₀ levels in the SSAB are at unhealthy levels during certain periods. However, as shown in Table 2-5 and Table 2-6, the Project would not exceed the ICAPCD significance thresholds for construction emissions.

The health effects associated with O₃ are generally associated with reduced lung function. Because the Project would not involve construction activities that would result in O₃ precursor emissions (ROG or NO_x) in excess of the ICAPCD thresholds, the Project is not anticipated to substantially contribute to regional O₃ concentrations and the associated health impacts.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. The Project would not involve activities that would result in CO emissions in excess of the ICAPCD thresholds. Thus, the Project's CO emissions would not contribute to the health effects associated with this pollutant.

Particulate matter (PM₁₀ and PM_{2.5}) contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. For construction-type activity, DPM is the primary TAC of concern. Based on the emission modeling conducted, the maximum onsite Project construction-related daily emissions of exhaust PM_{2.5}, considered a surrogate for DPM, would be 2.52 pounds/day during 2022 construction and 3.35 pounds/day during 2023 construction (see Attachment A). PM_{2.5} exhaust is considered a surrogate for DPM because more than 90 percent of DPM is less than 1 microgram in diameter and therefore is a subset of particulate matter under 2.5 microns in diameter (i.e., PM_{2.5}). Most PM_{2.5} derives from combustion, such as use of gasoline and diesel fuels by motor vehicles. As with O₃ and NO_x, the Project would not generate emissions of PM₁₀ or PM_{2.5} that would exceed the ICAPCD's thresholds. Accordingly, the Project's PM₁₀ and PM_{2.5} emissions are not expected to cause any increase in related regional health effects for these pollutants.

In summary, Project construction would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants.

Operational Air Contaminants

Operation of the proposed Project would not result in the development of any substantial sources of air toxics. There would be no stationary sources associated Project operations; nor would the Project attract additional mobile sources that spend long periods queuing and idling at the site. Onsite Project emissions would not result in significant concentrations of pollutants at nearby sensitive receptors as the predominant operational emissions associated with the proposed Project would be routine maintenance work and site security as well as panel upkeep and cleaning. Therefore, the Project would not be a substantial source of TACs. The Project will not result in a high carcinogenic or non-carcinogenic risk during operation.

Naturally Occurring Asbestos

Another potential air quality issue associated with construction-related activities is the airborne entrainment of asbestos due to the disturbance of naturally-occurring asbestos-containing soils. The proposed Project is not located within an area designated by the State of California as likely to contain naturally-occurring asbestos (Department of Conservation [DOC] 2000). As a result, construction-related activities would not be anticipated to result in increased exposure of sensitive land uses to asbestos.

Carbon Monoxide Hot Spots

It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Under certain meteorological conditions, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential, areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. However, transport of this criteria pollutant is extremely limited, and CO disperses rapidly with distance from the source under normal meteorological conditions. Furthermore, vehicle emissions standards have become increasingly more stringent in the last 20 years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the SSAB is designated as in attainment. Detailed modeling of Project-specific CO "hot spots" is not necessary and thus this potential impact is addressed qualitatively.

A CO "hot spot" would occur if an exceedance of the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9 ppm were to occur. The analysis prepared for CO attainment in the South Coast Air Quality Management District's (SCAQMD's) *1992 Federal Attainment Plan for Carbon Monoxide* in Los Angeles County and a Modeling and Attainment Demonstration prepared by the SCAQMD as part of the 2003 Air Quality Management Plan can be used to demonstrate the potential for CO exceedances of these standards. The SCAQMD is the air pollution control officer for much of southern California. The SCAQMD conducted a CO hot spot analysis as part of the 1992 CO Federal Attainment

Plan at four busy intersections in Los Angeles County during the peak morning and afternoon time periods. The intersections evaluated included Long Beach Boulevard and Imperial Highway (Lynwood), Wilshire Boulevard and Veteran Avenue (Westwood), Sunset Boulevard and Highland Avenue (Hollywood), and La Cienega Boulevard and Century Boulevard (Inglewood). The busiest intersection evaluated was at Wilshire Boulevard and Veteran Avenue, which has a traffic volume of approximately 100,000 vehicles per day. Despite this level of traffic, the CO analysis concluded that there was no violation of CO standards (SCAQMD 1992). In order to establish a more accurate record of baseline CO concentrations affecting the Los Angeles, a CO “hot spot” analysis was conducted in 2003 at the same four busy intersections in Los Angeles at the peak morning and afternoon time periods. This “hot spot” analysis did not predict any violation of CO standards. The highest one-hour concentration was measured at 4.6 ppm at Wilshire Boulevard and Veteran Avenue and the highest eight-hour concentration was measured at 8.4 ppm at Long Beach Boulevard and Imperial Highway. Thus, there was no violation of CO standards.

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD), the air pollution control officer for the San Francisco Bay Area, concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact.

The proposed Project is anticipated to result in no more than one daily traffic trip. It is noted that this is a conservative estimate and many days will have no operational related vehicle trips. Thus, the proposed Project would not generate traffic volumes at any intersection of more than 100,000 vehicles per day (or 44,000 vehicles per day) and there is no likelihood of the Project traffic exceeding CO values.

Odors

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person’s reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word “strong” to describe the intensity of an odor. Odor intensity depends on the odorant

concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Project Construction

During construction, the proposed Project presents the potential for generation of objectionable odors in the form of diesel exhaust in the immediate vicinity of the site. However, these emissions are short-term in nature and will rapidly dissipate and be diluted by the atmosphere downwind of the emission sources. Additionally, odors would be localized and generally confined to the Project area. Therefore, odors generated during Project construction would not adversely affect a substantial number of people to odor emissions.

Project Operations

Land uses commonly considered to be potential sources of obnoxious odorous emissions include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The proposed Project does not include any uses identified as being associated with odors.

3.0 GREENHOUSE GAS EMISSIONS

3.1 Greenhouse Gas Setting

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead trapped, resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, the earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are CO₂, methane (CH₄), and N₂O. Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Fluorinated gases include chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride; however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of these GHGs in excess of natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the

anthropogenic increase in GHG concentrations and other anthropogenic factors together (Intergovernmental Panel on Climate Change [IPCC] 2014).

Table 3-1 describes the primary GHGs attributed to global climate change, including their physical properties, primary sources, and contributions to the greenhouse effect.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH₄ traps over 25 times more heat per molecule than CO₂, and N₂O absorbs 298 times more heat per molecule than CO₂ (IPCC 2014). Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO₂e), which weight each gas by its global warming potential. Expressing GHG emissions in CO₂e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO₂ were being emitted.

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO₂ is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms. Of the total annual human-caused CO₂ emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO₂ emissions remains stored in the atmosphere (IPCC 2013).

Table 3-1. Greenhouse Gases

Greenhouse Gas	Description
CO ₂	Carbon dioxide is a colorless, odorless gas. CO ₂ is emitted in a number of ways, both naturally and through human activities. The largest source of CO ₂ emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO ₂ emissions. The atmospheric lifetime of CO ₂ is variable because it is so readily exchanged in the atmosphere. ¹
CH ₄	Methane is a colorless, odorless gas and is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (intestinal fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of CH ₄ to the atmosphere. Natural sources of CH ₄ include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. The atmospheric lifetime of CH ₄ is about 12 years. ²
N ₂ O	Nitrous oxide is a clear, colorless gas with a slightly sweet odor. Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources of N ₂ O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. N ₂ O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N ₂ O is approximately 120 years. ³

Sources: ¹USEPA 2016a, ²USEPA 2016b, ³USEPA 2016c

The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; it is sufficient to say the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature or to global, local, or microclimates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

3.1.1 Sources of Greenhouse Gas Emissions

In 2020, CARB released the 2020 edition of the California GHG inventory covering calendar year 2018 emissions. In 2018, California emitted 425.3 million gross metric tons of CO₂e including from imported electricity. Combustion of fossil fuel in the transportation sector was the single largest source of California’s GHG emissions in 2018, accounting for approximately 30 percent of total GHG emissions in the state. This sector was followed by the industrial sector (21 percent) and the electric power sector including both in-state and out-of-state sources (15 percent) (CARB 2020b). Emissions of CO₂ are byproducts of fossil fuel combustion. CH₄, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. N₂O is also largely attributable to agricultural practices and soil management. Carbon dioxide sinks, or reservoirs, include vegetation and the ocean, which absorb CO₂ through sequestration and dissolution (CO₂ dissolving into the water), respectively, two of the most common processes for removing CO₂ from the atmosphere.

3.2 Regulatory Framework

3.2.1 State

Executive Order S-3-05

Executive Order (EO) S-3-05, signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the EO established total GHG emission targets for the state. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

Assembly Bill 32 Climate Change Scoping Plan and Updates

In 2006, the California legislature passed Assembly Bill (AB) 32 (Health and Safety Code § 38500 et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions). Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008, which outlines measures to meet the 2020 GHG reduction goals. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by the end of 2020.

The Scoping Plan is required by AB 32 to be updated at least every five years. The latest update, the 2017 Scoping Plan Update, addresses the 2030 target established by Senate Bill (SB) 32 as discussed below and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. The key programs that the Scoping Plan Update builds on include increasing the use of renewable energy in the state, the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and reduction of methane emissions from agricultural and other wastes.

Senate Bill 32 and Assembly Bill 197 of 2016

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include § 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by Executive Order (EO) B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050.

Senate Bill 100 of 2018

In 2018, SB 100 was signed by Governor Brown, codifying a goal of 60 percent renewable procurement by 2030 and 100 percent by 2045 Renewables Portfolio Standard.

3.3 Greenhouse Gas Emissions Impact Assessment

3.3.1 Thresholds of Significance

The impact analysis provided below is based on the following CEQA Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to greenhouse gas emissions if it would:

- 1) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- 2) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases or

The Appendix G thresholds for GHG's do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA. With respect to GHG emissions, the CEQA Guidelines § 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or other performance-based standards." (14 California Code of Regulations [CCR] 15064.4(b)). A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change." (14 CCR 15064.4(c)). Section 15064.4(b) provides that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment:

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7(c)). The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines § 15130(f)). As a note, the CEQA Guidelines were amended in response to SB 97. In particular, the CEQA Guidelines were

amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant.

Per CEQA Guidelines § 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines § 15064(h)(3) allows a lead agency to make a finding of less than significant for GHG emissions if a project complies with adopted programs, plans, policies and/or other regulatory strategies to reduce GHG emissions.

The significance of the Project's GHG emissions is evaluated consistent with CEQA Guidelines § 15064.4(b)(2) by considering whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The ICAPCD has not adopted a GHG significance threshold. As previously described, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7(c)). Thus, in the absence of any GHG emissions significance thresholds the projected emissions are compared to the South Coast Air Quality Management (SCAQMD) numeric threshold of 3,000 metric tons of CO₂e annually. While significance thresholds used in the South Coast Air Basin are not binding on the ICAPCD or County of Imperial, they are instructive for comparison purposes. This threshold is also appropriate as the SCAQMD GHG thresholds were formulated based on similar geography and climate patterns as found in Imperial County and are also employed for use in CEQA GHG analyses in the Riverside County portion of the SSAB, the same air basin that encompasses the proposed Project. Therefore, the 3,000-metric ton of CO₂e threshold is appropriate for this analysis. Additionally, Project GHG emissions are compared against the GHG threshold recommended by the California Air Pollution Control Officers Association (CAPCOA), which has provided guidance for determining the significance of GHG emissions generated from land use development projects. CAPCOA considers projects that generate more than 900 metric tons of GHG to be significant. This 900 metric tons per year threshold was developed to ensure at least 90 percent of new GHG emissions would be reviewed and assessed for mitigation, thereby contributing to the statewide GHG emissions reduction goals that had been established for the year 2030 under SB 32. Thus, both cumulatively and individually, projects that generate less than 900 metric tons CO₂e per year have a negligible contribution to overall emissions.

In *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal. 4th 2014, 213, 221, 227, following its review of various potential GHG thresholds proposed in an academic study [Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203], the California Supreme Court identified the use of numeric bright-line thresholds as a potential pathway for compliance with CEQA GHG requirements. The study found numeric bright line thresholds designed to determine when small projects were so small as to not cause a cumulatively considerable impact on global climate change was consistent with CEQA. Specifically, Public Resources Code section 21003(f) provides it is a policy of the state that "[a]ll persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment." The Supreme Court-reviewed study noted, "[s]ubjecting the smallest projects to the full panoply of CEQA requirements, even though the public benefit would be minimal, would not be consistent with implementing the statute in the most efficient, expeditious manner. Nor would it be consistent with applying lead agencies' scarce resources toward mitigating actual significant climate change impacts." (Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203, 221, 227.)

3.3.2 Methodology

Where GHG emission quantification was required, emissions were modeled using the CalEEMod, version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to quantify potential GHG emissions associated with both construction and operations from a variety of land use projects. Project GHG emissions were calculated using a combination of model defaults for Imperial County and information provided by the Project proponent, such as construction timing.

3.3.3 Impact Analysis

Generation of GHG Emissions

Project Construction

Construction-related activities that would generate GHG emissions include worker commute trips, haul trucks carrying supplies and materials to and from the project site, and off-road construction equipment (e.g., dozers, loaders, excavators). Table 3-2 illustrates the specific construction generated GHG emissions that would result from construction of the Project. Consistent with SCAQMD recommendations, Project construction GHG emissions have been amortized over the expected life of the Project, which is considered to be 30 years for a solar energy generation facility. Once construction is complete, the generation of these GHG emissions would cease.

Table 3-2. Construction-Related Greenhouse Gas Emissions	
Emissions Source	CO₂e (Metric Tons/ Year)
Total Project Construction (amortized over the 30-year life of the Project)	42
<i>SCAQMD Significance Threshold</i>	3,000
Exceed SCAQMD's Significance Threshold?	No

Source: CalEEMod version 2016.3.2. Refer to Attachment A for Model Data Outputs.

As shown in Table 3-2, Project would result in the generation of approximately 42 metric tons of CO₂e annualized over the lifetime of the Project, which is below the SCAQMD threshold. As previously described, this significance threshold is not binding on the Project, yet in the absence of an established threshold from the ICAPCD or County it is instructive for comparison purposes. This threshold is also appropriate for use in this analysis as the SCAQMD GHG thresholds were formulated based on similar geography and climate patterns as found in Imperial County and are also employed for use in CEQA GHG analyses in the Riverside County portion of the SSAB, the same air basin that encompasses the proposed Project. The Project's contribution of construction GHG emissions would also be below the CAPCOA significance threshold of 900 metric tons of CO₂e annually.

Additionally, the Project proposes a solar energy generation facility intended to generate renewable energy. Solar plants generate far less GHG life-cycle emissions (approximately 83 to 94 percent less) than fossil-fueled energy plants. As identified in Table 3-4, the Project would potentially displace approximately 3,604 metric tons of CO₂e per year, and approximately 108,120 metric tons of CO₂e over the course of 30 years, which is considerable more than would be generated during construction.

Operations

Operation of the Project would result in an increase in GHG emissions solely associated with motor vehicle trips. Long-term GHG emissions attributed to operations of the Project are identified in Table 3-3.

Table 3-3. Operational-Related Greenhouse Gas Emissions	
Emission Source	CO₂e (Metric Tons/ Year)
Area Source	0
Energy	0
Mobile	1.33
Waste	0
Water	0
Total	1.33
<i>SCAQMD Significannce Threshold</i>	<i>3,000</i>
<i>Exceed SCAQMD's Significance Threshold?</i>	No

Source: CalEEMod version 2016.3.2. Refer to Attachment A for Model Data Outputs.

Notes: Emission projections predominately based on CalEEMod model defaults for Imperial County. Operational emissions account for one vehicle trip per day. It is noted that this is a conservative estimate and many days will have no operational related vehicle trips.

As shown in Table 3-3, operational-generated emissions would not exceed the SCAQMD's potentially significant impact threshold of 3,000 metric tons of CO₂e annually. The Project's contribution of GHG emissions would also be below the CAPCOA significance threshold of 900 metric tons of CO₂e annually.

Conflict with any Applicable Plan, Policy, or Regulation of an Agency Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases

The Project would not conflict with any adopted plans, policies, or regulations adopted for the purpose of reducing GHG emissions. The proposed Project is subject to compliance with SB 32. As discussed previously, the proposed Project-generated GHG emissions would not surpass either the SCAQMD or CAPCOA GHG significance thresholds, which were prepared with the purpose of complying with statewide GHG-reduction efforts. Additionally, once construction is complete, the Project would be a producer of renewable energy, which generates substantially less GHG emissions compared with the more common types of fossil-fueled energy generation facilities.

GHG emissions generated by energy sources account for all stages of the life cycle (including mining, construction, etc.), which are referred to as the cumulative GHG emissions and are usually expressed in grams of CO₂e per unit of busbar electricity (i.e., gCO₂/kWh_e). When comparing various fossil-fueled energy generators, the GHG emissions generated are dependent on the type of fuel (i.e., gas, oil, coal). GHG emissions generated by some of the more common types of fossil-fueled plants and solar-power plants are summarized in Table 3-4.

Table 3-4. Life-Cycle Greenhouse Gas Emissions for Various Types of Energy Generators	
Fossil Fueled	
Coal	950 to 1,250
Oil	500 to 1,200
Gas	440 to 780
Solar	43 to 73 ³

Source: Weisser 2007

Notes:

1 gCO_{2e}/kWh = grams of CO_{2e} per unit of busbar electricity.

2 Emissions are based on lifecycle of energy source including mining, construction, operation, etc.

3 Solar PV life-cycle emissions result from using fossil-fuel-based energy to produce the materials for solar cells, modules, and systems, as well as directly from smelting, production, and manufacturing facilities.

As shown in Table 3-4, solar plants generate far less GHG life-cycle emissions (approximately 83 to 94 percent less) than fossil-fueled energy plants. Therefore, the proposed Project would contribute to the continued reduction of GHG emissions in the interconnected California and western U.S. electricity systems, as the energy produced by the Project would displace GHG emissions that would otherwise be produced by existing business-as-usual power generation resources (including natural gas, coal, and renewable combustion resources). The Project would generate a maximum of four MW of electricity at any one time. Table 3-5 shows the emissions that would potentially be displaced by the proposed Project. Note that this estimate only includes that associated with the combustion of fossil fuels; it does not include the vehicle trips associated with the Project's operations, and it similarly does not include operational employee trips associated with natural gas or coal combustion nor the emissions associated with extracting and transporting those power sources. In addition, this estimate only includes the displacement of that portion of the California market that comes from fossil fuels and does not include the approximate 50 percent of the California electricity generated by non-combustion sources (wind, solar, nuclear, hydro-electric) (CEC 2019a).

Table 3-5. Proposed Project Displaced GHG Emissions (Metric Tons)				
	Emissions (Metric Tons)			
	CO₂	CH₄	N₂O	CO_{2e}
Emissions Displaced Annually (metric tons)				
Displaced Natural Gas-Source Emissions	3,109	0	0	3,109
Displaced Coal-Source Emissions	495	0	0	495
Total	3,604	0	0	3,604
Emissions Displaced over 30 Years (metric tons)				
Displaced Natural Gas-Source Emissions	93,270	0	0	93,270
Displaced Coal-Source Emissions	14,850	0	0	14,850
Total	108,120	0	0	108,120

Source: Displaced emissions calculated by ECORP using USEPA's AP-42 Fifth Edition Compilation of Air Emissions Factors 1995; 2015. See Attachment B.

Notes: In order to provide a conservative analysis, the proposed Project is assumed to generate electricity 50 percent of the time available (4,380 hours annually Heat Rate indicates the energy generator efficiency of existing fossil-fuel based energy generators. The heat rate of a power plant measures the amount of fuel used to generate one unit of electricity. Power plants with lower heat rates are more efficient than plants with higher heat rates. The CEC's "Updated Thermal Power Plant Efficiency Measures and Operational Characteristics for Production Cost Modeling" (2019) estimates heat rates and operating ranges for thermal power plants supplying energy to California. The average heat rate of power plants types are as follows:

**Steam Boiler fueled by coal: 10,800 heat rate. **Steam Boiler fueled by natural gas: 10,200 heat rate. **Gas Turbine: 10,100 heat rate.

**Combined natural gas Boiler and Turbine: 7,640 heat rate.

By omitting steam boilers fueled by coal since so little of California's energy is derived from coal, the average heat rate = 9,313 [(10,100 + 10,200 + 7,640) ÷ 3 = 9,313]. 4.2 MW (18,250,146 annual kWh) x 9,313 heat rate = 169,963,609,698 Btu displaced from fossil fuel production. Fossil fuel-based energy consumption in California is predominately derived from natural gas (34.23 percent). Coal constitutes 82.96 percent of all fossil fuel-based energy. Therefore, 70,653,872,551 of the displaced Btu is displaced natural gas consumption and 4,928,944,681 is displaced Btu is displaced coal. The heat content of coal is assumed at 24 million Btu per ton of coal burned. At a rate of 24 million Btu per ton of coal burned, the Project would displace 205 tons of burned coal annually.

As shown, the Project would potentially displace approximately 3,604 metric tons of CO_{2e} per year, and approximately 108,120 metric tons of CO_{2e} over the course of 30 years.

While the Project would emit some GHG emissions during construction and a very small amount during operations, the contribution of renewable resource energy production to meet the goals of the Renewable Portfolio Standard (Scoping Plan Measure E-3) would result in a net cumulative reduction of GHG emissions, a key environmental benefit. (Scoping Plan Measure E-3, Renewable Portfolio Standard, of the Climate Change Scoping Plan requires that all investor-owned utility companies generate 60 percent of their energy demand from renewable sources by the year 2030.) Therefore, the short-term minor generation of GHG emissions during construction which is necessary to create this new, low-GHG-emitting power-generating facility, as well as the negligible amount generated during ongoing maintenance operations, would be more than offset by GHG emission reductions associated with solar-generated energy during operation.

Increasing sources of solar energy is one of the measures identified under the Scoping Plan to reduce statewide GHG emissions. The proposed Project would reduce GHG emissions in a manner consistent with

SB 32 and other California GHG-reducing legislation by creating a new source of solar power to replace the current use of fossil-fuel power and reduce GHG emissions power generation and use.

The Project would not conflict with any applicable plan, policy, or regulation intended to reduce GHG emissions.

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LIST OF ATTACHMENTS

Attachment A – CalEEMod Output Files Criteria Air Pollutants & Greenhouse Gas Emissions

Attachment B – Renewable Energy Emissions Displacement

CalEEMod Output Files Criteria Air Pollutants & Greenhouse Gas Emissions

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

Vega SES 4 Solar Energy Storage Project
Imperial County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.01	1000sqft	0.00	10.00	0
Other Non-Asphalt Surfaces	531.53	Acre	531.53	23,153,446.80	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	3.4	Precipitation Freq (Days)	12
Climate Zone	15			Operational Year	2023
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1270.9	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

Project Characteristics -

Land Use - General light industrial building added for the generation of trips during project operations.

Construction Phase - Construcion timing updated to match infomrationj provided by the Project applicant.

Off-road Equipment - plate compactor= pile driver.

Off-road Equipment - Construcion equipmnet updated to match the construcion questionnaire

Off-road Equipment - Construcion equipment updated to match the construcion questionnaire.

Trips and VMT - No more than 150 trips per the project applicant.

On-road Fugitive Dust - Roadways used to access project site= 100% paved

Vehicle Trips - Assuming one trip per day based on information provided in the PD.

Road Dust - Approximately 90% paved surrpunding project site.

Energy Use - Soalr facility- no operational energy use.

Water And Wastewater - Water use being kept for light industrail land use as the solar pannels may need to be cleaned.

Solid Waste - No soild waste- solar facility.

Energy Mitigation -

Mobile Land Use Mitigation -

Grading - No heavy grading anticipated

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	9,300.00	104.00
tblConstructionPhase	NumDays	930.00	200.00
tblConstructionPhase	NumDays	360.00	67.00
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	T24E	2.20	0.00
tblEnergyUse	T24NG	15.36	0.00
tblGrading	AcresOfGrading	458.50	1,062.00

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblRoadDust	RoadPercentPave	50	90
tblSolidWaste	LandfillNoGasCapture	6.00	0.00
tblSolidWaste	LandfillNoGasCapture	6.00	0.00
tblSolidWaste	SolidWasteGenerationRate	0.01	0.00
tblTripsAndVMT	VendorTripLength	11.90	8.90
tblTripsAndVMT	VendorTripLength	11.90	8.90
tblTripsAndVMT	VendorTripLength	11.90	8.90

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	3,795.00	10.00
tblTripsAndVMT	WorkerTripLength	10.20	7.30
tblTripsAndVMT	WorkerTripLength	10.20	7.30
tblTripsAndVMT	WorkerTripLength	10.20	7.30
tblTripsAndVMT	WorkerTripNumber	9,724.00	150.00
tblVehicleTrips	CC_TL	9.50	5.00
tblVehicleTrips	CC_TL	9.50	5.00
tblVehicleTrips	CNW_TL	11.90	8.90
tblVehicleTrips	CNW_TL	11.90	8.90
tblVehicleTrips	CW_TL	16.40	6.70
tblVehicleTrips	CW_TL	16.40	6.70
tblVehicleTrips	ST_TR	1.32	100.00
tblVehicleTrips	SU_TR	0.68	100.00
tblVehicleTrips	WD_TR	6.97	100.00

2.0 Emissions Summary

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	6.2916	66.1557	48.9235	0.1057	13.8139	2.7423	16.5562	6.6590	2.5230	7.5952	0.0000	10,259.2533	10,259.2533	3.1759	0.0000	10,338.6495
2023	9.0336	82.7222	79.5929	0.1573	14.7299	3.6408	18.3707	5.2691	3.3523	8.6215	0.0000	15,251.8670	15,251.8670	4.4781	0.0000	15,363.8202
Maximum	9.0336	82.7222	79.5929	0.1573	14.7299	3.6408	18.3707	6.6590	3.3523	8.6215	0.0000	15,251.8670	15,251.8670	4.4781	0.0000	15,363.8202

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	6.2916	66.1557	48.9235	0.1057	13.8139	2.7423	16.5562	6.6590	2.5230	7.5952	0.0000	10,259.2533	10,259.2533	3.1759	0.0000	10,338.6495
2023	9.0336	82.7222	79.5929	0.1573	14.7299	3.6408	18.3707	5.2691	3.3523	8.6215	0.0000	15,251.8670	15,251.8670	4.4781	0.0000	15,363.8202
Maximum	9.0336	82.7222	79.5929	0.1573	14.7299	3.6408	18.3707	6.6590	3.3523	8.6215	0.0000	15,251.8670	15,251.8670	4.4781	0.0000	15,363.8202

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

INFO ITEM ONLY

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	10.8524	4.9000e-004	0.0543	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1163	0.1163	3.1000e-004		0.1240
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	3.0200e-003	0.0165	0.0323	8.0000e-005	0.4564	4.0000e-005	0.4564	0.0462	4.0000e-005	0.0462		8.5486	8.5486	5.5000e-004		8.5625
Total	10.8554	0.0170	0.0866	8.0000e-005	0.4564	2.3000e-004	0.4566	0.0462	2.3000e-004	0.0464		8.6649	8.6649	8.6000e-004	0.0000	8.6864

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	10.8524	4.9000e-004	0.0543	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1163	0.1163	3.1000e-004		0.1240
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	3.0200e-003	0.0165	0.0323	8.0000e-005	0.4564	4.0000e-005	0.4564	0.0462	4.0000e-005	0.0462		8.5486	8.5486	5.5000e-004		8.5625
Total	10.8554	0.0170	0.0866	8.0000e-005	0.4564	2.3000e-004	0.4566	0.0462	2.3000e-004	0.0464		8.6649	8.6649	8.6000e-004	0.0000	8.6864

INFO ITEM ONLY

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/1/2022	6/1/2022	5	67	
2	Grading	Grading	6/2/2022	3/8/2023	5	200	
3	Building Construction	Building Construction	3/8/2023	7/31/2023	5	104	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1062

Acres of Paving: 531.53

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	4	8.00	158	0.38
Grading	Graders	3	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	4	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Pavers	1	7.00	130	0.42
Building Construction	Paving Equipment	2	7.00	132	0.36
Building Construction	Plate Compactors	4	7.00	8	0.43
Building Construction	Tractors/Loaders/Backhoes	4	7.00	97	0.37
Building Construction	Trenchers	2	7.00	78	0.50
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	4	10.00	10.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	15	38.00	10.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	18	150.00	10.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

INFO ITEM ONLY

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	2.0036	20.9386	11.6399	0.0233		1.0150	1.0150		0.9338	0.9338		2,256.5486	2,256.5486	0.7298		2,274.7939
Total	2.0036	20.9386	11.6399	0.0233	12.0442	1.0150	13.0591	6.6205	0.9338	7.5542		2,256.5486	2,256.5486	0.7298		2,274.7939

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0362	0.9609	0.2500	3.2100e-003	0.0826	2.2100e-003	0.0848	0.0238	2.1100e-003	0.0259		335.5677	335.5677	0.0158		335.9626
Worker	0.0603	0.0361	0.4264	5.3000e-004	0.0556	3.5000e-004	0.0559	0.0147	3.2000e-004	0.0151		52.6772	52.6772	4.0200e-003		52.7777
Total	0.0966	0.9970	0.6764	3.7400e-003	0.1382	2.5600e-003	0.1407	0.0385	2.4300e-003	0.0410		388.2449	388.2449	0.0198		388.7403

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

3.2 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	2.0036	20.9386	11.6399	0.0233		1.0150	1.0150		0.9338	0.9338	0.0000	2,256.5486	2,256.5486	0.7298		2,274.7939
Total	2.0036	20.9386	11.6399	0.0233	12.0442	1.0150	13.0591	6.6205	0.9338	7.5542	0.0000	2,256.5486	2,256.5486	0.7298		2,274.7939

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0362	0.9609	0.2500	3.2100e-003	0.0826	2.2100e-003	0.0848	0.0238	2.1100e-003	0.0259		335.5677	335.5677	0.0158		335.9626
Worker	0.0603	0.0361	0.4264	5.3000e-004	0.0556	3.5000e-004	0.0559	0.0147	3.2000e-004	0.0151		52.6772	52.6772	4.0200e-003		52.7777
Total	0.0966	0.9970	0.6764	3.7400e-003	0.1382	2.5600e-003	0.1407	0.0385	2.4300e-003	0.0410		388.2449	388.2449	0.0198		388.7403

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.5202	0.0000	13.5202	4.9444	0.0000	4.9444			0.0000			0.0000
Off-Road	6.0262	65.0575	47.0532	0.1004		2.7387	2.7387		2.5196	2.5196		9,723.512 2	9,723.512 2	3.1448		9,802.131 7
Total	6.0262	65.0575	47.0532	0.1004	13.5202	2.7387	16.2589	4.9444	2.5196	7.4641		9,723.512 2	9,723.512 2	3.1448		9,802.131 7

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0362	0.9609	0.2500	3.2100e-003	0.0826	2.2100e-003	0.0848	0.0238	2.1100e-003	0.0259		335.5677	335.5677	0.0158		335.9626
Worker	0.2292	0.1373	1.6203	2.0300e-003	0.2111	1.3200e-003	0.2124	0.0560	1.2200e-003	0.0572		200.1734	200.1734	0.0153		200.5552
Total	0.2655	1.0982	1.8703	5.2400e-003	0.2937	3.5300e-003	0.2973	0.0798	3.3300e-003	0.0831		535.7411	535.7411	0.0311		536.5178

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

3.3 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.5202	0.0000	13.5202	4.9444	0.0000	4.9444			0.0000			0.0000
Off-Road	6.0262	65.0575	47.0532	0.1004		2.7387	2.7387		2.5196	2.5196	0.0000	9,723.512 2	9,723.512 2	3.1448		9,802.131 7
Total	6.0262	65.0575	47.0532	0.1004	13.5202	2.7387	16.2589	4.9444	2.5196	7.4641	0.0000	9,723.512 2	9,723.512 2	3.1448		9,802.131 7

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0362	0.9609	0.2500	3.2100e-003	0.0826	2.2100e-003	0.0848	0.0238	2.1100e-003	0.0259		335.5677	335.5677	0.0158		335.9626
Worker	0.2292	0.1373	1.6203	2.0300e-003	0.2111	1.3200e-003	0.2124	0.0560	1.2200e-003	0.0572		200.1734	200.1734	0.0153		200.5552
Total	0.2655	1.0982	1.8703	5.2400e-003	0.2937	3.5300e-003	0.2973	0.0798	3.3300e-003	0.0831		535.7411	535.7411	0.0311		536.5178

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.5202	0.0000	13.5202	4.9444	0.0000	4.9444			0.0000			0.0000
Off-Road	5.4534	57.1174	45.5209	0.1004		2.3502	2.3502		2.1621	2.1621		9,723.5530	9,723.5530	3.1448		9,802.1729
Total	5.4534	57.1174	45.5209	0.1004	13.5202	2.3502	15.8704	4.9444	2.1621	7.1066		9,723.5530	9,723.5530	3.1448		9,802.1729

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0294	0.7182	0.2190	3.1400e-003	0.0826	8.8000e-004	0.0835	0.0238	8.4000e-004	0.0246		328.5070	328.5070	0.0117		328.7982
Worker	0.2143	0.1266	1.4897	1.9500e-003	0.2111	1.2700e-003	0.2124	0.0560	1.1700e-003	0.0572		192.5836	192.5836	0.0140		192.9333
Total	0.2437	0.8448	1.7087	5.0900e-003	0.2937	2.1500e-003	0.2959	0.0798	2.0100e-003	0.0818		521.0906	521.0906	0.0256		521.7315

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.5202	0.0000	13.5202	4.9444	0.0000	4.9444			0.0000			0.0000
Off-Road	5.4534	57.1174	45.5209	0.1004		2.3502	2.3502		2.1621	2.1621	0.0000	9,723.5530	9,723.5530	3.1448		9,802.1729
Total	5.4534	57.1174	45.5209	0.1004	13.5202	2.3502	15.8704	4.9444	2.1621	7.1066	0.0000	9,723.5530	9,723.5530	3.1448		9,802.1729

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0294	0.7182	0.2190	3.1400e-003	0.0826	8.8000e-004	0.0835	0.0238	8.4000e-004	0.0246		328.5070	328.5070	0.0117		328.7982
Worker	0.2143	0.1266	1.4897	1.9500e-003	0.2111	1.2700e-003	0.2124	0.0560	1.1700e-003	0.0572		192.5836	192.5836	0.0140		192.9333
Total	0.2437	0.8448	1.7087	5.0900e-003	0.2937	2.1500e-003	0.2959	0.0798	2.0100e-003	0.0818		521.0906	521.0906	0.0256		521.7315

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4612	23.5423	26.2637	0.0409		1.2826	1.2826		1.1827	1.1827		3,918.518 1	3,918.518 1	1.2408		3,949.538 7
Total	2.4612	23.5423	26.2637	0.0409		1.2826	1.2826		1.1827	1.1827		3,918.518 1	3,918.518 1	1.2408		3,949.538 7

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0294	0.7182	0.2190	3.1400e-003	0.0826	8.8000e-004	0.0835	0.0238	8.4000e-004	0.0246		328.5070	328.5070	0.0117		328.7982
Worker	0.8460	0.4996	5.8805	7.6900e-003	0.8334	5.0200e-003	0.8384	0.2211	4.6300e-003	0.2257		760.1984	760.1984	0.0552		761.5790
Total	0.8754	1.2178	6.0995	0.0108	0.9160	5.9000e-003	0.9219	0.2449	5.4700e-003	0.2504		1,088.705 4	1,088.705 4	0.0669		1,090.377 1

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4612	23.5423	26.2637	0.0409		1.2826	1.2826		1.1827	1.1827	0.0000	3,918.5180	3,918.5180	1.2408		3,949.5387
Total	2.4612	23.5423	26.2637	0.0409		1.2826	1.2826		1.1827	1.1827	0.0000	3,918.5180	3,918.5180	1.2408		3,949.5387

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0294	0.7182	0.2190	3.1400e-003	0.0826	8.8000e-004	0.0835	0.0238	8.4000e-004	0.0246		328.5070	328.5070	0.0117		328.7982
Worker	0.8460	0.4996	5.8805	7.6900e-003	0.8334	5.0200e-003	0.8384	0.2211	4.6300e-003	0.2257		760.1984	760.1984	0.0552		761.5790
Total	0.8754	1.2178	6.0995	0.0108	0.9160	5.9000e-003	0.9219	0.2449	5.4700e-003	0.2504		1,088.7054	1,088.7054	0.0669		1,090.3771

4.0 Operational Detail - Mobile

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.0200e-003	0.0165	0.0323	8.0000e-005	0.4564	4.0000e-005	0.4564	0.0462	4.0000e-005	0.0462		8.5486	8.5486	5.5000e-004		8.5625
Unmitigated	3.0200e-003	0.0165	0.0323	8.0000e-005	0.4564	4.0000e-005	0.4564	0.0462	4.0000e-005	0.0462		8.5486	8.5486	5.5000e-004		8.5625

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1.00	1.00	1.00	2,211	2,211
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	1.00	1.00	1.00	2,211	2,211

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	6.70	5.00	8.90	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	6.70	5.00	8.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.519925	0.031155	0.160764	0.115847	0.015498	0.004819	0.018987	0.121625	0.003553	0.001235	0.005240	0.000729	0.000624
Other Non-Asphalt Surfaces	0.519925	0.031155	0.160764	0.115847	0.015498	0.004819	0.018987	0.121625	0.003553	0.001235	0.005240	0.000729	0.000624

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

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Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Mitigated	10.8524	4.9000e-004	0.0543	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1163	0.1163	3.1000e-004			0.1240
Unmitigated	10.8524	4.9000e-004	0.0543	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1163	0.1163	3.1000e-004			0.1240

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
SubCategory	lb/day										lb/day						
Architectural Coating	2.6462					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000	
Consumer Products	8.2012					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000	
Landscaping	5.0300e-003	4.9000e-004	0.0543	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1163	0.1163	3.1000e-004			0.1240
Total	10.8524	4.9000e-004	0.0543	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1163	0.1163	3.1000e-004			0.1240

Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.6462					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.2012					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0300e-003	4.9000e-004	0.0543	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1163	0.1163	3.1000e-004		0.1240
Total	10.8524	4.9000e-004	0.0543	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1163	0.1163	3.1000e-004		0.1240

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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Vega SES 4 Solar Energy Storage Project - Imperial County, Summer

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

Vega SES 4 Solar Energy Storage Project
Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.01	1000sqft	0.00	10.00	0
Other Non-Asphalt Surfaces	531.53	Acre	531.53	23,153,446.80	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	3.4	Precipitation Freq (Days)	12
Climate Zone	15			Operational Year	2023
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1270.9	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

Project Characteristics -

Land Use - General light industrial building added for the generation of trips during project operations.

Construction Phase - Construcion timing updated to match infomrationj provided by the Project applicant.

Off-road Equipment - plate compactor= pile driver.

Off-road Equipment - Construcion equipmnet updated to match the construcion questionnaire

Off-road Equipment - Construcion equipment updated to match the construcion questionnaire.

Trips and VMT - No more than 150 trips per the project applicant.

On-road Fugitive Dust - Roadways used to access project site= 100% paved

Vehicle Trips - Assuming one trip per day based on information provided in the PD.

Road Dust - Approximately 90% paved surrpunding project site.

Energy Use - Soalr facility- no operational energy use.

Water And Wastewater - Water use being kept for light industrail land use as the solar pannels may need to be cleaned.

Solid Waste - No soild waste- solar facility.

Energy Mitigation -

Mobile Land Use Mitigation -

Grading - No heavy grading anticipated

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	9,300.00	104.00
tblConstructionPhase	NumDays	930.00	200.00
tblConstructionPhase	NumDays	360.00	67.00
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	T24E	2.20	0.00
tblEnergyUse	T24NG	15.36	0.00
tblGrading	AcresOfGrading	458.50	1,062.00

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblRoadDust	RoadPercentPave	50	90
tblSolidWaste	LandfillNoGasCapture	6.00	0.00
tblSolidWaste	LandfillNoGasCapture	6.00	0.00
tblSolidWaste	SolidWasteGenerationRate	0.01	0.00
tblTripsAndVMT	VendorTripLength	11.90	8.90
tblTripsAndVMT	VendorTripLength	11.90	8.90
tblTripsAndVMT	VendorTripLength	11.90	8.90

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	3,795.00	10.00
tblTripsAndVMT	WorkerTripLength	10.20	7.30
tblTripsAndVMT	WorkerTripLength	10.20	7.30
tblTripsAndVMT	WorkerTripLength	10.20	7.30
tblTripsAndVMT	WorkerTripNumber	9,724.00	150.00
tblVehicleTrips	CC_TL	9.50	5.00
tblVehicleTrips	CC_TL	9.50	5.00
tblVehicleTrips	CNW_TL	11.90	8.90
tblVehicleTrips	CNW_TL	11.90	8.90
tblVehicleTrips	CW_TL	16.40	6.70
tblVehicleTrips	CW_TL	16.40	6.70
tblVehicleTrips	ST_TR	1.32	100.00
tblVehicleTrips	SU_TR	0.68	100.00
tblVehicleTrips	WD_TR	6.97	100.00

2.0 Emissions Summary

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	6.2497	66.1703	48.5623	0.1052	13.8139	2.7424	16.5563	6.6590	2.5230	7.5953	0.0000	10,214.81 16	10,214.81 16	3.1749	0.0000	10,294.18 36
2023	8.8380	82.7473	77.8253	0.1555	14.7299	3.6409	18.3707	5.2691	3.3524	8.6215	0.0000	15,074.54 97	15,074.54 97	4.4681	0.0000	15,186.25 22
Maximum	8.8380	82.7473	77.8253	0.1555	14.7299	3.6409	18.3707	6.6590	3.3524	8.6215	0.0000	15,074.54 97	15,074.54 97	4.4681	0.0000	15,186.25 22

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	6.2497	66.1703	48.5623	0.1052	13.8139	2.7424	16.5563	6.6590	2.5230	7.5953	0.0000	10,214.81 16	10,214.81 16	3.1749	0.0000	10,294.18 36
2023	8.8380	82.7473	77.8253	0.1555	14.7299	3.6409	18.3707	5.2691	3.3524	8.6215	0.0000	15,074.54 96	15,074.54 96	4.4681	0.0000	15,186.25 22
Maximum	8.8380	82.7473	77.8253	0.1555	14.7299	3.6409	18.3707	6.6590	3.3524	8.6215	0.0000	15,074.54 96	15,074.54 96	4.4681	0.0000	15,186.25 22

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	10.8524	4.9000e-004	0.0543	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1163	0.1163	3.1000e-004		0.1240
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	2.2800e-003	0.0164	0.0261	8.0000e-005	0.4564	4.0000e-005	0.4564	0.0462	4.0000e-005	0.0462		7.6801	7.6801	5.4000e-004		7.6936
Total	10.8547	0.0169	0.0804	8.0000e-005	0.4564	2.3000e-004	0.4566	0.0462	2.3000e-004	0.0464		7.7964	7.7964	8.5000e-004	0.0000	7.8176

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	10.8524	4.9000e-004	0.0543	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1163	0.1163	3.1000e-004		0.1240
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	2.2800e-003	0.0164	0.0261	8.0000e-005	0.4564	4.0000e-005	0.4564	0.0462	4.0000e-005	0.0462		7.6801	7.6801	5.4000e-004		7.6936
Total	10.8547	0.0169	0.0804	8.0000e-005	0.4564	2.3000e-004	0.4566	0.0462	2.3000e-004	0.0464		7.7964	7.7964	8.5000e-004	0.0000	7.8176

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/1/2022	6/1/2022	5	67	
2	Grading	Grading	6/2/2022	3/8/2023	5	200	
3	Building Construction	Building Construction	3/8/2023	7/31/2023	5	104	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1062

Acres of Paving: 531.53

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	4	8.00	158	0.38
Grading	Graders	3	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	4	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Pavers	1	7.00	130	0.42
Building Construction	Paving Equipment	2	7.00	132	0.36
Building Construction	Plate Compactors	4	7.00	8	0.43
Building Construction	Tractors/Loaders/Backhoes	4	7.00	97	0.37
Building Construction	Trenchers	2	7.00	78	0.50
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	4	10.00	10.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	15	38.00	10.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	18	150.00	10.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	2.0036	20.9386	11.6399	0.0233		1.0150	1.0150		0.9338	0.9338		2,256.5486	2,256.5486	0.7298		2,274.7939
Total	2.0036	20.9386	11.6399	0.0233	12.0442	1.0150	13.0591	6.6205	0.9338	7.5542		2,256.5486	2,256.5486	0.7298		2,274.7939

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0377	0.9692	0.2893	3.0900e-003	0.0826	2.2900e-003	0.0849	0.0238	2.1900e-003	0.0260		323.4179	323.4179	0.0177		323.8602
Worker	0.0489	0.0378	0.3210	4.5000e-004	0.0556	3.5000e-004	0.0559	0.0147	3.2000e-004	0.0151		44.1793	44.1793	3.2600e-003		44.2610
Total	0.0866	1.0070	0.6103	3.5400e-003	0.1382	2.6400e-003	0.1408	0.0385	2.5100e-003	0.0410		367.5973	367.5973	0.0210		368.1212

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

3.2 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					12.0442	0.0000	12.0442	6.6205	0.0000	6.6205			0.0000			0.0000
Off-Road	2.0036	20.9386	11.6399	0.0233		1.0150	1.0150		0.9338	0.9338	0.0000	2,256.5486	2,256.5486	0.7298		2,274.7939
Total	2.0036	20.9386	11.6399	0.0233	12.0442	1.0150	13.0591	6.6205	0.9338	7.5542	0.0000	2,256.5486	2,256.5486	0.7298		2,274.7939

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0377	0.9692	0.2893	3.0900e-003	0.0826	2.2900e-003	0.0849	0.0238	2.1900e-003	0.0260		323.4179	323.4179	0.0177		323.8602
Worker	0.0489	0.0378	0.3210	4.5000e-004	0.0556	3.5000e-004	0.0559	0.0147	3.2000e-004	0.0151		44.1793	44.1793	3.2600e-003		44.2610
Total	0.0866	1.0070	0.6103	3.5400e-003	0.1382	2.6400e-003	0.1408	0.0385	2.5100e-003	0.0410		367.5973	367.5973	0.0210		368.1212

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.5202	0.0000	13.5202	4.9444	0.0000	4.9444			0.0000			0.0000
Off-Road	6.0262	65.0575	47.0532	0.1004		2.7387	2.7387		2.5196	2.5196		9,723.512 2	9,723.512 2	3.1448		9,802.131 7
Total	6.0262	65.0575	47.0532	0.1004	13.5202	2.7387	16.2589	4.9444	2.5196	7.4641		9,723.512 2	9,723.512 2	3.1448		9,802.131 7

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0377	0.9692	0.2893	3.0900e-003	0.0826	2.2900e-003	0.0849	0.0238	2.1900e-003	0.0260		323.4179	323.4179	0.0177		323.8602
Worker	0.1858	0.1436	1.2198	1.7000e-003	0.2111	1.3200e-003	0.2124	0.0560	1.2200e-003	0.0572		167.8815	167.8815	0.0124		168.1916
Total	0.2235	1.1128	1.5091	4.7900e-003	0.2937	3.6100e-003	0.2973	0.0798	3.4100e-003	0.0832		491.2994	491.2994	0.0301		492.0519

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

3.3 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.5202	0.0000	13.5202	4.9444	0.0000	4.9444			0.0000			0.0000
Off-Road	6.0262	65.0575	47.0532	0.1004		2.7387	2.7387		2.5196	2.5196	0.0000	9,723.512 2	9,723.512 2	3.1448		9,802.131 7
Total	6.0262	65.0575	47.0532	0.1004	13.5202	2.7387	16.2589	4.9444	2.5196	7.4641	0.0000	9,723.512 2	9,723.512 2	3.1448		9,802.131 7

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0377	0.9692	0.2893	3.0900e-003	0.0826	2.2900e-003	0.0849	0.0238	2.1900e-003	0.0260		323.4179	323.4179	0.0177		323.8602
Worker	0.1858	0.1436	1.2198	1.7000e-003	0.2111	1.3200e-003	0.2124	0.0560	1.2200e-003	0.0572		167.8815	167.8815	0.0124		168.1916
Total	0.2235	1.1128	1.5091	4.7900e-003	0.2937	3.6100e-003	0.2973	0.0798	3.4100e-003	0.0832		491.2994	491.2994	0.0301		492.0519

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.5202	0.0000	13.5202	4.9444	0.0000	4.9444			0.0000			0.0000
Off-Road	5.4534	57.1174	45.5209	0.1004		2.3502	2.3502		2.1621	2.1621		9,723.5530	9,723.5530	3.1448		9,802.1729
Total	5.4534	57.1174	45.5209	0.1004	13.5202	2.3502	15.8704	4.9444	2.1621	7.1066		9,723.5530	9,723.5530	3.1448		9,802.1729

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0305	0.7169	0.2492	3.0300e-003	0.0826	9.1000e-004	0.0835	0.0238	8.7000e-004	0.0247		316.6885	316.6885	0.0130		317.0134
Worker	0.1743	0.1321	1.1202	1.6300e-003	0.2111	1.2700e-003	0.2124	0.0560	1.1700e-003	0.0572		161.5205	161.5205	0.0114		161.8060
Total	0.2048	0.8491	1.3695	4.6600e-003	0.2937	2.1800e-003	0.2959	0.0798	2.0400e-003	0.0818		478.2090	478.2090	0.0244		478.8194

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					13.5202	0.0000	13.5202	4.9444	0.0000	4.9444			0.0000			0.0000
Off-Road	5.4534	57.1174	45.5209	0.1004		2.3502	2.3502		2.1621	2.1621	0.0000	9,723.5530	9,723.5530	3.1448		9,802.1729
Total	5.4534	57.1174	45.5209	0.1004	13.5202	2.3502	15.8704	4.9444	2.1621	7.1066	0.0000	9,723.5530	9,723.5530	3.1448		9,802.1729

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0305	0.7169	0.2492	3.0300e-003	0.0826	9.1000e-004	0.0835	0.0238	8.7000e-004	0.0247		316.6885	316.6885	0.0130		317.0134
Worker	0.1743	0.1321	1.1202	1.6300e-003	0.2111	1.2700e-003	0.2124	0.0560	1.1700e-003	0.0572		161.5205	161.5205	0.0114		161.8060
Total	0.2048	0.8491	1.3695	4.6600e-003	0.2937	2.1800e-003	0.2959	0.0798	2.0400e-003	0.0818		478.2090	478.2090	0.0244		478.8194

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4612	23.5423	26.2637	0.0409		1.2826	1.2826		1.1827	1.1827		3,918.5181	3,918.5181	1.2408		3,949.5387
Total	2.4612	23.5423	26.2637	0.0409		1.2826	1.2826		1.1827	1.1827		3,918.5181	3,918.5181	1.2408		3,949.5387

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0305	0.7169	0.2492	3.0300e-003	0.0826	9.1000e-004	0.0835	0.0238	8.7000e-004	0.0247		316.6885	316.6885	0.0130		317.0134
Worker	0.6882	0.5216	4.4220	6.4400e-003	0.8334	5.0200e-003	0.8384	0.2211	4.6300e-003	0.2257		637.5811	637.5811	0.0451		638.7078
Total	0.7186	1.2385	4.6712	9.4700e-003	0.9160	5.9300e-003	0.9219	0.2449	5.5000e-003	0.2504		954.2696	954.2696	0.0581		955.7212

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4612	23.5423	26.2637	0.0409		1.2826	1.2826		1.1827	1.1827	0.0000	3,918.5180	3,918.5180	1.2408		3,949.5387
Total	2.4612	23.5423	26.2637	0.0409		1.2826	1.2826		1.1827	1.1827	0.0000	3,918.5180	3,918.5180	1.2408		3,949.5387

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0305	0.7169	0.2492	3.0300e-003	0.0826	9.1000e-004	0.0835	0.0238	8.7000e-004	0.0247		316.6885	316.6885	0.0130		317.0134
Worker	0.6882	0.5216	4.4220	6.4400e-003	0.8334	5.0200e-003	0.8384	0.2211	4.6300e-003	0.2257		637.5811	637.5811	0.0451		638.7078
Total	0.7186	1.2385	4.6712	9.4700e-003	0.9160	5.9300e-003	0.9219	0.2449	5.5000e-003	0.2504		954.2696	954.2696	0.0581		955.7212

4.0 Operational Detail - Mobile

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.2800e-003	0.0164	0.0261	8.0000e-005	0.4564	4.0000e-005	0.4564	0.0462	4.0000e-005	0.0462		7.6801	7.6801	5.4000e-004		7.6936
Unmitigated	2.2800e-003	0.0164	0.0261	8.0000e-005	0.4564	4.0000e-005	0.4564	0.0462	4.0000e-005	0.0462		7.6801	7.6801	5.4000e-004		7.6936

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1.00	1.00	1.00	2,211	2,211
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	1.00	1.00	1.00	2,211	2,211

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	6.70	5.00	8.90	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	6.70	5.00	8.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.519925	0.031155	0.160764	0.115847	0.015498	0.004819	0.018987	0.121625	0.003553	0.001235	0.005240	0.000729	0.000624
Other Non-Asphalt Surfaces	0.519925	0.031155	0.160764	0.115847	0.015498	0.004819	0.018987	0.121625	0.003553	0.001235	0.005240	0.000729	0.000624

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

5.2 Energy by Land Use - Natural Gas

Unmitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

INFO ITEM ONLY

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.8524	4.9000e-004	0.0543	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1163	0.1163	3.1000e-004		0.1240
Unmitigated	10.8524	4.9000e-004	0.0543	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1163	0.1163	3.1000e-004		0.1240

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.6462					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.2012					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0300e-003	4.9000e-004	0.0543	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1163	0.1163	3.1000e-004		0.1240
Total	10.8524	4.9000e-004	0.0543	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1163	0.1163	3.1000e-004		0.1240

Vega SES 4 Solar Energy Storage Project - Imperial County, Winter

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.6462					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.2012					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0300e-003	4.9000e-004	0.0543	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1163	0.1163	3.1000e-004		0.1240
Total	10.8524	4.9000e-004	0.0543	0.0000		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004		0.1163	0.1163	3.1000e-004		0.1240

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Vega SES 4 Solar Energy Storage Project - Imperial County, Annual

Vega SES 4 Solar Energy Storage Project
Imperial County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.01	1000sqft	0.00	10.00	0
Other Non-Asphalt Surfaces	531.53	Acre	531.53	23,153,446.80	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	3.4	Precipitation Freq (Days)	12
Climate Zone	15			Operational Year	2023
Utility Company	Imperial Irrigation District				
CO2 Intensity (lb/MWhr)	1270.9	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Vega SES 4 Solar Energy Storage Project - Imperial County, Annual

Project Characteristics -

Land Use - General light industrial building added for the generation of trips during project operations.

Construction Phase - Construcion timing updated to match infomrationj provided by the Project applicant.

Off-road Equipment - plate compactor= pile driver.

Off-road Equipment - Construcion equipmnet updated to match the construcion questionnaire

Off-road Equipment - Construcion equipment updated to match the construcion questionnaire.

Trips and VMT - No more than 150 trips per the project applicant.

On-road Fugitive Dust - Roadways used to access project site= 100% paved

Vehicle Trips - Assuming one trip per day based on information provided in the PD.

Road Dust - Approximately 90% paved surrpunding project site.

Energy Use - Soalr facility- no operational energy use.

Water And Wastewater - Water use being kept for light industrail land use as the solar pannels may need to be cleaned.

Solid Waste - No soild waste- solar facility.

Energy Mitigation -

Mobile Land Use Mitigation -

Grading - No heavy grading anticipated

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	9,300.00	104.00
tblConstructionPhase	NumDays	930.00	200.00
tblConstructionPhase	NumDays	360.00	67.00
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	T24E	2.20	0.00
tblEnergyUse	T24NG	15.36	0.00
tblGrading	AcresOfGrading	458.50	1,062.00

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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	HaulingPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	VendorPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblOnRoadDust	WorkerPercentPave	50.00	100.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblRoadDust	RoadPercentPave	50	90
tblSolidWaste	LandfillNoGasCapture	6.00	0.00
tblSolidWaste	LandfillNoGasCapture	6.00	0.00
tblSolidWaste	SolidWasteGenerationRate	0.01	0.00
tblTripsAndVMT	VendorTripLength	11.90	8.90
tblTripsAndVMT	VendorTripLength	11.90	8.90
tblTripsAndVMT	VendorTripLength	11.90	8.90

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tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	3,795.00	10.00
tblTripsAndVMT	WorkerTripLength	10.20	7.30
tblTripsAndVMT	WorkerTripLength	10.20	7.30
tblTripsAndVMT	WorkerTripLength	10.20	7.30
tblTripsAndVMT	WorkerTripNumber	9,724.00	150.00
tblVehicleTrips	CC_TL	9.50	5.00
tblVehicleTrips	CC_TL	9.50	5.00
tblVehicleTrips	CNW_TL	11.90	8.90
tblVehicleTrips	CNW_TL	11.90	8.90
tblVehicleTrips	CW_TL	16.40	6.70
tblVehicleTrips	CW_TL	16.40	6.70
tblVehicleTrips	ST_TR	1.32	100.00
tblVehicleTrips	SU_TR	0.68	100.00
tblVehicleTrips	WD_TR	6.97	100.00

2.0 Emissions Summary

Vega SES 4 Solar Energy Storage Project - Imperial County, Annual

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.5454	5.7650	4.1071	8.9100e-003	1.5929	0.2425	1.8354	0.6195	0.2231	0.8426	0.0000	785.7421	785.7421	0.2417	0.0000	791.7839
2023	0.3024	2.6800	2.7545	5.1800e-003	0.8068	0.1235	0.9302	0.1794	0.1137	0.2932	0.0000	455.1132	455.1132	0.1304	0.0000	458.3731
Maximum	0.5454	5.7650	4.1071	8.9100e-003	1.5929	0.2425	1.8354	0.6195	0.2231	0.8426	0.0000	785.7421	785.7421	0.2417	0.0000	791.7839

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.5454	5.7650	4.1071	8.9100e-003	1.5929	0.2425	1.8354	0.6195	0.2231	0.8426	0.0000	785.7412	785.7412	0.2417	0.0000	791.7830
2023	0.3024	2.6799	2.7545	5.1800e-003	0.8068	0.1235	0.9302	0.1794	0.1137	0.2932	0.0000	455.1127	455.1127	0.1304	0.0000	458.3726
Maximum	0.5454	5.7650	4.1071	8.9100e-003	1.5929	0.2425	1.8354	0.6195	0.2231	0.8426	0.0000	785.7412	785.7412	0.2417	0.0000	791.7830

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
5	2-1-2022	4-30-2022	0.5236	0.5236
6	5-1-2022	7-31-2022	1.8271	1.8271
7	8-1-2022	10-31-2022	2.3801	2.3801
8	11-1-2022	1-31-2023	2.2821	2.2821
9	2-1-2023	4-30-2023	1.3587	1.3587
10	5-1-2023	7-31-2023	0.9232	0.9232
		Highest	2.3801	2.3801

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.9801	4.0000e-005	4.8800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.5000e-003	9.5000e-003	2.0000e-005	0.0000	0.0101
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	4.5000e-004	3.0200e-003	4.9700e-003	1.0000e-005	0.0831	1.0000e-005	0.0831	8.4100e-003	1.0000e-005	8.4100e-003	0.0000	1.3333	1.3333	9.0000e-005	0.0000	1.3355
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	7.3000e-004	0.0174	0.0181	8.0000e-005	0.0000	0.0205
Total	1.9805	3.0600e-003	9.8500e-003	1.0000e-005	0.0831	3.0000e-005	0.0831	8.4100e-003	3.0000e-005	8.4300e-003	7.3000e-004	1.3602	1.3609	1.9000e-004	0.0000	1.3662

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.9801	4.0000e-005	4.8800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.5000e-003	9.5000e-003	2.0000e-005	0.0000	0.0101
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	4.5000e-004	3.0200e-003	4.9700e-003	1.0000e-005	0.0831	1.0000e-005	0.0831	8.4100e-003	1.0000e-005	8.4100e-003	0.0000	1.3333	1.3333	9.0000e-005	0.0000	1.3355
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	7.3000e-004	0.0174	0.0181	8.0000e-005	0.0000	0.0205
Total	1.9805	3.0600e-003	9.8500e-003	1.0000e-005	0.0831	3.0000e-005	0.0831	8.4100e-003	3.0000e-005	8.4300e-003	7.3000e-004	1.3602	1.3609	1.9000e-004	0.0000	1.3662

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/1/2022	6/1/2022	5	67	
2	Grading	Grading	6/2/2022	3/8/2023	5	200	
3	Building Construction	Building Construction	3/8/2023	7/31/2023	5	104	

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Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 1062

Acres of Paving: 531.53

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Grading	Excavators	4	8.00	158	0.38
Grading	Graders	3	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	4	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Pavers	1	7.00	130	0.42
Building Construction	Paving Equipment	2	7.00	132	0.36
Building Construction	Plate Compactors	4	7.00	8	0.43
Building Construction	Tractors/Loaders/Backhoes	4	7.00	97	0.37
Building Construction	Trenchers	2	7.00	78	0.50
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	4	10.00	10.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	15	38.00	10.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	18	150.00	10.00	0.00	7.30	8.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4035	0.0000	0.4035	0.2218	0.0000	0.2218	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0671	0.7014	0.3899	7.8000e-004		0.0340	0.0340		0.0313	0.0313	0.0000	68.5781	68.5781	0.0222	0.0000	69.1326
Total	0.0671	0.7014	0.3899	7.8000e-004	0.4035	0.0340	0.4375	0.2218	0.0313	0.2531	0.0000	68.5781	68.5781	0.0222	0.0000	69.1326

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3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2200e-003	0.0328	8.8800e-003	1.1000e-004	2.7500e-003	8.0000e-005	2.8300e-003	7.9000e-004	7.0000e-005	8.6000e-004	0.0000	10.0431	10.0431	5.0000e-004	0.0000	10.0557
Worker	1.6900e-003	1.2500e-003	0.0117	2.0000e-005	1.8500e-003	1.0000e-005	1.8600e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.4488	1.4488	1.1000e-004	0.0000	1.4515
Total	2.9100e-003	0.0341	0.0205	1.3000e-004	4.6000e-003	9.0000e-005	4.6900e-003	1.2800e-003	8.0000e-005	1.3600e-003	0.0000	11.4919	11.4919	6.1000e-004	0.0000	11.5071

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4035	0.0000	0.4035	0.2218	0.0000	0.2218	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0671	0.7014	0.3899	7.8000e-004		0.0340	0.0340		0.0313	0.0313	0.0000	68.5780	68.5780	0.0222	0.0000	69.1325
Total	0.0671	0.7014	0.3899	7.8000e-004	0.4035	0.0340	0.4375	0.2218	0.0313	0.2531	0.0000	68.5780	68.5780	0.0222	0.0000	69.1325

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3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2200e-003	0.0328	8.8800e-003	1.1000e-004	2.7500e-003	8.0000e-005	2.8300e-003	7.9000e-004	7.0000e-005	8.6000e-004	0.0000	10.0431	10.0431	5.0000e-004	0.0000	10.0557
Worker	1.6900e-003	1.2500e-003	0.0117	2.0000e-005	1.8500e-003	1.0000e-005	1.8600e-003	4.9000e-004	1.0000e-005	5.0000e-004	0.0000	1.4488	1.4488	1.1000e-004	0.0000	1.4515
Total	2.9100e-003	0.0341	0.0205	1.3000e-004	4.6000e-003	9.0000e-005	4.6900e-003	1.2800e-003	8.0000e-005	1.3600e-003	0.0000	11.4919	11.4919	6.1000e-004	0.0000	11.5071

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1627	0.0000	1.1627	0.3904	0.0000	0.3904	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4580	4.9444	3.5760	7.6300e-003		0.2081	0.2081		0.1915	0.1915	0.0000	670.3977	670.3977	0.2168	0.0000	675.8182
Total	0.4580	4.9444	3.5760	7.6300e-003	1.1627	0.2081	1.3708	0.3904	0.1915	0.5819	0.0000	670.3977	670.3977	0.2168	0.0000	675.8182

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3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7600e-003	0.0744	0.0201	2.4000e-004	6.2400e-003	1.7000e-004	6.4100e-003	1.8000e-003	1.6000e-004	1.9600e-003	0.0000	22.7842	22.7842	1.1400e-003	0.0000	22.8128
Worker	0.0146	0.0108	0.1005	1.4000e-004	0.0159	1.0000e-004	0.0160	4.2300e-003	9.0000e-005	4.3200e-003	0.0000	12.4902	12.4902	9.2000e-004	0.0000	12.5132
Total	0.0174	0.0852	0.1206	3.8000e-004	0.0222	2.7000e-004	0.0224	6.0300e-003	2.5000e-004	6.2800e-003	0.0000	35.2744	35.2744	2.0600e-003	0.0000	35.3260

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1627	0.0000	1.1627	0.3904	0.0000	0.3904	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4580	4.9444	3.5760	7.6300e-003		0.2081	0.2081		0.1915	0.1915	0.0000	670.3969	670.3969	0.2168	0.0000	675.8174
Total	0.4580	4.9444	3.5760	7.6300e-003	1.1627	0.2081	1.3708	0.3904	0.1915	0.5819	0.0000	670.3969	670.3969	0.2168	0.0000	675.8174

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3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7600e-003	0.0744	0.0201	2.4000e-004	6.2400e-003	1.7000e-004	6.4100e-003	1.8000e-003	1.6000e-004	1.9600e-003	0.0000	22.7842	22.7842	1.1400e-003	0.0000	22.8128
Worker	0.0146	0.0108	0.1005	1.4000e-004	0.0159	1.0000e-004	0.0160	4.2300e-003	9.0000e-005	4.3200e-003	0.0000	12.4902	12.4902	9.2000e-004	0.0000	12.5132
Total	0.0174	0.0852	0.1206	3.8000e-004	0.0222	2.7000e-004	0.0224	6.0300e-003	2.5000e-004	6.2800e-003	0.0000	35.2744	35.2744	2.0600e-003	0.0000	35.3260

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.7525	0.0000	0.7525	0.1649	0.0000	0.1649	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1309	1.3708	1.0925	2.4100e-003		0.0564	0.0564		0.0519	0.0519	0.0000	211.7054	211.7054	0.0685	0.0000	213.4172
Total	0.1309	1.3708	1.0925	2.4100e-003	0.7525	0.0564	0.8089	0.1649	0.0519	0.2168	0.0000	211.7054	211.7054	0.0685	0.0000	213.4172

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3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-004	0.0174	5.5300e-003	7.0000e-005	1.9700e-003	2.0000e-005	1.9900e-003	5.7000e-004	2.0000e-005	5.9000e-004	0.0000	7.0443	7.0443	2.7000e-004	0.0000	7.0510
Worker	4.3200e-003	3.1300e-003	0.0292	4.0000e-005	5.0300e-003	3.0000e-005	5.0600e-003	1.3400e-003	3.0000e-005	1.3600e-003	0.0000	3.7948	3.7948	2.7000e-004	0.0000	3.8015
Total	5.0200e-003	0.0205	0.0347	1.1000e-004	7.0000e-003	5.0000e-005	7.0500e-003	1.9100e-003	5.0000e-005	1.9500e-003	0.0000	10.8391	10.8391	5.4000e-004	0.0000	10.8524

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.7525	0.0000	0.7525	0.1649	0.0000	0.1649	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1309	1.3708	1.0925	2.4100e-003		0.0564	0.0564		0.0519	0.0519	0.0000	211.7052	211.7052	0.0685	0.0000	213.4169
Total	0.1309	1.3708	1.0925	2.4100e-003	0.7525	0.0564	0.8089	0.1649	0.0519	0.2168	0.0000	211.7052	211.7052	0.0685	0.0000	213.4169

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3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-004	0.0174	5.5300e-003	7.0000e-005	1.9700e-003	2.0000e-005	1.9900e-003	5.7000e-004	2.0000e-005	5.9000e-004	0.0000	7.0443	7.0443	2.7000e-004	0.0000	7.0510
Worker	4.3200e-003	3.1300e-003	0.0292	4.0000e-005	5.0300e-003	3.0000e-005	5.0600e-003	1.3400e-003	3.0000e-005	1.3600e-003	0.0000	3.7948	3.7948	2.7000e-004	0.0000	3.8015
Total	5.0200e-003	0.0205	0.0347	1.1000e-004	7.0000e-003	5.0000e-005	7.0500e-003	1.9100e-003	5.0000e-005	1.9500e-003	0.0000	10.8391	10.8391	5.4000e-004	0.0000	10.8524

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1280	1.2242	1.3657	2.1300e-003		0.0667	0.0667		0.0615	0.0615	0.0000	184.8506	184.8506	0.0585	0.0000	186.3140
Total	0.1280	1.2242	1.3657	2.1300e-003		0.0667	0.0667		0.0615	0.0615	0.0000	184.8506	184.8506	0.0585	0.0000	186.3140

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3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5200e-003	0.0377	0.0120	1.6000e-004	4.2700e-003	5.0000e-005	4.3200e-003	1.2300e-003	4.0000e-005	1.2700e-003	0.0000	15.2627	15.2627	5.8000e-004	0.0000	15.2771
Worker	0.0369	0.0267	0.2496	3.6000e-004	0.0430	2.6000e-004	0.0433	0.0114	2.4000e-004	0.0117	0.0000	32.4553	32.4553	2.2800e-003	0.0000	32.5125
Total	0.0385	0.0644	0.2616	5.2000e-004	0.0473	3.1000e-004	0.0476	0.0127	2.8000e-004	0.0129	0.0000	47.7180	47.7180	2.8600e-003	0.0000	47.7895

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1280	1.2242	1.3657	2.1300e-003		0.0667	0.0667		0.0615	0.0615	0.0000	184.8504	184.8504	0.0585	0.0000	186.3138
Total	0.1280	1.2242	1.3657	2.1300e-003		0.0667	0.0667		0.0615	0.0615	0.0000	184.8504	184.8504	0.0585	0.0000	186.3138

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3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5200e-003	0.0377	0.0120	1.6000e-004	4.2700e-003	5.0000e-005	4.3200e-003	1.2300e-003	4.0000e-005	1.2700e-003	0.0000	15.2627	15.2627	5.8000e-004	0.0000	15.2771
Worker	0.0369	0.0267	0.2496	3.6000e-004	0.0430	2.6000e-004	0.0433	0.0114	2.4000e-004	0.0117	0.0000	32.4553	32.4553	2.2800e-003	0.0000	32.5125
Total	0.0385	0.0644	0.2616	5.2000e-004	0.0473	3.1000e-004	0.0476	0.0127	2.8000e-004	0.0129	0.0000	47.7180	47.7180	2.8600e-003	0.0000	47.7895

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.5000e-004	3.0200e-003	4.9700e-003	1.0000e-005	0.0831	1.0000e-005	0.0831	8.4100e-003	1.0000e-005	8.4100e-003	0.0000	1.3333	1.3333	9.0000e-005	0.0000	1.3355
Unmitigated	4.5000e-004	3.0200e-003	4.9700e-003	1.0000e-005	0.0831	1.0000e-005	0.0831	8.4100e-003	1.0000e-005	8.4100e-003	0.0000	1.3333	1.3333	9.0000e-005	0.0000	1.3355

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1.00	1.00	1.00	2,211	2,211
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	1.00	1.00	1.00	2,211	2,211

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	6.70	5.00	8.90	59.00	28.00	13.00	92	5	3
Other Non-Asphalt Surfaces	6.70	5.00	8.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.519925	0.031155	0.160764	0.115847	0.015498	0.004819	0.018987	0.121625	0.003553	0.001235	0.005240	0.000729	0.000624
Other Non-Asphalt Surfaces	0.519925	0.031155	0.160764	0.115847	0.015498	0.004819	0.018987	0.121625	0.003553	0.001235	0.005240	0.000729	0.000624

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.9801	4.0000e-005	4.8800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.5000e-003	9.5000e-003	2.0000e-005	0.0000	0.0101
Unmitigated	1.9801	4.0000e-005	4.8800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.5000e-003	9.5000e-003	2.0000e-005	0.0000	0.0101

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4967					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.5000e-004	4.0000e-005	4.8800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.5000e-003	9.5000e-003	2.0000e-005	0.0000	0.0101
Total	1.9801	4.0000e-005	4.8800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.5000e-003	9.5000e-003	2.0000e-005	0.0000	0.0101

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.4829					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4967					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.5000e-004	4.0000e-005	4.8800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.5000e-003	9.5000e-003	2.0000e-005	0.0000	0.0101
Total	1.9801	4.0000e-005	4.8800e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	9.5000e-003	9.5000e-003	2.0000e-005	0.0000	0.0101

7.0 Water Detail

7.1 Mitigation Measures Water

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0181	8.0000e-005	0.0000	0.0205
Unmitigated	0.0181	8.0000e-005	0.0000	0.0205

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.0023125 / 0	0.0181	8.0000e-005	0.0000	0.0205
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0181	8.0000e-005	0.0000	0.0205

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0.0023125 / 0	0.0181	8.0000e-005	0.0000	0.0205
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0181	8.0000e-005	0.0000	0.0205

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Renewable Energy Emissions Displacement

Project Fossil Fuel Emissions Displacement

Megawatt Project ¹	Operational Time ²	Annual Hours of Generation ²	Annual Kilowatt Hours	Heat Rate ³	Btu Displaced ⁴
4.2 MW	50 Percent	4,380 Hours	18,250,146 Kilowatt Hours	9,313	169,963,609,698

¹ The Project is anticipated to generate 100 megawatts daily. $100 \div 24 \text{ hours} = 4.1667 \text{ MW facility}$

² The Project is assumed to generate electricity 50 percent of the time available (4,380 hours annually).

³ Heat Rate indicates the energy generator efficiency of existing fossil-fuel based energy generators. The heat rate of a power plant measures the amount of fuel used to generate one unit of electricity. Power plants with lower heat rates are more efficient than plants with higher heat rates. The CEC's "Updated Thermal Power Plant Efficiency Measures and Operational Characteristics for Production Cost Modeling" (2019) estimates heat rates and operating ranges for thermal power plants supplying energy to California. The average heat rate of power plants types are as follows:

****Steam Boiler fueled by coal: 10,800 heat rate. **Steam Boiler fueled by natural gas: 10,200 heat rate. **Gas Turbine: 10,100 heat rate. **Combined natural gas Boiler and Turbine: 7,640 heat rate.**

Omitting steam boilers fueled by coal since so little of California's energy is derived from coal, the average heat rate = $9,313 [(10,100 + 10,200 + 7,640) \div 3 = 9,313]$

⁴ $25,093,751 \text{ annual kilowatt hours} \times 9,313 \text{ average heat rate of existing fossil fuel generators} = 169,963,609,698 \text{ Btu displaced from fossil fuel production.}$

Energy consumption in California is predominately derived from natural gas (34.23%). Coal constitutes 2.96% of all energy-based energy consumption in California. Renewable sources (not including hydroelectric generators) account for 31.70% and nuclear power accounts for 8.98%. 7.34% of the state's energy comes from unspecified nonrenewable sources and this percentage is added to the natural gas total for the purpose of this analysis. CEC. 2020. "2019 Total System Electric Generation". <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data>

70653872551.5 of the displaced BTU is displaced natural gas consumption and 4928944681 of the displaced BTU is displaced coal.

The heat content of coal is assumed at 24 million Btu per ton of coal burned. At a rate of 24 million Btu per ton of coal burned, the Project would displace 205 tons of burned coal annually.

Fossil Fuel Emissions Displacement by Project⁵

Emissions from Natural Gas Generation

70654	Displaced Btu	Pounds Annually					
NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
350	106	332	134	240	7,771,926		
Tons Annually (Metric Tons for GHGs)							
NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
0.17	0.05	0.17	0.07	0.12	3,108.77		

Emissions from Coal Generation

205	Displaced tons of burned coal	Pounds Annually					
NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
2460	103	17	12	117	1,238,200	8	6
Tons Annually (Metric Tons for GHGs)							
NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O
1.23	0.05	0.01	0.01	0.06	495.28	0.00	0.00

⁵ Source: Displaced emissions calculated by ECORP Consulting using U.S. EPA's AP-42 Fifth Edition Compilation of Air Emissions Factors 1995; 2015.

Aquatic Resources Delineation

Vega SES 4 Solar Project

Imperial County, California

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December 2020



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ENVIRONMENTAL CONSULTANTS

INFO ITEM ONLY

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LIST OF ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CWA	Clean Water Act
ED	Ephemeral drainages
FEW	Freshwater emergent wetlands
FR	Federal Register
FSW	Freshwater forested/shrub wetlands
GIS	Geographic Information System
GPS	Global Positioning System
MW	Megawatt
NETROnline	Nationwide Environmental Title Research Online
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
NWPR	Navigable Waters Protection Rule
OMBIL	Operations and Maintenance Business Information Link
OHWM	Ordinary high water mark
ORM	OMBIL Regulatory Module
PD	Perennial drainages
PJD	Preliminary Jurisdictional Delineation
Project	Vega SES 4 Solar Project
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SR	State Route

LIST OF ACRONYMS AND ABBREVIATIONS

Study Area	Solar Project and 500-foot Buffer
sUAS	small unmanned aircraft system
SWRCB	State Water Resources Control Board
TNW	traditional navigable waters
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
WDR	Waste discharge regulations

1.0 INTRODUCTION

This aquatic resources delineation report was prepared to describe the aquatic resources at the Vega SES 4 Solar Project (Project) located on ±528 acres of vacant land on three parcels in Imperial County, California (Assessor's Parcel Numbers 059-290-010; 059-300-015; 059-300-017). The Project area includes a 100-Megawatt (MW) direct current and 400 MW-hour battery storage utility-scale solar project. For purposes of this report, "Study Area" refers to the Project area and a 500-foot buffer. The Project is within the southern portion of Imperial County, approximately nine miles southeast of Calexico, California and 0.5 mile south of California State Route (SR) 98. It resides in the middle of the All-American Canal to the north, and the U.S.-Mexico border, to the south. As depicted on the U.S. Geological Survey (USGS) 7.5-minute "Bonds Corner, California" topographic quadrangle (USGS 1981), the Project is located within Sections 10, 11, 14, 15, and 16 of Township 17 South, Range 16 East, San Bernardino Base and Meridian. (Figure 1. *Project Location and Vicinity*).

The Project is accessible from San Diego by driving east on Interstate 8 for 118 miles and continuing onto SR-7 south for five miles. Turn left onto SR-98 east and proceed for six miles before turning right onto an Imperial Irrigation District access road. The site is located on the south side of the All-American Canal and requires contacting U.S. Border Patrol prior to crossing the canal. After crossing the canal, turn right and follow the dirt access road along the canal for one mile (Attachment A).

This report describes aquatic resources identified within the Project area that may be regulated by the Porter-Cologne Water Quality Act, California Fish and Game Code Sections 1600 and 1602, and the U.S. Army Corps of Engineers (USACE) pursuant to Sections 401 and 404 of the federal Clean Water Act (CWA). The information presented in this report provides data required by the USACE Los Angeles District's Minimum Standards for Acceptance of Aquatic Resources Delineation Reports (USACE 2017). The aquatic resource boundaries depicted in this report represent a calculated estimation of the jurisdictional area within the Project area and are subject to modification following the USACE verification process.

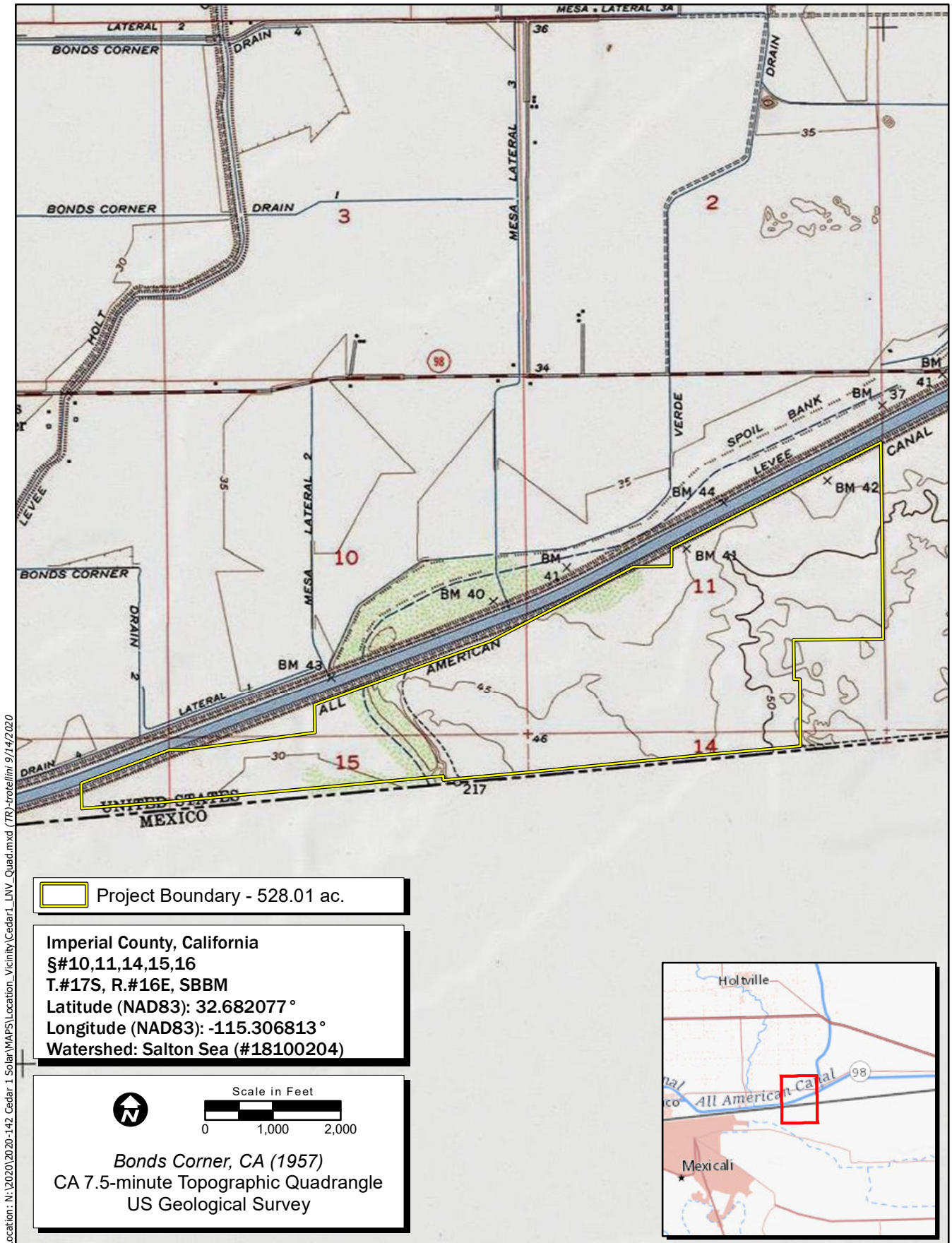
2.0 REGULATORY SETTING

2.1 Waters of the United States

This report describes aquatic resources, including wetlands, that may be regulated by the USACE under Section 404 of the federal CWA. Waters of the U.S. includes both wetlands and other waters, as described below.

2.1.1 Wetlands

Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (51 Federal Register [FR] 41250, Nov. 13, 1986, as amended at 58 FR 45036, Aug. 25, 1993). Wetlands can be perennial or intermittent.



Location: N:\2020\2020-142_Cedar_1_Solar\WAPS\Location_Vicinity\Cedar1_LIN_VQuad.mxd (TR) - tracelini 9/14/2020

Project Boundary - 528.01 ac.

Imperial County, California
 §#10,11,14,15,16
 T.#17S, R.#16E, SBBM
 Latitude (NAD83): 32.682077°
 Longitude (NAD83): -115.306813°
 Watershed: Salton Sea (#18100204)

Scale in Feet

0 1,000 2,000

Bonds Corner, CA (1957)
 CA 7.5-minute Topographic Quadrangle
 US Geological Survey



Map Date: 9/14/2020
 Service Layer Credits: Copyright © 2013 National Geographic Society, i-cubed



Figure 1. Project Location and Vicinity

2020-142 Vega SES 4

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2.1.2 Other Waters

Other waters that may be found in the Study Area are non-tidal, perennial, and intermittent watercourses and tributaries to such watercourses [51 FR 41250, Nov. 13, 1986, as amended at 58 FR 45036, Aug. 25, 1993]. The limit of USACE jurisdiction for non-tidal watercourses (without adjacent wetlands) is defined in 33 Code of Federal Regulations [CFR] 328.4(c)(1) as the “ordinary high water mark” (OHWM). The OHWM is defined as the “line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” approximation of the lateral limit of USACE jurisdiction. The upstream limits of other waters are defined as the point where the OHWM is no longer perceptible.

2.2 Clean Water Act

The USACE regulates discharge of dredged or fill material into Waters of the U.S. under Section 404 of the CWA. “Discharges of fill material” is defined as the addition of fill material into Waters of the U.S., including, but not limited to the following: placement of fill necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes, and subaqueous utility lines (33 CFR § 328.2[f]). In addition, Section 401 of the CWA (33 U.S. Code 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Substantial impacts to wetland and non-wetland “Waters of the U.S.”, over 0.5 acre of impact, may require an individual permit. Projects that only minimally affect “Waters of the U.S.,” less than 0.5 acre of impact, may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions. In California, this certification or waiver is typically issued by the Regional Water Quality Control Board (RWQCB). However, in the case of tribal lands that are held in trust, this certification or waiver is issued by the U.S. Environmental Protection Agency (USEPA).

According to the Navigable Waters Protection Rule (NWPR), which came into effect June 22, 2020, the USEPA and USACE define the term “Waters of the United States” to encompass the following:

- The territorial seas and traditional navigable waters;
- Perennial and intermittent tributaries that contribute surface water flow to such waters;
- Certain lakes, ponds, and impoundments of jurisdictional waters; and
- Wetlands adjacent to other jurisdictional waters.

The NWPR also excludes several waters and other features not mentioned in the above definition, including “ephemeral features that flow only in direct response to precipitation, including ephemeral streams, swales, gullies, rills, and pools.”

The final rule also clarifies key elements related to the scope of federal CWA jurisdiction, including the following:

- Providing clarity and consistency by removing the proposed separate categories for jurisdictional ditches and impoundments.
- Refining the proposed definition of “typical year,” which provides important regional and temporal flexibility and ensures jurisdiction is being accurately determined in times that are not too wet and not too dry.
- Defining “adjacent wetlands” as wetlands that are meaningfully connected to other jurisdictional waters, for example, by directly abutting or having regular surface water communication with jurisdictional waters.

The NWPR is the second in a two-step process to review and revise the definition of Waters of the U.S. consistent with the February 2017 Presidential Executive Order entitled “Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the ‘Waters of the United States’ Rule” This final rule became effective on June 22, 2020 and replaced the Step One Rule published in October 2019.

2.3 Porter-Cologne Water Quality Act

The Porter-Cologne Act provides a framework to protect water quality in California. The Porter-Cologne Act was enacted in 1969 as Division 7 of the Water Code and is the primary water quality law in California. The Porter Cologne Act addresses two primary functions: water quality control planning and waste discharge regulation (WDR). The State Legislature, in adopting the Porter-Cologne Act, directed that California’s waters “shall be regulated to attain the highest water quality which is reasonable” and charges the Water Boards with protecting all waters of California, defined as “any surface water or groundwater, including saline waters, within the boundaries of the State.” This encompasses all Waters of the state, including those not under federal jurisdiction.

The Porter-Cologne Act regulates discharges that could affect the quality of water of surface or ground waters, wherever those discharges may occur. Under the Porter-Cologne Water Quality Act, the Water Board regulates actions that would involve “discharging waste, or proposing to discharge waste, with any region that could affect the water of the state” [Water Code 13260(a)]. Waters of the State are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” [Water Code 13050 (e)]. The Porter Cologne Act defines “Waters of the state” very broadly, with no physical descriptors, and no interstate commerce limitation.

The Porter-Cologne Act further requires that anyone who plans to discharge waste where it might affect Waters of the state must first notify the Water Boards. The Water Boards identify the sources of pollutants that threatens water quality under the Porter-Cologne Act and regulate waste discharges that could affect water quality by issuing WDRs. The State Water Resources Control Board (SWRCB) adopted the State

Wetland Definition and Procedures for Discharge of Dredged or Fill Material into Waters of the U.S. in April 2019. The Water Board regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State, that are not regulated by USACE due to a lack of connectivity with a navigable water body. The Water Board may require issuance of a WDR for these activities. If a project impacts Waters of the State that do not fall under federal jurisdiction, the applicant need not obtain a section 404 permit or a 401 certification, but instead must receive approval from the Water Boards through the adoption of WDRs.

2.4 California Fish and Game Code Section 1602

Pursuant to Section 1602 of the California Fish and Game Code, a Streambed Alteration Agreement (SAA) application must be submitted for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake” (California Department of Fish and Wildlife [CDFW] 2020). In Title 14 of the California Code of Regulations, Section 1.72, the CDFW defines a “stream” (including creeks and rivers) as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation.”

The CDFW’s jurisdiction includes drainages with a definable bed, bank, or channel with the jurisdictional limit being the top-of-bank. It also includes areas that support intermittent, perennial, or subsurface flows; supports fish or other aquatic life; or supports riparian or hydrophytic vegetation. It also includes areas that have a hydrologic source.

The CDFW will determine if the proposed actions will result in diversion, obstruction, or change of the natural flow, bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. The CDFW will submit an SAA that includes measures to protect affected fish and wildlife resources; this SAA is the final proposal agreed upon by the CDFW and the applicant.

Table 1. Summary of Federal, State, and Local Regulations		
Federal Regulations		
Regulation	Resource	Regulating Agency
Federal Clean Water Act	Aquatic features meeting the definition of Waters of the US	USACE
State Regulations		
Regulation	Resource	Regulating Agency
California Fish and Game Code Section 1602	River, stream, or lake and associated riparian habitat	CDFW
Local Regulations		
Regulation	Resource	Regulating Agency
Porter-Cologne Water Quality Act	Aquatic features meeting the definition of Waters of the State	RWQCB

3.0 METHODS

3.1 Pre-Survey Investigations

Due to the size of the area and limited road access, an initial survey utilizing a small unmanned aircraft system (sUAS) was conducted to assess current site conditions and gather high-resolution imagery. Photos collected during the sUAS survey were then combined into a single orthomosaic image that was incorporated into mapping files in a Geographic Information System (GIS). The information gathered from the sUAS/drone survey were then used to assist delineation specialists with accurate mapping of potential aquatic resources onsite. Prior to conducting the field delineations, the following resources were reviewed to identify potentially jurisdictional areas: sUAS imagery, satellite aerial imagery (Google Earth 2018, ESRI 2020), the National Wetlands Database, the online web soil survey (Natural Resources Conservation Service [NRCS] 2020a), and hydric soils list for the area.

3.2 Field Survey Investigation

This aquatic resources delineation was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008a), *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b), and the *Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2010). The boundaries of aquatic resources were delineated through standard field methods (e.g., paired sample set analyses) and aerial photograph interpretation. Field data was recorded on Wetland Determination Data Forms - Arid West Region and Arid West OHWM Datasheets (Attachment B). ESRI® and sUAS aerial imagery were used to assist with mapping and ground-truthing. *Munsell Soil Color Charts* (Kollmorgen Instruments Co. 1990) and the Web Soil Survey (NRCS 2020a) were used to aid in identifying hydric soils in the field. The Jepson Manual, 2nd Edition (Baldwin et al. 2012) and the USACE National Wetland Plant List (USACE 2018) were used for plant nomenclature and identification.

Where jurisdictional features were present, the extent of potential Waters of the State and CDFW-regulated streambed and top-of-bank limits were determined using the OHWM in accordance with USACE requirements and guidelines, as well as SWRCB and CDFW delineation guidance. Streambed widths were based on evidence of OHWM as observed during the field survey. In addition, each of the drainages were evaluated for the presence or absence of sediment deposits, litter/debris, water stains, soil shelving, and/or exposed roots indicating active hydrology within the channel. Streambed widths and other lateral limits of jurisdiction were calculated and recorded. The extent of associated riparian habitat was based on the extent of the canopy of the riparian community within or directly adjacent to the feature. Bank-to-bank width measures were also recorded and used as a measure of CDFW jurisdictional boundary where features lacked riparian vegetation. Feature characteristics and measurements were recorded directly into the data dictionary in the GPS unit. Characteristics of the majority of mapped features were also documented in photographs.

Paired locations were sampled to evaluate whether the vegetation, hydrology, and soils data supported an aquatic resource determination. At each paired location, one point was located such that it was within the estimated aquatic resource area, and the other point was situated outside the limits of the estimated aquatic resource area. Additional non-paired locations were sampled to confirm boundaries. Jurisdictional Waters within the Study Area were recorded in the field using a post-processing capable Global Positioning System (GPS) unit with sub-meter accuracy (e.g., Juniper Geode™). Feature characteristics and measurements were recorded directly into the data dictionary in the GPS unit. Characteristics of mapped features were also documented in photographs.

Four separate field surveys were conducted by ECORP delineation specialists in 2020; the first being a general field reconnaissance of the Study Area to identify areas supporting potential state and federal jurisdictional waters. The initial survey was conducted in conjunction with the biological reconnaissance survey on September 28, 2020, by Christina Congedo, Caroline Garcia, Greg Hampton, and Christina Torres. The subsequent field surveys and formal delineations were conducted to verify preliminary results observed in the September survey and to collect additional data and photographs. These surveys were conducted on November 4-5, 2020, by Christina Congedo, Jennifer Kendrick, and Christina Torres; an additional survey was conducted on November 12, 2020, by Christina Congedo, Caroline Garcia, and Christina Torres. The entire Study Area was visually surveyed to determine the location and extent of aquatic resources, and special attention was given to the features identified during the initial survey described above.

3.3 Post-Processing

The data collected in the field utilized ArcGIS™ Collector on a device (smartphone or tablet) connected to a submeter external receiver. The submeter receiver applies differential correction instantaneously in the field using the Satellite Based Augmentation System. The data were then viewed and analyzed for verification, edited, and compiled in GIS format at the time of download. ArcGIS™ software was used to develop the geodatabase and the shapefiles depicted on the figures included in this report.

4.0 RESULTS

4.1 Existing Site Conditions

The Study Area is located within relatively flat to gently sloping terrain situated at an elevational range of approximately 11 meters (38 feet) to 18 meters (60 feet) above mean sea level in Imperial County, California. The average winter low temperature in the vicinity of the Study Area is 44.0 and the average summer high temperature is 105.1°F. Average annual precipitation for El Centro is approximately 2.90 inches, which falls as rain (National Oceanic and Atmospheric Administration [NOAA] 2020a).

During the 2019-2020 rain year prior to the November field survey (October 1, 2019 to April 30, 2020), approximately 5.01 inches of precipitation were recorded at the El Centro 2 SSW weather station, located approximately 16 miles northwest of the Study Area (NOAA 2020b). The most recent significant precipitation event prior to the surveys occurred between April 8 and 11, 2020, with a total of 0.68 inch of rainfall accumulating over four days (NOAA 2020b).

4.1.1 **Vegetation Communities**

Vegetation within the Study Area is characteristic of creosote bush scrub, riparian scrub, and wetland habitats. The eastern portion of the site consists primarily of disturbed creosote bush scrub with bordering riparian scrub and wetland habitats to the northern edge and western section of the site. The western portion of the site primarily consists of riparian scrub and wetland habitats. There are six types of vegetation communities occurring within the Project site: arrow weed thickets, arrow weed thickets (disturbed), alkali weed (salt grass playas and sinks), creosote bush scrub, creosote bush scrub–white bursage scrub (disturbed), and tamarisk thickets. Three land use types also occur within the Project site: disturbed, urban/developed, and urban/developed (roads). One additional vegetation community, row crops, was observed within the buffer, but not within the Project area.

Arrow weed thickets are associated with moderate to dense scrub primarily dominated by arrow weed. Other species that occur as scattered individuals included tamarisk (*Tamarix* spp.), willow baccharis (*Baccharis salicina*), and big saltbush (*Atriplex lentiformis*). Disturbed arrow weed thickets are arrow weed thickets that have been previously altered. On this Project, this vegetation cover is characterized as sparser. Other plant species observed included alkali goldenbush (*Isocoma acradenia*).

Alkali playas and sinks are composed of poorly drained soils with high salinity and/or alkalinity from evaporation of water that accumulates in closed drainages. These playas and sinks are often seasonally inundated and lose water through evaporation. On the Project site, there were no plant species at the time of the surveys.

Creosote bush scrub is dominated by a nearly monotypic stand of creosote bush with an open canopy and an herbaceous layer of seasonal annuals and perennials. Other species that occurred on the site included burrobush (*Ambrosia dumosa*), apricot mallow (*Sphaeralcea ambigua*), and fanleaf crinkle mat (*Tiquilia plicata*).

Disturbed creosote bush – white bursage scrub consists of creosote and white bursage that are co-dominant in the shrub canopy with an absent to intermittent herbaceous layer of seasonal annuals. On the Project site, this vegetation cover is characterized as sparser with a high percentage of nonnative plant species including common Mediterranean grass (*Schismus barbatus*) and Saharan mustard (*Brassica tournefortii*). Other plant species included dyebush (*Psoralea emoryi*) and fanleaf crinkle mat.

Tamarisk thickets are characterized by a weedy monoculture of tamarisk. On the Project site, tamarisk and arrow weed were often co-dominant in this vegetation community. Other plant species observed included cattails (*Typha* spp.), screw bean mesquite (*Prosopis pubescens*), and willow baccharis.

Disturbed land includes areas where the native vegetation community has been heavily influenced by human actions, such as grading, trash dumping, and off-highway vehicle use, but lack development. On this Project, the areas consisted primarily of bare ground and Mediterranean grass. Other plant species observed on site included dyebush and white bursage.

Areas mapped as developed have been constructed upon or otherwise physically altered to an extent that natural vegetation communities are no longer supported. On the Project site, this land cover was

dominant and consisted primarily of compacted dirt roads, structures, and landscape trees including Mexican fan palm (*Washingtonia robusta*) and Mexican palo verde (*Parkinsonia aculeata*).

Row crops include planted, typically monotypic, rows of crops of annual and perennial species with open space between rows. Species composition frequently changes by season and year. Row crops often occur in upland areas with high soil quality, or floodplains and are almost always artificially irrigated. This land cover was observed in the eastern portion and southwest of the 500-foot buffer.

4.1.2 Soils

According to the Web Soil Survey (NRCS 2020a), eight soil units, or types, have been mapped within the Project site (Figure 2. *Natural Resources Conservation Service Soil Types*). These include:

- 102 - Badland
- 119 - Indio-Vint complex
- 126 - Niland fine sand
- 131 - Rositas sand, 2 to 5 percent slopes
- 132 - Rositas fine sand, 0 to 2 percent slopes
- 135 - Rositas fine sand, wet, 0 to 2 percent slopes
- 136 - Rositas loamy fine sand, 0 to 2 percent slopes
- 142 - Vint loamy very fine sand, wet

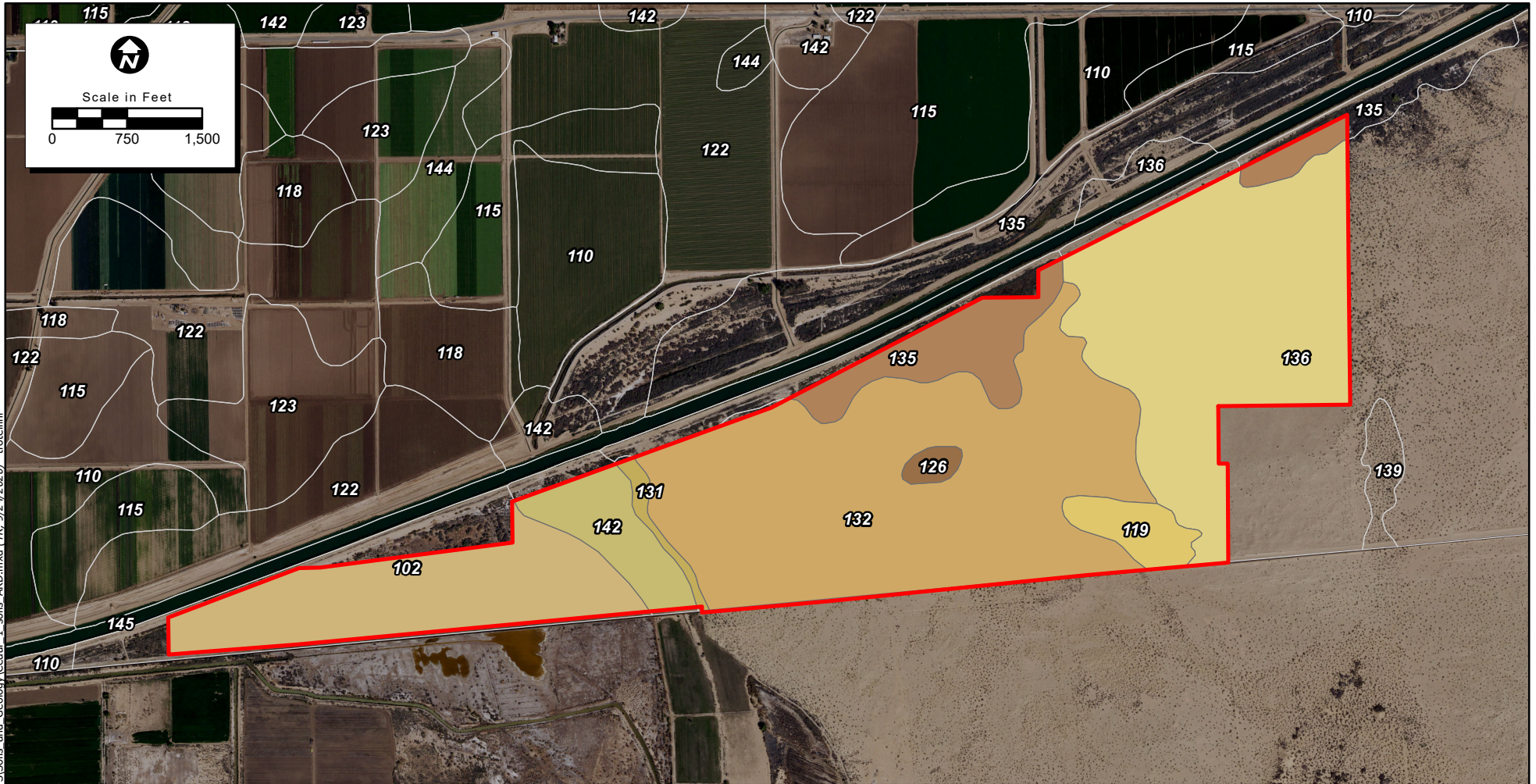
Summary characteristics based on official series descriptions for each of the soil series mapped within the alignments are provided below (NRCS 2020b).

4.1.2.1 Indio Series

The Indio series consists of very deep, well- or moderately well-drained soils formed in alluvium derived from mixed rock sources. Indio soils are on alluvial fans, flood plains, and lacustrine basins. The mean annual precipitation is approximately four inches and the mean annual air temperature is approximately 72°F. These soils have moderate permeability and slow runoff.










4.1.2.2 Niland Series

The Niland series consists of well- and moderately well-drained soils with slopes that are typically less than one percent, but can range up to five percent. These soils have very pale brown, stratified, gravelly sand and sand overlying pale brown, silty clay at a depth of 23 inches. They have slow runoff, with permeability of the sandy portion being rapid and permeability of the clayey portion being slow.



Location: N:\2020\2020-142 Cedar 1 Solar\MAPS\Soils and Geology\Cedar 1_soils_ARC.mxd (TR_9/24/2020) - trotellini

Map Content

	Project Area	<u>Series Designation - Series Description</u>	 131 - Rositas sand, 2 to 5 percent slopes	 136 - Rositas loamy fine sand, 0 to 2 percent slopes
	102 - Badland	 132 - Rositas fine sand, 0 to 2 percent slopes	 142 - Vint loamy very fine sand, wet	
	119 - Indio-Vint complex	 135 - Rositas fine sand, wet, 0 to 2 percent slopes		
	126 - Niland fine sand			

Map Date: 9/24/2020
 Photo Source: NAIP (2018)

Figure 2. Natural Resources Conservation Service Soil Types

4.1.2.3 Rositas Series

The Rositas series consists of very deep, somewhat excessively drained soils. These soils are formed in sandy eolian material and have less than 15 percent coarse and very coarse sand. The mean annual precipitation is about four inches and the mean annual air temperature is about 72°F. Their slope ranges from 0 to 30 percent and have rapid permeability with negligible to low runoff.

4.1.2.4 Vint Series

The Vint series consists of very deep, somewhat excessively drained soils formed in stratified stream alluvium. These soils are on flood plains with a mean annual precipitation is about seven inches and the mean annual air temperature is about 71°F. These soils have moderately rapid permeability and very slow runoff.

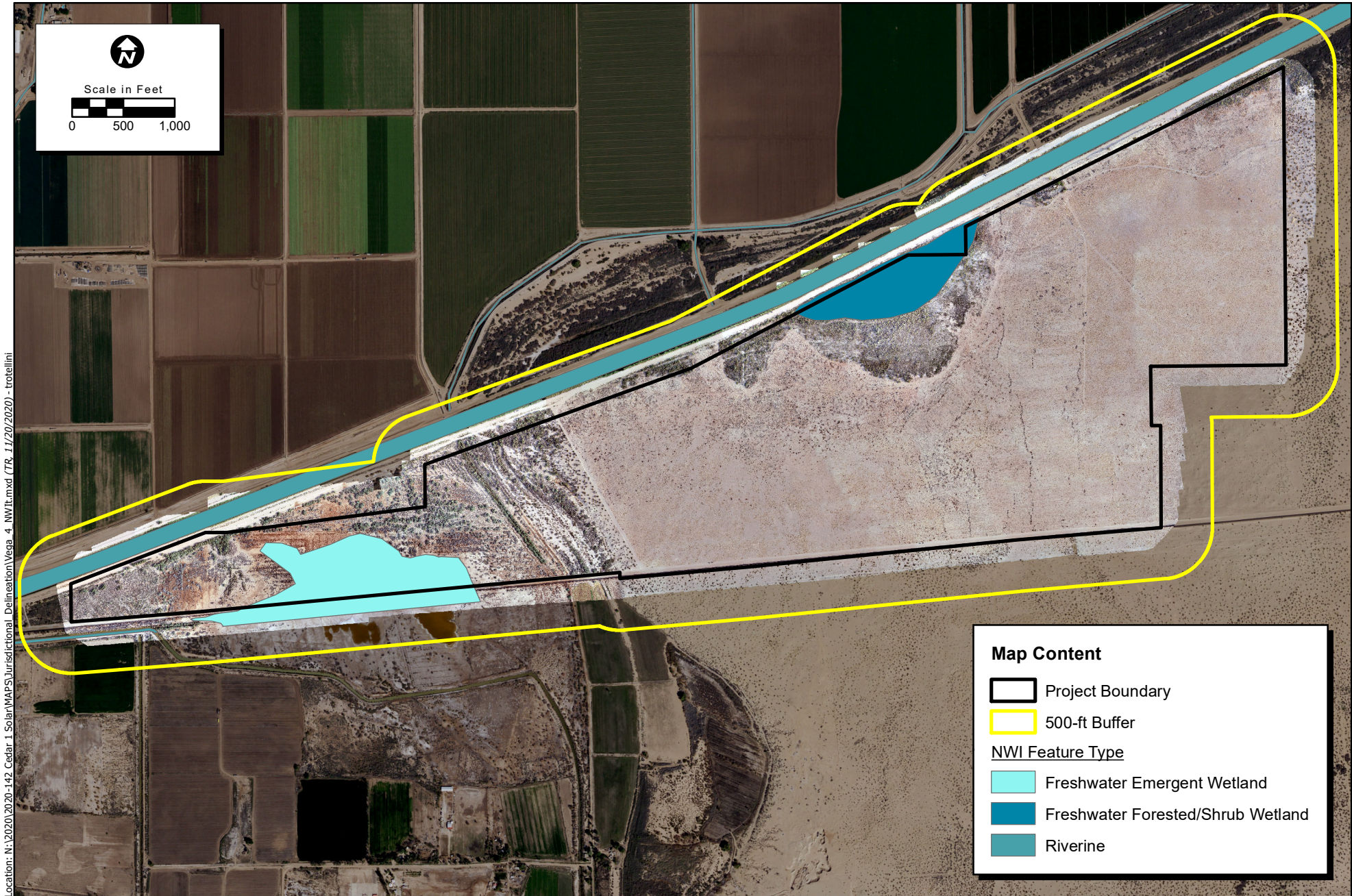
4.1.3 National Wetland Inventory

According to the National Wetlands Inventory (NWI, USFWS 2020a), there are two features mapped within the Project area (Figure 3. *National Wetlands Inventory*). Both features correspond to Palustrine (mapped). One additional riverine feature is mapped within the buffer area.

4.1.4 Hydrology

The Study Area is within the Salton Sea watershed, Hydrologic Unit Code 18100204. The Study Area is downslope of the All-American Canal, which brings water from the Colorado River at the Imperial Dam, and then supplies it to the Imperial Valley through smaller lateral canals, all of which ultimately drain to the Salton Sea. The Salton Sea is a traditional navigable water per Section 404 of the CWA.

Runoff from adjacent agricultural land collects and is concentrated in the Study Area. Runoff within the Study Area generally flows south from the direction of the All-American Canal, toward the U.S.-Mexico border, and eventually drains into a playa at the south end of the site. Manmade berms running north-south line ephemeral drainages present throughout the western portion of the site. The All-American Canal and groundwater likely feed the drainages and wetlands present onsite. This historical system dates back as early as 1953 (Nationwide Environmental Title Research Online [NETROnline] 2020) and is possibly remnant of a historic lakebed belonging to Lake Cahuilla.



Location: N:\2020\2020-142_Cedar_1_Solar\MAPS\Jurisdictional_Delineation\Vega_4_NWI.r.mxd (TR_11/20/2020) - trotellini

Map Date: 11/20/2020
 Photo Source: NAIP (2018), ECRP UAS Imagery (2020)

Figure 3. National Wetlands Inventory

INFO ITEM ONLY 2020-142 Vega SES 4

4.2 Aquatic Resources

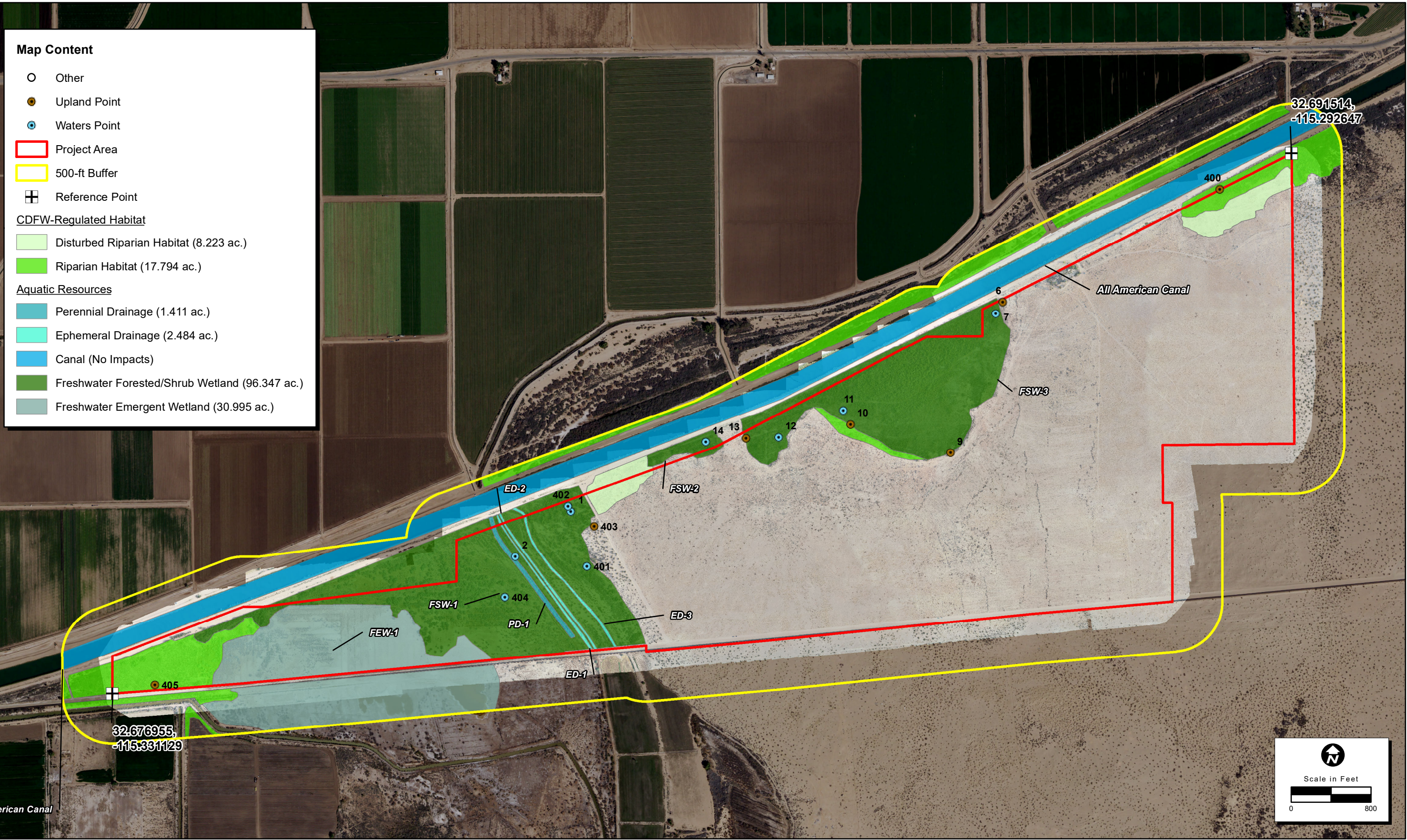
A total of 131.237 acres of aquatic resources have been mapped within the Project area (Table 2). Aquatic resources are summarized by feature in Table 3 and depicted on Figure 4. *Aquatic Resources Delineation*. These results are subject to agency verification.

Type	Acreage¹
Wetlands	
Freshwater Forested/Shrub Wetland	96.347
Freshwater Emergent Wetland (Seasonally Flooded)	30.995
Other Waters	
Ephemeral Drainage	2.484
Perennial Drainage	1.411
Total	131.237

¹Acreages represent a calculated estimation and are subject to modification following the USACE verification process.

Features identified as an aquatic resource had wetland indicators present and/or physical evidence of flow including OHWM, defined bed and bank, presence of a clear and natural line impressed on the bank, the presence or absence of sediment deposits, litter/debris, and/or exposed roots indicating active hydrology within the channel. Associated riparian habitat identified within the Project area consisted of hydrophytic vegetation and hydrological indicators but lacked hydric soil indicators. The OHWM and wetland determination data forms are included as Attachment B, representative site photographs are included as Attachment C, and the USACE OMBIL Regulatory Module (ORM) aquatic resources table is included as Attachment D.

Location: N:\12020\2020-142_Cedar_1 Solar\MAPS\Jurisdictional_Delineation\Vega_4_Potential_JD.mxd (TR)-hrotellini_12/4/2020



Map Date: 12/4/2020
Photo Source: NAIP (2018), ECORP UAS Imagery (2020)



Figure 4. Aquatic Resources Delineation

2020-142 Vega SES 4

INFO ITEM ONLY

Table 3. Aquatic Resources within the Project Area						
Resource Name ⁺	Aquatic Resources Classification		OHWM/Wetland Presence Summary	Dominant Vegetation	Resource Size (acre)	Resource Size (linear feet)
	Cowardin ⁺⁺	Location (latitude, longitude)				
ED-1	R6	32.67954541, -115.31681051	Runoff and precipitation; OHWM indicators: defined bed and bank and vegetation matted down, bent, or absent.	Tamarisk Thickets	0.787	3,128.063
ED-2	R6	32.67977819, -115.31686094	Runoff and precipitation; OHWM indicators: defined bed and bank and vegetation matted down, bent, or absent.	Tamarisk Thickets	0.808	3,167.694
ED-3	R6	32.67983223, -115.31627266	Runoff and precipitation; OHWM indicators: defined bed and bank.	Tamarisk Thickets	0.889	3,284.025
FEW-1	PEM1C	32.67823370, -115.32395319	Wetland criteria met: hydric soil indicators and hydrological indicators present.	Alkali Weed – Salt Grass Playas and Sinks	30.995	N/A
FSW-1	PSS1C	32.67960789, -115.31829880	Wetland criteria met: hydrophytic vegetation present, hydric soils present, and hydrological indicators present.	Arrow Weed Thickets	55.632	N/A
FSW-2	PSS1C	32.68345488, -115.31168036	Wetland criteria met: hydrophytic vegetation present, hydric soils present, and hydrological indicators present.	Tamarisk Thickets	0.372	N/A
FSW-3	PSS1C	32.68496608, -115.30521625	Wetland criteria met: hydrophytic vegetation present, hydric soils present, and hydrological indicators present.	Tamarisk Thickets	40.344	N/A
PD-1	R2AB3H	32.67989722, -115.31746236	Wetland criteria met within the channel with OHWM indicators; bisects wetland riparian habitat.	Tamarisk Thickets	1.411	2,817.308
Total:					131.238	12,397.091

+ED= Ephemeral Drainage, FEW= Freshwater Emergent Wetland, FSW= Freshwater Forested/Shrub Wetland, PD= Perennial Drainage.

++ Cowardin Codes: (R6) Riverine, ephemeral; (PEM1C) Freshwater Emergent Wetland; (PSS1C) Freshwater Forested/Shrub Wetland; (R2AB3H) Riverine, lower perennial, aquatic bed, rooted vascular (USFWS 2020b).

4.2.1 Wetlands

4.2.1.1 Freshwater Forested/Shrub Wetland

Freshwater forested/shrub wetlands (FSW) are dominated by woody vegetation such as true shrubs, young trees (saplings), and trees or shrubs that are stunted due to environmental conditions. They are seasonally flooded: therefore, surface water is present for extended periods, particularly in the early growing season, but is absent by the end of the growing season in most years. The water table can be variable after a flooding event, and ranges from saturation at the ground surface to a water table well

below the ground surface (USFWS 2020a). There are three FSW within the Project area (FSW-1, FSW-2, and FSW-3; Figure 4).

Sampling Points 1, 2, 401, 402, and 404 were collected in the freshwater forested/shrub wetland in the western portion of the Project area (FSW-1). Sampling Point 403 was collected outside the limits of FSW-1. At Sampling Point 402, plant species observed included tamarisk, willow baccharis, and arrow weed. The soil matrix color at a depth of 0 to 3 inches was 10YR 2/1 with no redox features; and at a depth of 3 to 13 inches the soil matrix color was 10YR 4/4 with 5 percent redox concentrations colored 5YR 5/8 and 1 percent concentrations colored Gley 1 2.5/N. Soils were determined to be hydric based on the presence of hydric soil indicators depleted below dark surface (A11) and redox depressions (F8). Wetland hydrology indicators observed at Sampling Point 402 included saturation (A3), drift deposits (B3), and oxidized rhizospheres along living roots (C3).

Sampling Point 14 was collected in the freshwater forested/shrub wetland in the northwestern portion of the Project area (FSW-2). Plant species observed within the wetland included tamarisk, arrow weed, and screwbean mesquite. The soil matrix color at a depth of 0 to 6 inches was 7.5YR 4/4 with 5 percent redox concentrations colored 5YR 4/6; and at a depth of 6 to 14 inches the matrix color was 10YR 5/3 with 8 percent redox concentrations colored 5YR 4/6. Soils were determined to be hydric based on the presence hydric soil indicator redox depressions (F8). Wetland hydrology indicators observed at Sampling Point 14 included sediment deposits (B2), drift deposits (B3), and water-stained leaves (B9).

Sampling Points 7, 11, and 12 were collected in the FSW in the northeastern portion of the Project area (FSW-3). Sampling Points 6, 9, 10, and 13 were collected outside the limits of FSW-3. At Sampling Point 7, plant species observed within the wetland included willow baccharis, arrow weed, and cattail. The soil matrix color at a depth of 0 to 6 inches was 10YR 5/3 with 8 percent redox concentrations colored 7.5YR 5/8; at a depth of 6 to 13 inches the matrix color was 10YR 6/2 with no redox features. Soils were determined to be hydric based on the presence hydric soil indicator redox depressions (F8). Wetland hydrology indicators observed at Sampling Point 7 included saturation (A3) and water-stained leaves (B9).

4.2.1.2 Freshwater Emergent Wetland, Seasonally Flooded

Freshwater emergent wetlands (FEW) that are typically dominated by perennial plants and are characterized by erect, rooted, herbaceous hydrophytes. It is seasonally flooded and therefore surface water is present for extended periods, particularly in the early growing season, but is absent by the end of the growing season in most years. The water table can be variable after a flooding event, and ranges from saturation at the ground surface to a water table well below the ground surface (USFWS 2020a). There is one freshwater emergent wetland along the southwest boundary of the Project area, extending across the U.S.-Mexico border (FEW-1).

The FEW was primarily unvegetated at the time of the surveys; only remnant shrub skeletons remained. This historic playa receives its water from the All-American canal, groundwater, and runoff that drains through the drainages and wetlands onsite.

4.2.2 Other Aquatic Resources

4.2.2.1 Perennial Drainage

Perennial drainages (PD) are linear features that exhibit a bed and bank and an OHWM. These features typically contain surface water flowing continuously year-round. OHWM indicators observed for the perennial drainage (PD-1) that occurs within the western portion of the Project area included defined bed and bank, change in vegetation species, change in vegetation cover, and natural line impressed in bank. The existing hydrology of PD-1 supports emergent wetland habitat within the channel.

Sampling Point 2 was collected within the emergent wetland in the bed of PD-1. At Sampling Point 2, plant species observed within the drainage included tamarisk and cattail. The soil matrix color at a depth of 0 to 1 inches was 10YR 2/2 with no redox features; at a depth of 1 to 6 inches the matrix color was 10YR 6/2 with 5 percent redox features colored 5YR 5/8 and 3 percent iron-manganese masses colored Gley 1, 2.5/N; and at a depth of 6 to 13 inches the matrix color was 70 percent Gley 1, 5/N and 30 percent Gley 1, 4/N with no redox features. Soils were determined to be hydric based on the presence of hydric soil indicators hydrogen sulfide (A4), loamy gleyed matrix (F2), and redox depressions (F8). Wetland hydrology indicators observed at Sampling Point 2 included surface water (A1), high water table (A2), saturation (A3), and hydrogen sulfide odor (C1).

4.2.2.2 Ephemeral Drainage

Ephemeral drainages (ED) are linear features that exhibit a bed and bank and an OHWM. These features typically convey runoff for short periods of time, during and immediately following rain events, and are not influenced by groundwater sources at any time during the year. The Project area contains three ephemeral drainages within the western portion of the site (ED-1, ED-2, and ED-3). These manmade drainages convey flow through the Project area and into FEW-1.

4.2.3 Associated Habitat

4.2.3.1 Riparian Habitat

Both riparian habitat and disturbed riparian habitat are present within the Project area. They are associated with the floodplain adjacent to the wetlands and drainages throughout the site. Topographically, these areas sit within a low point. Riparian habitat within the Project area contains hydrophytic vegetation and hydrological indicators but lack hydric soil indicators, whereas disturbed riparian habitat is riparian habitat that has been previously altered. A total of 17.794 acres of riparian habitat and 8.223 acres of disturbed riparian habitat exists within the Project area.

Sampling Point 405 was collected within the riparian habitat located in the western portion of the Project area. Plant species observed included tamarisk and arrow weed. The soil matrix color at a depth of 0 to 2 inches was 92 percent 10YR 4/3 and 5 percent Gley 1, 2.5/N with 3 percent redox features colored White, 7.5YR/9.5; at 2 to 5 inches the soil matrix color was 7.5YR 4/4 with 17 percent redox features colored White, 9.5/N and 2 percent redox features colored 2.5YR 5/8; and at a depth of 5 to 13 inches the soil matrix color was 7.5YR 4/4 with 4 percent redox features colored 2.5YR 4/6. Hydric soil indicators were

determined to be absent at this sampling point. Wetland hydrology indicators observed at Sampling Point 405 included surface soil cracks (B6), saturation visible on aerial imagery (C9), and FAC-neutral test (D5).

Sampling Point 10 was collected in the riparian habitat located along FSW-3 within the northern portion of the Project area. Plant species observed included tamarisk, arrow weed, and alkali goldenbush. The soil matrix color at a depth of 0 to 13 inches was 7.5YR 4/4 with no redox features. Hydric soil indicators were determined to be absent at this sampling point. Wetland hydrology indicators observed at Sampling Point 10 included sediment deposits (B2) and water-stained leaves (B9).

Sampling Point 400 was collected in the riparian habitat located within the northeastern portion of the Project area. Plant species observed included tamarisk, arrow weed, and cattail. The soil matrix color at a depth of 0 to 3 inches was 7.5YR 4/3 with 20 percent redox concentrations colored 10YR 7/4; at 3 to 5 inches the soil matrix color was Gley 1, 2.5/N with 10 percent redox features colored Gley 1, 6/10Y; at a depth of 5 to 7 inches the sandy clay matrix color was 10YR 4/1 with no redox features; at a depth of 7 to 13 inches the loamy sand matrix color was 10YR 4/1 with no redox features. Hydric soil indicators were determined to be absent at this sampling point. Wetland hydrology indicators observed at Sampling Point 400 included high water table (A2), saturation (A3), and water marks (B1).

5.0 JURISDICTIONAL ASSESSMENT

According to Regulatory Guidance Letter 16-01, an applicant may request a Preliminary Jurisdictional Delineation (PJD) "in order to move ahead expeditiously to obtain a Corps permit authorization where the requestor determines that it is in his or her best interest to do so ... even where initial indications are that the aquatic resources on a parcel may not be jurisdictional" (USACE 2016). A significant nexus evaluation is not necessary to obtain a PJD. The following information on connectivity of wetlands and other waters in the Project area to traditional navigable waters (TNW) is provided should an Approved Jurisdictional Determination be necessary.

The perennial drainages within the Project area appear to directly or indirectly (via sheet and/or subsurface flow) connect to adjacent wetlands onsite and the All-American Canal. The All-American Canal brings water from the Colorado River at the Imperial Dam and supplies it to the Imperial Valley through smaller lateral canals, all of which ultimately drain to the Salton Sea. The Salton Sea is considered TNW. Therefore, the wetlands and perennial drainage within the Project area would likely be subject to regulation under Section 404 of the CWA. The ephemeral drainages are not likely to be regulated by the USACE; ultimately, the jurisdictional determination will be made by the USACE. Regardless of federal jurisdiction, all aquatic resources delineated on site, including the ephemeral drainages and associated riparian habitat, are subject to CDFW and/or RWQCB jurisdiction.

6.0 CONCLUSION

ECORP's mapping and characterization efforts in the defined Study Area are depicted on Figure 4. Acreages shown in Tables 2 and 3 represent calculated estimates of the extent of aquatic resources within the Project area and are subject to modification following USACE review and/or the verification process. Impacts to aquatic features may require permits from several regulatory agencies pursuant to federal and state laws. Wetlands and perennial drainages connected to navigable waters would require a permit

pursuant to Section 404 of the CWA (USACE), certification compliance with Section 401 of the CWA (USACE) and the Porter-Cologne Act (RWQCB), and an agreement pursuant to California Fish and Game Code Sections 1600 and 1602 (CDFW). Ephemeral drainages are only subject to state and local jurisdiction, and associated riparian habitat are subject to an agreement pursuant to California Fish and Game Code Sections 1600 and 1602 (CDFW).

7.0 REFERENCES

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LIST OF ATTACHMENTS

Attachment A – Driving Directions to Study Area

Attachment B – OHWM and Wetland Determination Data Forms - Arid West

Attachment C – Representative Site Photographs

Attachment D – USACE ORM Aquatic Resources Table

Attachment E – Digital Data

ATTACHMENT A

Driving Directions to Study Area



San Diego, CA 92108 to Imperial County, California 92250

Drive 130 miles, 1 hr 55 min

Destination Coordinates: 32.696750,-115.283528

Mission Valley East

San Diego, CA 92108

Get on I-8 E

- 2 min (0.9 mi)
1. Head south on Qualcomm Way toward San Diego River Bikeway
 2. Use the right lane to take the ramp onto I-8 E

Follow I-8 E to CA-7 in Imperial County. Take exit 125 from I-8 E

- 1 hr 47 min (119 mi)
3. Merge onto I-8 E
 4. Keep left to stay on I-8 E
 5. Take exit 125 for State Route 7 S/Orchard Rd
 6. Keep right at the fork, follow signs for CA-7 S and merge onto CA-7

Follow CA-7 and CA-98 E to your destination

- 11 min (10.8 mi)
7. Merge onto CA-7
 8. Turn left onto CA-98 E
 9. Turn right
 - Destination will be on the left
- 305 ft

Imperial County

California 92250

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

OHWM and Wetland Determination Data Forms – Arid West Region

Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: Vega SES 4 Project Number: 2020-142 Stream: PD-1 Investigator(s): C. Torres	Date: 11/05/2020 Town: Holtville Photo begin file#:	Time: 0900-1030 State: CA Photo end file#:
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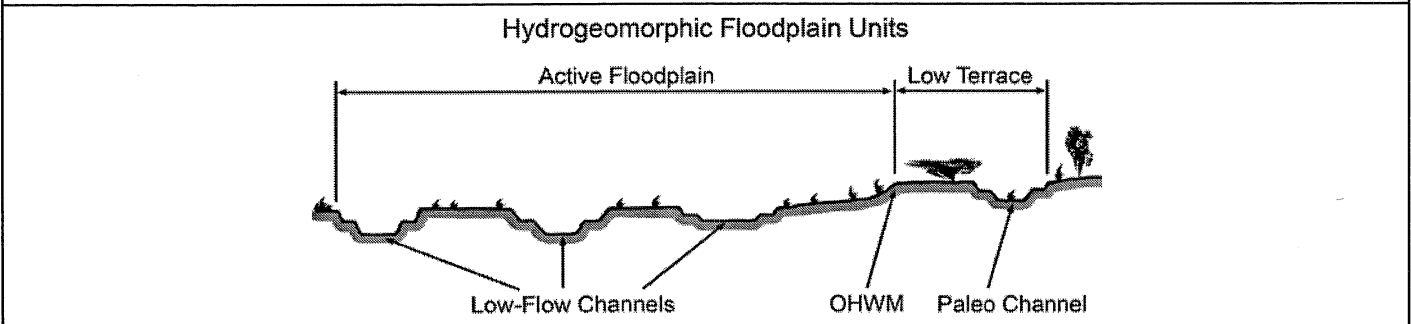
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: South of Salton Sea, directly south of All-American Canal and north of US -Mexico border. Projection: Datum: NAD83 Coordinates:
--	--

Potential anthropogenic influences on the channel system:
 Site priorly used for agriculture and has been previously disturbed/alterd. Runoff from adjacent agricultural land collects and is concentrated in the Study Area. Manmade berms line the drainages. Drainage system within a palustrine wetland in western portion of site.

Brief site description:
 The Study Area is downslope of the All-American Canal, which brings water from the Colorado River and likely feeds into the site. Runoff generally flows south from the direction of the All-American Canal and toward the U.S.-Mexico border

Checklist of resources (if available):

<input checked="" type="checkbox"/> Aerial photography Dates: 1953, 1996-2016 (historic aeriels); 11/2020 (sUAS imagery) <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input checked="" type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
--	---



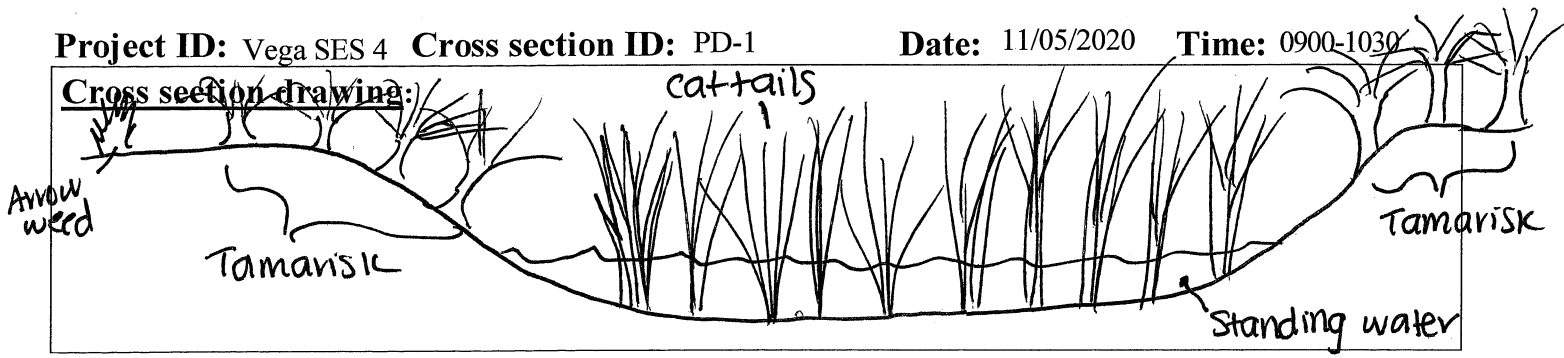
- Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M:**
1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
 2. Select a representative cross section across the channel.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

<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS
<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:

Project ID: Vega SES 4 Cross section ID: PD-1

Date: 11/05/2020

Time: 0900-1030



OHWM

GPS point: 32.680595, -115.318096

Indicators:

- | | |
|--|--|
| <input type="checkbox"/> Change in average sediment texture | <input checked="" type="checkbox"/> Break in bank slope |
| <input checked="" type="checkbox"/> Change in vegetation species | <input checked="" type="checkbox"/> Other: <u>Natural line</u> |
| <input checked="" type="checkbox"/> Change in vegetation cover | <input type="checkbox"/> Other: _____ |

Comments:

Emergent wetland present within bed of drainage, and standing water present. Vegetation included cattail and tamarisk.

Floodplain unit: Low-Flow Channel Active Floodplain Low Terrace

GPS point: 32.680595, -115.318096

Characteristics of the floodplain unit:

Average sediment texture: Coarse silt

Total veg cover: 70 % Tree: 5 % Shrub: 65 % Herb: 0 %

Community successional stage:

- | | |
|---|---|
| <input type="checkbox"/> NA | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings) |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input checked="" type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

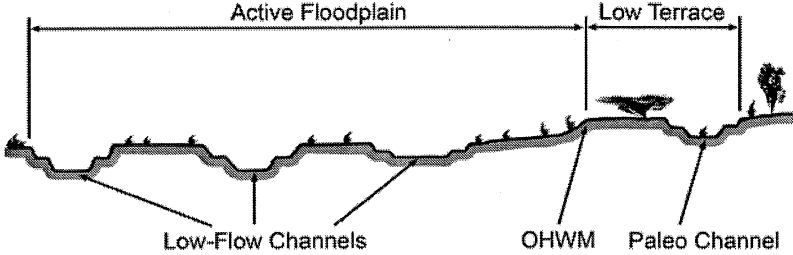
Indicators:

- | | |
|--|--|
| <input type="checkbox"/> Mudcracks | <input checked="" type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples | <input type="checkbox"/> Surface relief |
| <input type="checkbox"/> Drift and/or debris | <input type="checkbox"/> Other: _____ |
| <input checked="" type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____ |
| <input checked="" type="checkbox"/> Benches | <input type="checkbox"/> Other: _____ |

Comments:

Standing water present; one drainage directly adjacent to the east.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

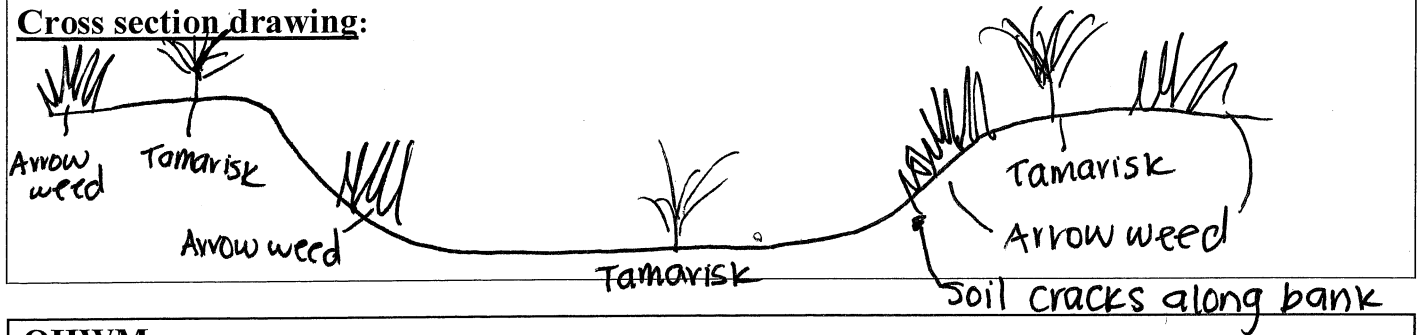
Project: Vega SES 4 Project Number: 2020-142 Stream: ED-1 Investigator(s): C. Torres, J. Kendrick	Date: 11/05/2020 Town: Holtville Photo begin file#: Time: 0900-1030 State: CA Photo end file#:
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: South of Salton Sea, directly south of All-American Canal and north of US -Mexico border Projection: Datum: NAD83 Coordinates:
Potential anthropogenic influences on the channel system: Site priorly used for agriculture and has been previously disturbed/alterd. Runoff from adjacent agricultural land collects and is concentrated in the Study Area. Manmade berms line the drainages. Drainage system within a palustrine wetland in western portion of site.	
Brief site description: The Study Area is downslope of the All-American Canal, which brings water from the Colorado River and likely feeds into the site. Runoff generally flows south from the direction of the All-American Canal and toward the U.S.-Mexico border	
Checklist of resources (if available): <input checked="" type="checkbox"/> Aerial photography Dates: 1953, 1996-2016 (historic aerials); 11/2020 (sUAS imagery) <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input checked="" type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event	
Hydrogeomorphic Floodplain Units 	
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW: 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW and record the indicators. Record the OHW position via: <input type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Digitized on computer <input type="checkbox"/> Other:	

Project ID: Vega SES 4 Cross section ID: ED-1

Date: 11/05/2020

Time: 0900-1030

Cross section drawing:



OHW

GPS point: 32.680267, -115.317448

Indicators:

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

Comments:

Vegetated channel adjacent to a perennial drainage (with emergent wetland in the bed of the channel) to the west and one ephemeral drainage to the east. Vegetation within channel consists of arrow weed and tamarisk. Man-made berms line the channel.

Floodplain unit: Low-Flow Channel Active Floodplain Low Terrace

GPS point: 32.680267, -115.317448

Characteristics of the floodplain unit:

Average sediment texture: Medium sand/sand

Total veg cover: 55 % Tree: 20 % Shrub: 35 % Herb: 0 %

Community successional stage:

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

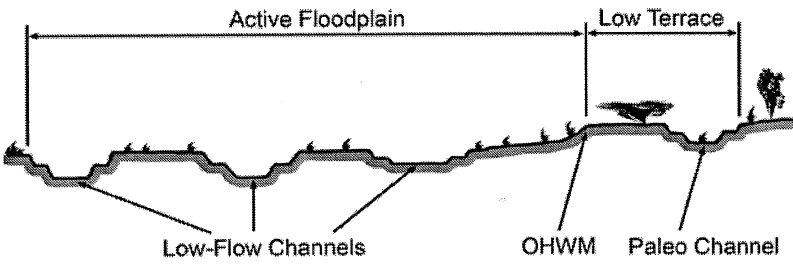
Indicators:

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

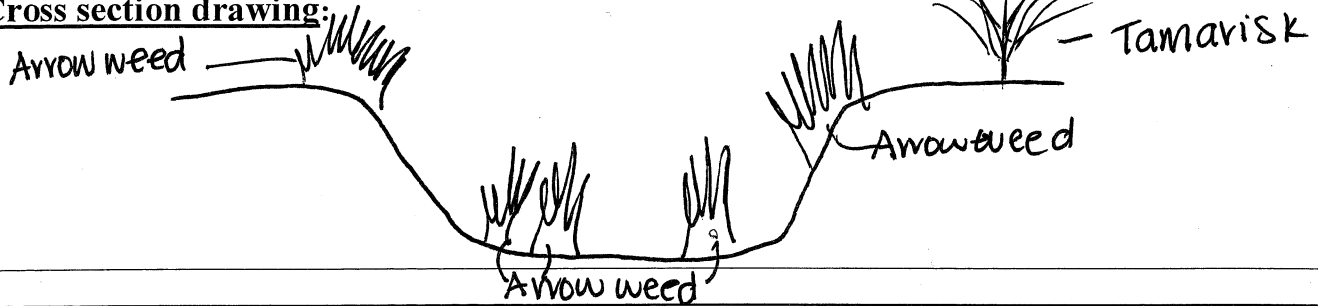
Comments:

Salt crust present, but likely from adjacent agricultural run-off. Water seems to flood over bank of channel to adjacent channels/wetland.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Vega SES 4 Project Number: 2020-142 Stream: ED-2 Investigator(s): C. Torres, J. Kendrick	Date: 11/5/2020 Town: Holtville Photo begin file#:	Time: 0900-1030 State: CA Photo end file#:				
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site?	Location Details: South of Salton Sea, directly south of All-American Canal and adjacent to US -Mexico border					
Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Projection: Datum: NAD83 Coordinates:					
Potential anthropogenic influences on the channel system: Site priorly used for agriculture and has been previously disturbed/alterd. Runoff from adjacent agricultural land collects and is concentrated in the Study Area. Manmade berms line the drainages. Drainage system within a palustrine wetland in western portion of site.						
Brief site description: The Study Area is downslope of the All-American Canal, which brings water from the Colorado River and likely feeds into the site. Runoff generally flows south from the direction of the All-American Canal and toward the U.S.-Mexico border						
Checklist of resources (if available): <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Aerial photography Dates: 1953, 1996-2016 (historic aerials); 11/2020 (sUAS imagery) <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input checked="" type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </td> </tr> </table>			<input checked="" type="checkbox"/> Aerial photography Dates: 1953, 1996-2016 (historic aerials); 11/2020 (sUAS imagery) <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input checked="" type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event		
<input checked="" type="checkbox"/> Aerial photography Dates: 1953, 1996-2016 (historic aerials); 11/2020 (sUAS imagery) <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input checked="" type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event					
Hydrogeomorphic Floodplain Units 						
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplains across the cross section. 5. Identify the OHWM and record the indicators. Record the OHWM position via: <table style="width: 100%; border: none; margin-top: 5px;"> <tr> <td style="width: 50%;"><input type="checkbox"/> Mapping on aerial photograph</td> <td style="width: 50%;"><input checked="" type="checkbox"/> GPS</td> </tr> <tr> <td><input type="checkbox"/> Digitized on computer</td> <td><input type="checkbox"/> Other:</td> </tr> </table> 			<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS	<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:
<input type="checkbox"/> Mapping on aerial photograph	<input checked="" type="checkbox"/> GPS					
<input type="checkbox"/> Digitized on computer	<input type="checkbox"/> Other:					

Cross section drawing:



OHWM

GPS point: 32.680418, -115.317431

Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Change in average sediment texture | <input checked="" type="checkbox"/> Break in bank slope |
| <input type="checkbox"/> Change in vegetation species | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Change in vegetation cover | <input type="checkbox"/> Other: _____ |

Comments:

Vegetated channel adjacent to one channel to the east and one channel to the west. Vegetation consists of tamarisk and arrow weed. Man-made berms line the channel.

Floodplain unit:

- Low-Flow Channel Active Floodplain Low Terrace

GPS point: 32.680418, -115.317431

Characteristics of the floodplain unit:

Average sediment texture: Medium sand/sand

Total veg cover: 70 % Tree: 10 % Shrub: 60 % Herb: 0 %

Community successional stage:

- | | |
|---|---|
| <input type="checkbox"/> NA | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings) |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input checked="" type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

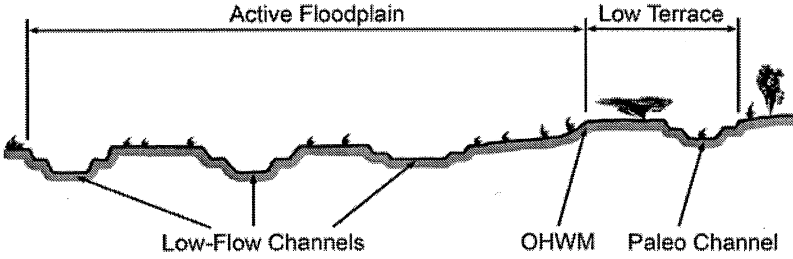
Indicators:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Mudcracks | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples | <input type="checkbox"/> Surface relief |
| <input type="checkbox"/> Drift and/or debris | <input type="checkbox"/> Other: _____ |
| <input checked="" type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Benches | <input type="checkbox"/> Other: _____ |

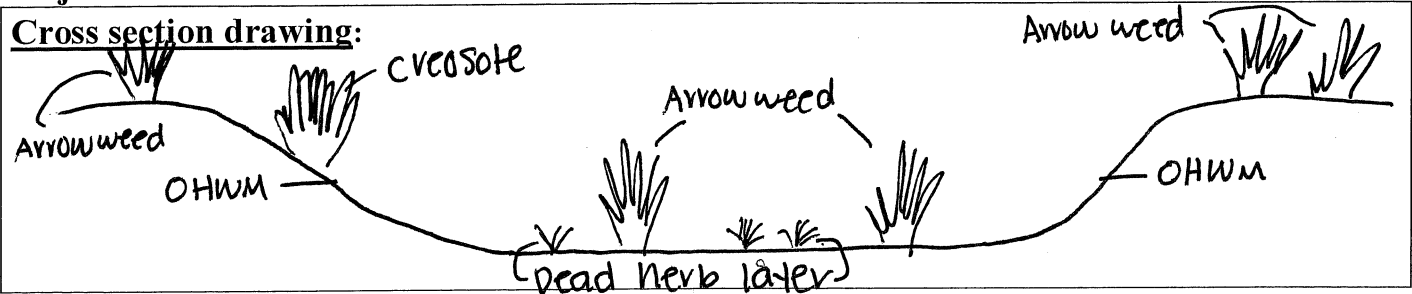
Comments:

Salt crust present, but likely from adjacent agricultural run-off. Water seems to flood over bank of channel to adjacent channels/wetland.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Vega SES 4 Project Number: 2020-142 Stream: ED-3 Investigator(s): C. Torres, J. Kendrick	Date: 11/05/2020 Town: Holtville Photo begin file#: Time: 0900-1030 State: CA Photo end file#:
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: South of Salton Sea, directly south of All-American Canal and north of US -Mexico border Projection: Datum: NAD83 Coordinates:
Potential anthropogenic influences on the channel system: Site priorly used for agriculture and has been previously disturbed/alterd. Runoff from adjacent agricultural land collects and is concentrated in the Study Area. Manmade berms line the drainages. Drainage system within a palustrine wetland in western portion of site.	
Brief site description: The Study Area is downslope of the All-American Canal, which brings water from the Colorado River and likely feeds into the site. Runoff generally flows south from the direction of the All-American Canal and toward the U.S.-Mexico border	
Checklist of resources (if available): <input checked="" type="checkbox"/> Aerial photography Dates: 1953, 1996-2016 (historic aeriels); 11/2020 (sUAS imagery) <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input checked="" type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event	
Hydrogeomorphic Floodplain Units 	
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW: 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW and record the indicators. Record the OHW position via: <input type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Digitized on computer <input type="checkbox"/> Other:	

Cross section drawing:



OHWM

GPS point: 32.680503, -115.317320

Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Change in average sediment texture | <input checked="" type="checkbox"/> Break in bank slope |
| <input type="checkbox"/> Change in vegetation species | <input type="checkbox"/> Other: _____ |
| <input checked="" type="checkbox"/> Change in vegetation cover | <input type="checkbox"/> Other: _____ |

Comments:

Vegetated channel adjacent to another channel to the west. Vegetation consists of arrow weed within the channel. OHWM was slight.

Floodplain unit: Low-Flow Channel Active Floodplain Low Terrace

GPS point: 32.680503, -115.317320

Characteristics of the floodplain unit:

Average sediment texture: Medium sand/sand

Total veg cover: 35 % Tree: 0 % Shrub: 18 % Herb: 17 %

Community successional stage:

- | | |
|---|---|
| <input type="checkbox"/> NA | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings) |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input checked="" type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

Indicators:

- | | |
|--|--|
| <input type="checkbox"/> Mudcracks | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples | <input type="checkbox"/> Surface relief |
| <input type="checkbox"/> Drift and/or debris | <input checked="" type="checkbox"/> Other: <u>Change in vegetation cover</u> |
| <input checked="" type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Benches | <input type="checkbox"/> Other: _____ |

Comments:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vega SES 4 City/County: Holtville/ Imperial County Sampling Date: 11/4/2020
 Applicant/Owner: zGlobal, Inc. State: CA Sampling Point: 1
 Investigator(s): C. Congedo, C. Torres Section, Township, Range: S10, T17S, R16E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 10
 Subregion (LRR): D Lat: 32.6818662 Long: -115.3161832 Datum: NAD83
 Soil Map Unit Name: Rositas sand, 2 to 5 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Point taken within tamarisk thickets, downslope (south) of a hard-packed dirt road that runs parallel to the All-American Canal.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Tamarix sp.</u>	<u>5</u>		<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
	<u>5</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>30'</u>)				
1. <u>Pluchea sericea</u>	<u>20</u>	<u>x</u>	<u>FACW</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>22</u> x 2 = <u>44</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>27</u> (A) <u>59</u> (B) Prevalence Index = B/A = <u>2.19</u>
2. <u>Baccharis salicina</u>	<u>2</u>		<u>FACW</u>	
3. _____				
4. _____				
5. _____				
	<u>22</u>	= Total Cover		
Herb Stratum (Plot size: _____)				
1. _____				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>0</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>73</u> % Cover of Biotic Crust _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-0.2	10YR 4/3	100					Loam	Organic material
0.2-2	10YR 5/4	100					Loam	Clayey layer
2-5	10YR 4/4	95	5YR 5/6	5	C	PL, M	Sandy loam	
5-13+	10YR 5/4	97	2.5YR 5/6	3	C	PL	Sand	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input checked="" type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)
	<input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)

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

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:	Wetland Hydrology Present?
Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No _____ Depth (inches): 0	

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

Remarks:
Salt crust, but could be from agricultural run-off.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vega SES 4 City/County: Holtville/ Imperial County Sampling Date: 11/4/2020
 Applicant/Owner: zGlobal, Inc. State: CA Sampling Point: 2
 Investigator(s): C. Congedo, C. Torres Section, Township, Range: S10, T17S, R16E
 Landform (hillslope, terrace, etc.): Channel Local relief (concave, convex, none): Concave Slope (%): 25
 Subregion (LRR): D Lat: 32.680633 Long: -115.318002 Datum: NAD83
 Soil Map Unit Name: Vint loamy very fine sand, wet NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Point taken within emergent wetland in the bed of a drainage.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Tamarix sp.</u>	<u>5</u>		<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
	<u>5</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>10'</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>65</u> x 1 = <u>65</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>70</u> (A) <u>80</u> (B) Prevalence Index = B/A = <u>1.14</u>
1. <u>Typha sp.</u>	<u>65</u>	<u>x</u>	<u>OBL</u>	
2. _____				
3. _____				
4. _____				
5. _____				
	<u>65</u>	= Total Cover		
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>0</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>35</u> % Cover of Biotic Crust _____				
Remarks:				

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SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR 2/2	100						Organic material- muck (greasy)
1-6	10YR 6/2	92	Gley 1, 2.5/N	3	C	M	Loam	Iron manganese masses
1-6			5YR 5/8	5	C	PL, M		
6-13+	Gley 1, 5/N	70					Silty clay _h	
	Gley 1, 4/N	30					Silty clay _h	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 1 cm Muck (A9) (LRR C)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> 2 cm Muck (A10) (LRR B)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1)			<input type="checkbox"/> Reduced Vertic (F18)		
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)			<input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Stratified Layers (A5) (LRR C)			<input type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)			<input type="checkbox"/> Redox Dark Surface (F6)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Thick Dark Surface (A12)			<input checked="" type="checkbox"/> Redox Depressions (F8)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Vernal Pools (F9)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)								
Restrictive Layer (if present):						Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Type: _____ Depth (inches): _____								
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)	
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>3</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0</u>	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vega SES 4 City/County: Holtville/ Imperial County Sampling Date: 11/5/2020
 Applicant/Owner: zGlobal, Inc. State: CA Sampling Point: 6
 Investigator(s): C. Congedo, C. Torres Section, Township, Range: S11, T17S, R16E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 5
 Subregion (LRR): D Lat: 32.687512 Long: -115.302089 Datum: NAD83
 Soil Map Unit Name: Rositas fine sand, wet, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>5</u> (A) <u>10</u> (B) Prevalence Index = B/A = <u>2.0</u>
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Pluchea sericea</u>	<u>5</u>	<u>x</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>95</u>		% Cover of Biotic Crust _____		
Remarks:				

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

Hydrophytic Vegetation Present? Yes No

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-13	7.5YR 4/4	100					Sandy lo ^{am}	
13-14	10YR 7/3	85	2.5YR 4/8	5			Silty clay	
13-14	Gley 1, 3/N	10					Silty clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Vernal Pools (F9)	

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

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Water Marks (B1) (Riverine)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> Sediment Deposits (B2) (Riverine)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Drift Deposits (B3) (Riverine)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Shallow Aquitard (D3)
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Salt crust present from agricultural run-off.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vega SES 4 City/County: Holtville/ Imperial County Sampling Date: 11/5/2020
 Applicant/Owner: zGlobal, Inc. State: CA Sampling Point: 7
 Investigator(s): C. Congedo Section, Township, Range: S11, T17S, R16E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 5
 Subregion (LRR): D Lat: 32.687200 Long: -115.302318 Datum: NAD83
 Soil Map Unit Name: Rositas fine sand, wet, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Point taken within tamarisk thickets, downslope (south) of a hard-packed dirt road that runs parallel to the All-American Canal.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>8</u> x 1 = <u>8</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>18</u> (A) <u>28</u> (B) Prevalence Index = B/A = <u>1.56</u>
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Pluchea sericea</u>	<u>5</u>		<u>FACW</u>	
2. <u>Baccharis salicina</u>	<u>5</u>		<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>15'</u>)				
1. <u>Typha sp.</u>	<u>8</u>	<u>x</u>	<u>OBL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>82</u>		% Cover of Biotic Crust _____		
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)				
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 5/3	92	7.5YR 5/8	8	C	M, PL	Sandy loam	
6-13+	10YR 6/2	100					Sand	

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

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

Indicators for Problematic Hydric Soils³:

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

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

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

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Soil saturated throughout

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) | <input type="checkbox"/> Water Marks (B1) (Riverine) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) | <input type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) | <input type="checkbox"/> Drift Deposits (B3) (Riverine) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Shallow Aquitard (D3) |
| <input checked="" type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vega SES 4 City/County: Holtville/ Imperial County Sampling Date: 11/5/2020
 Applicant/Owner: zGlobal, Inc. State: CA Sampling Point: 9
 Investigator(s): C. Congedo Section, Township, Range: S11, T17S, R16E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 5
 Subregion (LRR): D Lat: 32.683380 Long: -115.303826 Datum: NAD83
 Soil Map Unit Name: Rositas fine sand, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Point taken within a slight depression in tamarisk thickets, ~1230 feet downslope (south) of a hard-packed dirt road that runs parallel to the All-American Canal.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Tamarix sp.</u>	<u>2</u>		<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
	<u>2</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Pluchea sericea</u>	<u>10</u>	<u>x</u>	<u>FACW</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>2</u> x 3 = <u>6</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>12</u> (A) <u>26</u> (B) Prevalence Index = B/A = <u>2.17</u>
2. _____				
3. _____				
4. _____				
5. _____				
Herb Stratum (Plot size: _____)				
1. _____				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>0</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>88</u> % Cover of Biotic Crust _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 9

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-13+	7.5YR 4/4	100					Loamy sand	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

Dry until about 7", then moist.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vega SES 4 City/County: Holtville/ Imperial County Sampling Date: 11/5/2020
 Applicant/Owner: zGlobal, Inc. State: CA Sampling Point: 10
 Investigator(s): C. Congedo Section, Township, Range: S11, T17S, R16E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 5
 Subregion (LRR): D Lat: 32.684182 Long: -115.307060 Datum: NAD83
 Soil Map Unit Name: Rositas fine sand, wet, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Point taken on the outskirts of a slight depression in tamarisk thickets, ~500 feet downslope (south) of a hard-packed dirt road that runs parallel to the All-American Canal.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Tamarix sp.</u>	<u>3</u>		<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
	<u>3</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>20'</u>)				
1. <u>Pluchea sericea</u>	<u>8</u>	<u>x</u>	<u>FACW</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>8</u> x 2 = <u>16</u> FAC species <u>3</u> x 3 = <u>9</u> FACU species <u>2</u> x 4 = <u>8</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>13</u> (A) <u>33</u> (B) Prevalence Index = B/A = <u>2.54</u>
2. <u>Isocoma acradenia</u>	<u>2</u>		<u>FACU</u>	
3. _____				
4. _____				
5. _____				
	<u>10</u>	= Total Cover		
Herb Stratum (Plot size: _____)				
1. _____				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>0</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>87</u> % Cover of Biotic Crust _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 10

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-13+	7.5YR 4/4	100					Loamy sand	

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

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

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

Moist 8" from surface.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (**Nonriverine**)
- Sediment Deposits (B2) (**Nonriverine**)
- Drift Deposits (B3) (**Nonriverine**)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

Secondary Indicators (2 or more required)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)
- Water Marks (B1) (**Riverine**)
- Sediment Deposits (B2) (**Riverine**)
- Drift Deposits (B3) (**Riverine**)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vega SES 4 City/County: Holtville/ Imperial County Sampling Date: 11/5/2020
 Applicant/Owner: zGlobal, Inc. State: CA Sampling Point: 11
 Investigator(s): C. Congedo Section, Township, Range: S11, T17S, R16E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 5
 Subregion (LRR): D Lat: 32.684568 Long: -115.307297 Datum: NAD83
 Soil Map Unit Name: Rositas fine sand, wet, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Point taken within a slight depression in tamarisk thickets, ~300 feet downslope (south) of a hard-packed dirt road that runs parallel to the All-American Canal.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>20'</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. <u>Tamarix sp.</u>	<u>2</u>		<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
2. _____					
3. _____					
4. _____					
	<u>2</u>	= Total Cover			
Sapling/Shrub Stratum (Plot size: <u>20'</u>)					
1. <u>Pluchea sericea</u>	<u>15</u>	<u>x</u>	<u>FACW</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>15</u> x 2 = <u>30</u> FAC species <u>7</u> x 3 = <u>21</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>22</u> (A) <u>51</u> (B) Prevalence Index = B/A = <u>2.32</u>	
2. <u>Tamarix sp.</u>	<u>5</u>		<u>FAC</u>		
3. _____					
4. _____					
5. _____					
	<u>20</u>	= Total Cover			
Herb Stratum (Plot size: _____)					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
	<u>0</u>	= Total Cover			
Woody Vine Stratum (Plot size: _____)					
1. _____					
2. _____					
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>78</u> % Cover of Biotic Crust _____					

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

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	Gley 1, 2.5/N	65	7.5YR 4/4	35			Loamy sand	
1-4	7.5YR 4/4	100					Loamy sand	
4-12	7.5YR 4/4	94	5Y 4/6	6	C	PL	Loam	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 1 cm Muck (A9) (LRR C)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> 2 cm Muck (A10) (LRR B)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1)			<input type="checkbox"/> Reduced Vertic (F18)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Stratified Layers (A5) (LRR C)			<input type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)			<input type="checkbox"/> Redox Dark Surface (F6)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Thick Dark Surface (A12)			<input checked="" type="checkbox"/> Redox Depressions (F8)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Vernal Pools (F9)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)								
Restrictive Layer (if present):						Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Type: _____								
Depth (inches): _____								
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		
Moist soils from 3" down.		

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vega SES 4 City/County: Holtville/ Imperial County Sampling Date: 11/5/2020
 Applicant/Owner: zGlobal, Inc. State: CA Sampling Point: 12
 Investigator(s): C. Congedo Section, Township, Range: S11, T17S, R16E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3
 Subregion (LRR): D Lat: 32.683847 Long: -115.309409 Datum: NAD83
 Soil Map Unit Name: Rositas fine sand, wet, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Point taken within a slight depression in tamarisk thickets, ~300 feet downslope (south) of a hard-packed dirt road that runs parallel to the All-American Canal.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>20'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Tamarix sp.</u>	<u>5</u>		<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
	<u>5</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)				
1. <u>Tamarix sp.</u>	<u>2</u>		<u>FAC</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>15</u> x 2 = <u>30</u> FAC species <u>7</u> x 3 = <u>21</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>22</u> (A) <u>51</u> (B) Prevalence Index = B/A = <u>2.32</u>
2. <u>Pluchea sericea</u>	<u>15</u>	<u>x</u>	<u>FACW</u>	
3. _____				
4. _____				
5. _____				
	<u>17</u>	= Total Cover		
Herb Stratum (Plot size: _____)				
1. _____				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>0</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>78</u> % Cover of Biotic Crust _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 12

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	Gley 1, 5/N	70					Loamy sand	
0-1	7.5YR 4/4	30					Loamy sand	
1-3	7.5YR 4/4	97	Gley 1, 5/N	3	C	M	Loamy sand	
3-12	7.5YR 4/4	95	7.5YR 5/8	5	C	M	Loamy sand	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR C)**
- 1 cm Muck (A9) **(LRR D)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) **(Nonriverine)**
- Sediment Deposits (B2) **(Nonriverine)**
- Drift Deposits (B3) **(Nonriverine)**
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

Moist at 7" deep.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vega SES 4 City/County: Holtville/ Imperial County Sampling Date: 11/5/2020
 Applicant/Owner: zGlobal, Inc. State: CA Sampling Point: 13
 Investigator(s): C. Congedo Section, Township, Range: S10, T17S, R16E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3
 Subregion (LRR): D Lat: 32.683831 Long: -115.310470 Datum: NAD83
 Soil Map Unit Name: Rositas fine sand, wet, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Point taken on the outskirts of a slight depression in tamarisk thickets, ~200 feet downslope (south) of a hard-packed dirt road that runs parallel to the All-American Canal.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Tamarix sp.</u>	<u>2</u>		<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
	<u>2</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Isocoma acradenia</u>	<u>4</u>		<u>FACU</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>8</u> x 2 = <u>16</u> FAC species <u>2</u> x 3 = <u>6</u> FACU species <u>4</u> x 4 = <u>16</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>14</u> (A) <u>38</u> (B) Prevalence Index = B/A = <u>2.71</u>
2. <u>Pluchea sericea</u>	<u>8</u>	<u>x</u>	<u>FACW</u>	
3. _____				
4. _____				
5. _____				
	<u>12</u>	= Total Cover		
Herb Stratum (Plot size: _____)				
1. _____				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>0</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>86</u> % Cover of Biotic Crust _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	7.5YR 4/4	100					Loamy sand	
7-14	7.5YR 4/4	97	7.5YR 5/8	3	C	PL	Loamy sand	

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

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4) </p>	<p> <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9) </p>	<p>Indicators for Problematic Hydric Soils³:</p> <p> <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks) </p>
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³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

<p>Primary Indicators (minimum of one required; check all that apply)</p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input checked="" type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input checked="" type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) </p>	<p> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) </p>	<p>Secondary Indicators (2 or more required)</p> <p> <input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) </p>
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Field Observations:

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	<p>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____</p>
Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	

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

Remarks:

Soil moist at 7" depth.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vega SES 4 City/County: Holtville/ Imperial County Sampling Date: 11/5/2020
 Applicant/Owner: zGlobal, Inc. State: CA Sampling Point: 14
 Investigator(s): C. Congedo Section, Township, Range: S10, T17S, R16E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 3
 Subregion (LRR): D Lat: 32.683739 Long: -115.311776 Datum: NAD83
 Soil Map Unit Name: Rositas fine sand, wet, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Point taken within arrow weed thickets, ~90 feet downslope (south) of a hard-packed dirt road that runs parallel to the All-American Canal.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>20'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Prosopis pubescens</u>	<u>2</u>		<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. <u>Tamarix sp.</u>	<u>2</u>		<u>FAC</u>	
3. _____				
4. _____				
<u>4</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>15</u> x 2 = <u>30</u> FAC species <u>4</u> x 3 = <u>12</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>19</u> (A) <u>42</u> (B) Prevalence Index = B/A = <u>2.21</u>
Sapling/Shrub Stratum (Plot size: <u>20'</u>)				
1. <u>Pluchea sericea</u>	<u>15</u>	<u>x</u>	<u>FACW</u>	
2. _____				
3. _____				
4. _____				
5. _____				
<u>15</u> = Total Cover				
Herb Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
<u>0</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>81</u>		% Cover of Biotic Crust _____		
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)				
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

Remarks:

SOIL

Sampling Point: 14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	7.5YR 4/4	95	5YR 4/6	5	C	PL	loam	
6-14+	10YR 5/3	92	5YR 4/6	8	C	M, PL	Loamy sand	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

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

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:
Soil moist throughout; organic material in first 4 inches.

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input checked="" type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Remarks:
Soil moist.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vega SES 4 City/County: Holtville/ Imperial County Sampling Date: 11/12/2020
 Applicant/Owner: zGlobal, Inc. State: CA Sampling Point: 400
 Investigator(s): C. Congedo, C. Garcia, C. Torres Section, Township, Range: S11, T17S, R16E
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): 5
 Subregion (LRR): D Lat: 32.690557 Long: -115.294997 Datum: NAD83
 Soil Map Unit Name: Rositas fine sand, wet, 0 to 2 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Point taken within a previously disturbed riparian area, downslope (south) of a hard-packed dirt road that runs parallel to the All-American Canal. An adjacent graded road exists approximately 10 feet south of sample point.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Tamarix sp.</u>	<u>20</u>	<u>x</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>20</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Typha sp.</u>	<u>10</u>	<u>x</u>	<u>OBL</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>35</u> (A) <u>80</u> (B) Prevalence Index = B/A = <u>2.29</u>
2. <u>Pluchea sericea</u>	<u>5</u>	_____	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>15</u> = Total Cover				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>65</u> % Cover of Biotic Crust _____		Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		

Remarks:

SOIL

Sampling Point: 400

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	7.5YR 4/3	80	10YR 7/4	20	C	M	Loam	
3-5	Gley 1, 2.5/N	90	Gley 1, 6/10Y	10			Loam	
5-7	10YR 4/1	100					Sandy clay	
7-13	10YR 4/1	100					Loamy sand	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 1 cm Muck (A9) (LRR C)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> 2 cm Muck (A10) (LRR B)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1)			<input type="checkbox"/> Reduced Vertic (F18)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Stratified Layers (A5) (LRR C)			<input type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)			<input type="checkbox"/> Redox Dark Surface (F6)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Depressions (F8)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Vernal Pools (F9)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)								
Restrictive Layer (if present):						Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Type: _____ Depth (inches): _____								
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)	
<input checked="" type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>10</u>	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>1</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vega SES 4 City/County: Holtville/ Imperial County Sampling Date: 11/12/2020
 Applicant/Owner: zGlobal, Inc. State: CA Sampling Point: 401
 Investigator(s): C. Congedo, C. Garcia, C. Torres Section, Township, Range: S10, T17S, R16E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 10
 Subregion (LRR): D Lat: 32.680346 Long: -115.315672 Datum: NAD83
 Soil Map Unit Name: Vint loamy very fine sand, wet NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Point taken within tamarisk thickets, ~850 feet downslope (south) of a hard-packed dirt road that runs parallel to the All-American Canal.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>20'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Tamarix sp.</u>	<u>10</u>	<u>x</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
	<u>10</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>20'</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>3</u> x 2 = <u>6</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>13</u> (A) <u>36</u> (B) Prevalence Index = B/A = <u>2.77</u>
1. <u>Pluchea sericea</u>	<u>3</u>		<u>FACW</u>	
2. _____				
3. _____				
4. _____				
	<u>3</u>	= Total Cover		
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>0</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>87</u> % Cover of Biotic Crust _____				

Remarks:

SOIL

Sampling Point: 401

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/1	100					Silty clay ^h	Organic layer
2-7	7.5YR 4/4	100					Silt loam	
7-10	7.5YR 4/3	99	5YR 5/8	1	C	PL	Silt loam	
10-13+	7.5YR 4/6	85	5YR 5/8	5	C	M	Silt loam	
	Gley 1, 2.5/N	10						
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)						Indicators for Problematic Hydric Soils³:		
<input type="checkbox"/> Histosol (A1)			<input type="checkbox"/> Sandy Redox (S5)			<input type="checkbox"/> 1 cm Muck (A9) (LRR C)		
<input type="checkbox"/> Histic Epipedon (A2)			<input type="checkbox"/> Stripped Matrix (S6)			<input type="checkbox"/> 2 cm Muck (A10) (LRR B)		
<input type="checkbox"/> Black Histic (A3)			<input type="checkbox"/> Loamy Mucky Mineral (F1)			<input type="checkbox"/> Reduced Vertic (F18)		
<input type="checkbox"/> Hydrogen Sulfide (A4)			<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Red Parent Material (TF2)		
<input type="checkbox"/> Stratified Layers (A5) (LRR C)			<input type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)			<input type="checkbox"/> Redox Dark Surface (F6)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.		
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)			<input type="checkbox"/> Depleted Dark Surface (F7)					
<input type="checkbox"/> Thick Dark Surface (A12)			<input type="checkbox"/> Redox Depressions (F8)					
<input type="checkbox"/> Sandy Mucky Mineral (S1)			<input type="checkbox"/> Vernal Pools (F9)					
<input type="checkbox"/> Sandy Gleyed Matrix (S4)								
Restrictive Layer (if present):						Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Type: _____								
Depth (inches): _____								
Remarks:								

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)	
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____		
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____		
Remarks:			
Salt crust, but appears to be from agricultural runoff.			

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vega SES 4 City/County: Holtville/ Imperial County Sampling Date: 11/12/2020
 Applicant/Owner: zGlobal, Inc. State: CA Sampling Point: 402
 Investigator(s): C. Congedo, C. Garcia, C. Torres Section, Township, Range: S10, T17S, R16E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 10
 Subregion (LRR): D Lat: 32.682005 Long: -115.316274 Datum: NAD83
 Soil Map Unit Name: Rositas sand, 2 to 5 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Point taken within tamarisk thickets, downslope (south) of a hard-packed dirt road that runs parallel to the All-American Canal.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Tamarix sp.</u>	<u>20</u>	<u>x</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>20</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Baccharis salicina</u>	<u>1</u>		<u>FACW</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>36</u> x 2 = <u>72</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>56</u> (A) <u>132</u> (B) Prevalence Index = B/A = <u>2.36</u>
2. <u>Pluchea sericea</u>	<u>35</u>	<u>x</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>36</u> = Total Cover				
Herb Stratum (Plot size: _____)				
1. _____				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
<u>0</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>44</u> % Cover of Biotic Crust _____				

Remarks:

SOIL

Sampling Point: 402

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 2/1	100					Silty clay _h	
3-13+	10YR 4/4	94	5YR 5/8	5	C	PL, M	Sandy lo _{ch}	
3-13+			Gley 1, 2.5/N	1	C	M		

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input checked="" type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input checked="" type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)
	<input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)

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

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____
--	--

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input checked="" type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): 4 _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vega SES 4 City/County: Holtville/ Imperial County Sampling Date: 11/12/2020
 Applicant/Owner: zGlobal, Inc. State: CA Sampling Point: 403
 Investigator(s): C. Congedo, C. Garcia, C. Torres Section, Township, Range: S10, T17S, R16E
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 8
 Subregion (LRR): D Lat: 32.681441 Long: -115.315429 Datum: NAD83
 Soil Map Unit Name: Rositas sand, 2 to 5 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Point taken within creosote bush scrub upslope of tamarisk thickets. A dirt access road exists 60 feet to the east.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0 = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>3</u> x 2 = <u>6</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>3</u> x 5 = <u>15</u> Column Totals: <u>6</u> (A) <u>21</u> (B) Prevalence Index = B/A = <u>3.5</u>
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Larrea tridentata</u>	<u>3</u>	<u>x</u>	<u>N/L</u>	
2. <u>Pluchea sericea</u>	<u>3</u>	<u>x</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6 = Total Cover				
Herb Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
0 = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum <u>94</u>		% Cover of Biotic Crust _____		

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

Hydrophytic Vegetation Present? Yes No

Remarks:
 N/L species considered upland.

SOIL

Sampling Point: 403

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 4/4	98	5YR 5/8	1	C	M	Loamy sand	
0-7			7.5YR 9.5/1	1	C	M		
7-12+	10YR 4/4	85	5YR 5/4	5	C	M	Clay loam	
7-12+	10Y 6/4	2	7.5YR 9.5/1	8			Clay loam	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1) (Nonriverine)
- Sediment Deposits (B2) (Nonriverine)
- Drift Deposits (B3) (Nonriverine)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes _____ No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vega SES 4 City/County: Holtville/ Imperial County Sampling Date: 11/12/2020
 Applicant/Owner: zGlobal, Inc. State: _____ Sampling Point: 404
 Investigator(s): C. Congedo, C. Garcia, C. Torres Section, Township, Range: S15, T17S, R16E
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 5
 Subregion (LRR): D Lat: 32.679516 Long: -115.318349 Datum: NAD83
 Soil Map Unit Name: Badland NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: Point taken within a relatively flat area in alkali weed- salt grass playas and sinks habitat.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>20'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Tamarix sp.</u>	<u>2</u>		<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
	<u>2</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>20'</u>)				
1. <u>Pluchea sericea</u>	<u>5</u>	<u>x</u>	<u>FACW</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>2</u> x 3 = <u>6</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>7</u> (A) <u>16</u> (B) Prevalence Index = B/A = <u>2.29</u>
2. _____				
3. _____				
4. _____				
5. _____				
	<u>5</u>	= Total Cover		
Herb Stratum (Plot size: _____)				
1. _____				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>0</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>93</u> % Cover of Biotic Crust _____				
Remarks:				

Remarks:

SOIL

Sampling Point: 404

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR 3/3	100					Silt loam	
1-3	10YR 2/1	100					Loam	
3-4	7.5YR 4/3	99	7.5YR 8/2	1	C	M	Silty clay	
4-12+	10YR 8/2	5	White pg, 9.5/N	15	C	M	Clay	
4-12+	7.5YR 4/4	75	5YR 5/8	5	C	M	Clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

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

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	---

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1) (Riverine)
	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
	<input checked="" type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	---

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vega SES 4 City/County: Holtville/ Imperial County Sampling Date: 11/12/2020
 Applicant/Owner: zGlobal, Inc. State: _____ Sampling Point: 405
 Investigator(s): C. Congedo, C. Garcia, C. Torres Section, Township, Range: S16, T17S, R16E
 Landform (hillslope, terrace, etc.): Plain Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): D Lat: 32.677194 Long: -115.329753 Datum: NAD83
 Soil Map Unit Name: Badland NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: Point taken in relatively flat area within arrow weed thickets.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>20'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Tamarix sp.</u>	<u>1</u>		<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
	<u>1</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>20'</u>)				
1. <u>Pluchea sericea</u>	<u>25</u>	<u>x</u>	<u>FACW</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>25</u> x 2 = <u>50</u> FAC species <u>1</u> x 3 = <u>3</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>26</u> (A) <u>53</u> (B) Prevalence Index = B/A = <u>2.04</u>
2. _____				
3. _____				
4. _____				
5. _____				
	<u>25</u>	= Total Cover		
Herb Stratum (Plot size: _____)				
1. _____				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
	<u>0</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>74</u> % Cover of Biotic Crust _____				
Remarks:				

Remarks:

SOIL

Sampling Point: 405

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 4/3	92	White, 7.5YR 9.5	3			Silty clay	
0-2	Gley 1, 2.5/N	5					Silty clay	
2-5	7.5YR 4/4	81	White, 9.5/N	17			Clay	
2-5			2.5YR 5/8	2				
5-13	7.5YR 4/4	96	2.5YR 4/6	4			Clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	

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

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

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>
--	--

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Water Marks (B1) (Riverine)
	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
--	--

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

Remarks:

ATTACHMENT C

Representative Site Photographs



Photo 1. View of the All-American Canal along the northern boundary of the site; photo taken facing west. September 28, 2020.



Photo 2. Vegetation lining the bed of PD-1. Photo taken along northern portion of PD-1, facing northwest. November 5, 2020.



Photo 3. Soil pit sample for Sampling Point 2 taken within the bed of PD-1. November 4, 2020.



Photo 4. Upstream view of ED-1. Photo taken within northern portion of ED-1, facing northwest. November 5, 2020.



Photo 5. Downstream view of ED-2. Photo taken within northern portion of ED-2, facing south. November 5, 2020.



Photo 6. Downstream view ED-2. Photo taken within southern portion of ED-2, facing south. November 12, 2020.



Photo 7. Downstream view of ED-3. Photo taken within northern portion of ED-3, facing southeast. November 5, 2020.



Photo 8. Sample Point 7 taken within the northeastern portion of FSW-3. November 5, 2020.



Photo 9. Sample Point 402 taken within the northeastern portion of FSW-1; photo taken facing southwest. November 5, 2020.



Photo 10. View of FEW-1 within the southwestern portion of the site with U.S.-Mexico border in background. Photo taken facing south. September 28, 2020.

ATTACHMENT D

USACE ORM Aquatic Resources Table
(Provided as an accompanying electronic file)

ATTACHMENT E

Digital Data
(Provided as accompanying electronic files)

Biological Technical Report

Vega SES 4 Solar Project

Imperial County, California

Prepared for:

Vega SES 4, LLC
604 Sutter Street
Suite 250
Folsom, California 95630

Submitted by:

ECORP Consulting, Inc.
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Suite 370
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(858) 279-4040

November 2020



INFO ITEM ONLY

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- Attachment B – Special-Status Plant Potential for Occurrence Table
- Attachment C – Special-Status Wildlife Potential for Occurrence Table

LIST OF ACRONYMS AND ABBREVIATIONS

AOU	American Ornithologists' Union
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CNPSEI	CNPS Electronic Inventory
CWA	Clean Water Act
ESA	Endangered Species Act
GIS	Geographic Information System
GPS	Global Positioning System
HCP	Habitat conservation plan
MBTA	Migratory Bird Treaty Act
MW	Megawatt
MWH	Megawatt-hour
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
Project	Vega SES 4 Solar Project
RWQCB	Regional Water Quality Control Board (Colorado River Basin)
SAA	Streambed Alteration Agreement
SSAR	Society for the Study of Amphibians and Reptiles
SSC	Species of Special Concern
sUAS	Small unmanned aircraft system
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 INTRODUCTION

The Vega SES 4 Solar Project (Project) is a 100-Megawatt (MW) direct current (dc) and 400 MW-hour (MWH) battery storage utility-scale solar project located on approximately ±528 acres of vacant land on three parcels in Imperial County, California (CA). ECORP Consulting, Inc. conducted a literature review, small unmanned aircraft system (sUAS) survey, and biological reconnaissance survey of the Project site to document the existing biological resources, to assess the habitat for its potential to support sensitive plant and wildlife species, and, as required under the California Environmental Quality Act (CEQA), to determine whether Project-related impacts would occur to sensitive biological resources.

1.1 Purpose of the Report

This report was prepared to describe biological resources in the Project Area and to support Project review under CEQA. Assessment of potential occurrences of special-status plants and animals is based on habitat, geographic and elevational range, and data from field surveys conducted by ECORP in 2020. For purposes of this report, the term “Survey Area” refers to the areas proposed to be directly affected by the Project, the 500-foot buffer, and areas potentially subject to temporary impacts.

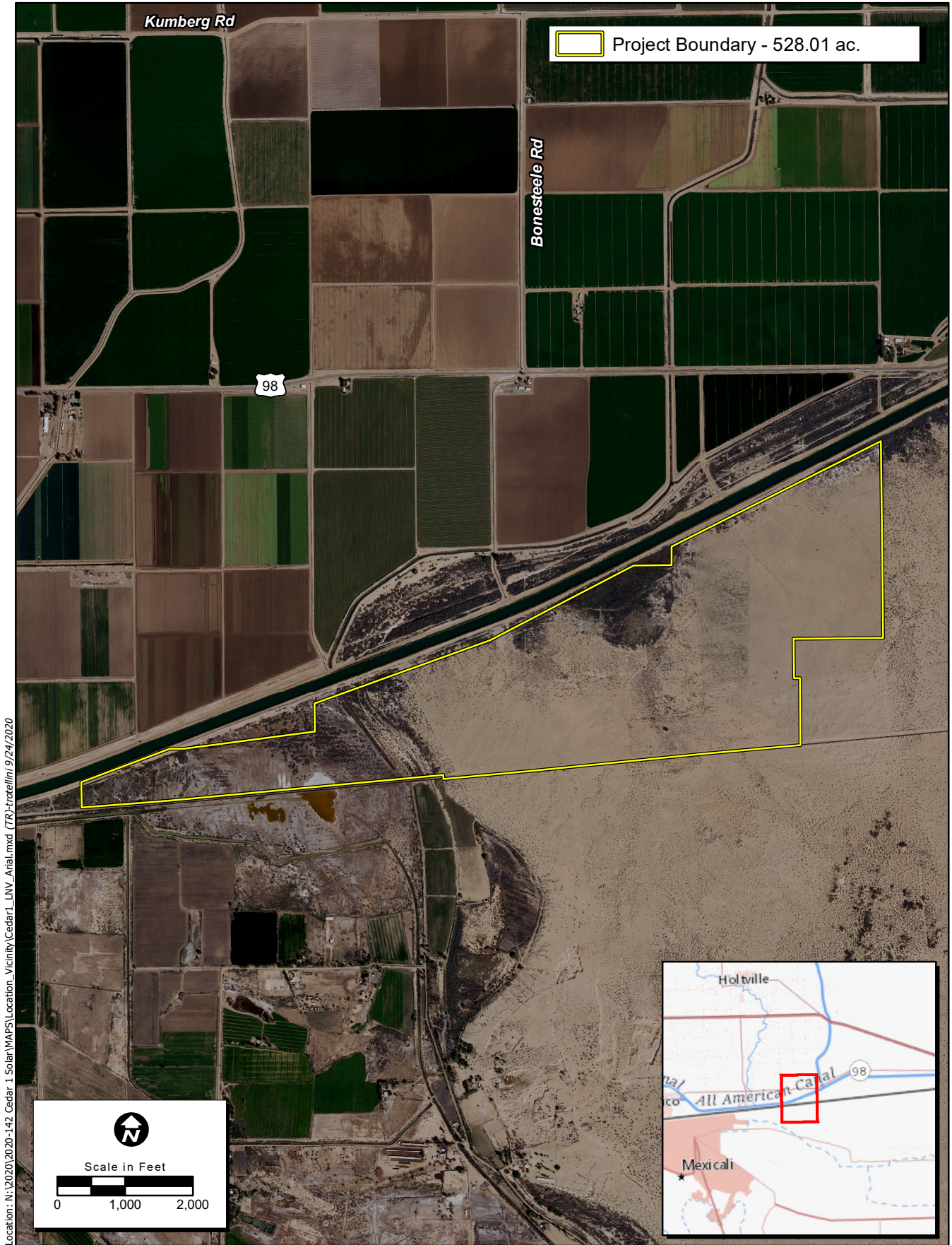
1.2 Project Location and Description

The proposed Project is a 100-MW dc and 400 MWH battery storage utility-scale solar project located on approximately 528 acres of vacant land on three parcels in Imperial County, California (Assessor Parcel Numbers 059-300-015, 059-300-017, and 059-290-010). The Project site is approximately nine miles southeast of Calexico, California, and ½ mile south of Highway 98. It is adjacent to the All-American Canal to the north and the United States (U.S.)/Mexico border to the south (Figure 1). As depicted on the U.S. Geological Survey (USGS) 7.5-minute Bonds Corner, CA topographic quadrangle, the Project is located within Sections 10, 11, 14, 15, and 16 of Township 17 South, Range 16 East, San Bernardino Base and Meridian. The Project will connect to an Imperial Irrigation District (IID) 92 kilovolt transmission line that runs close to the property. The Project is also currently contemplated to include a potential cross border permit to enable building a transmission line approximately three miles from the proposed site substation across the international border to deliver power to the closest Federal Electricity Commission substation in Mexico.

Topography is relatively flat with elevations ranging between 11 meters (38 feet) and 18 meters (60 feet) above mean sea level. Adjacent land uses include agricultural and ranch land to the north and west, the U.S./Mexico border to the south, and undeveloped land to the east. The All-American Canal travels northeast to southwest, north of the site.

2.0 REGULATORY CONSIDERATIONS

The biological reconnaissance survey was conducted to identify potential constraints and to ensure compliance with State and federal regulations regarding listed, protected, and sensitive species. The regulations are detailed below.



Location: N:\2020\2020-142_Cedar_1_Solar\WAPS\Location_Vicinity\Cedar1_LNV_Arial.mxd (TR)-trastellin_9/24/2020

Map Date: 9/24/2020
 Service Layer Credits:
 Photo Source: NAIP (2018)

Figure 1. Project Location and Vicinity

2020-142 Vega SES 4

2.1 Federal Regulations

2.1.1 Endangered Species Act

The Endangered Species Act (ESA) protects plants and animals that are listed as endangered or threatened by the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service. Section 9 of the ESA prohibits the taking of endangered wildlife, where taking is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct” (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land and removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law (16 U.S. Code 1538). Under Section 7 of the ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. Section 10 of the ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a habitat conservation plan (HCP) is developed.

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the U.S. and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR Part 13 General Permit Procedures and 50 CFR Part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code.

2.1.3 Clean Water Act

The purpose of the Clean Water Act (CWA) is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Section 404 of the CWA prohibits the discharge of dredged or fill material into Waters of the U.S. without a permit from the U.S. Army Corps of Engineers (USACE). The definition of Waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas “that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3 7b). The U.S. Environmental Protection Agency (USEPA) acts as a cooperating agency to set policy, guidance, and criteria for use in evaluation permit applications and also reviews USACE permit applications.

The USACE regulates “fill” or dredging of fill material within its jurisdictional features. “Fill material” means any material used for the primary purpose of replacing an aquatic area with dry land or changing the bottom elevation of a water body. Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the State Water Resources Control Board (SWRCB), administered by each of nine California Regional Water Quality Control Boards.

2.2 State and Local Regulations

2.2.1 California Endangered Species Act

The California ESA generally parallels the main provisions of the ESA but, unlike its federal counterpart, the California ESA applies the take prohibitions to species proposed for listing (called “candidates” by the State). Section 2080 of the California Fish and Game Code prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Take is defined in Section 86 of the California Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” The California ESA allows for take incidental to otherwise lawful development projects. State lead agencies are required to consult with California Department of Fish and Wildlife (CDFW) to ensure that any action they undertake is not likely to jeopardize the continued existence of any endangered or threatened species or result in destruction or adverse modification of essential habitat.

2.2.2 Fully Protected Species

The State of California first began to designate species as “fully protected” prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction, and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under federal and/or California ESAs. The regulations that implement the Fully Protected Species Statute (California Fish and Game Code § 4700) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFW prohibits any State agency from issuing incidental take permits for fully protected species, except for necessary scientific research.

2.2.3 Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 (California Fish and Game Code §§ 1900-1913) was created with the intent to “preserve, protect and enhance rare and endangered plants in this State.” The NPPA is administered by CDFW. The Fish and Wildlife Commission has the authority to designate native plants as “endangered” or “rare” and to protect endangered and rare plants from take. The California ESA of 1984 (California Fish and Game Code § 2050-2116) provided further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

2.2.4 Porter Cologne Water Quality Control Act

The RWQCB implements water quality regulations under the federal CWA and the Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve “discharging waste, or proposing to discharge waste, with any region that could affect the water of the state” [Water Code 13260(a)].

Waters of the State are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” (Water Code 13050[e]). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State that are not regulated by the USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of Waste Discharge Requirements for these activities.

On April 2, 2019, the SWRCB adopted the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (referred to as the Procedures) for inclusion in the *Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (Resolution No. 2019-0015). The new Procedures include:

- definition of wetlands and aquatic resources that are Waters of the State,
- description of application requirements for individual orders (not general orders) for water quality certification, or waste discharge requirements,
- description of information required in compensatory mitigation plans, and
- definition of exemptions to application procedures.

The Office of Administrative Law approved the procedures on August 28, 2019, and the rule went into effect May 28, 2020.

2.2.5 California Fish and Game Code

Streambed Alteration Agreement

Section 1602 of the California Fish and Game Code requires that a Notification of Lake or Streambed Alteration be submitted to CDFW for “any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake.” The CDFW reviews the proposed actions and, if necessary, submits to the Applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the Applicant is the Streambed Alteration Agreement (SAA). Often, projects that require an SAA also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the SAA may overlap.

Migratory Birds

The CDFW enforces the protection of nongame native birds in §§ 3503, 3503.5, and 3800 of the California Fish and Game Code. Section 3513 of the California Fish and Game Code prohibits the possession or take of birds listed under the MBTA. These sections mandate the protection of California nongame native birds' nests and also make it unlawful to take these birds. All raptor species are protected from "take" pursuant to California Fish and Game Code § 3503.5 and are also protected at the federal level by the MBTA of 1918 (USFWS 1918).

2.2.6 Conservation and Open Space Element

Imperial County created the Conservation and Open Space Element plan to provide details and measures for management and preservation of biological resources as well as various other resources (i.e. cultural, soils, minerals, etc.). This plan focuses on protecting scarce resources and preventing wasteful exploitation, neglect, and destruction of California's natural resources. The plan outlines areas with sensitive habitat and sensitive species, also labelled "Resource Areas". Open space easements and protection of riparian habitat, rock outcrops, California fan palm oases, and wildlife corridors are also discussed in the plan. As it currently stands, the open space element follows CEQA guidelines with special focus on its scarce resources.

2.2.7 California Environmental Quality Act Significance Criteria

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if the project would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS;
- have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and

- conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or State HCP.

An evaluation of whether an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, State, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of an important resource on a population-wide or region-wide basis.

3.0 METHODS

3.1 Literature Review

Prior to conducting the biological reconnaissance survey, ECORP biologists performed a literature review using the CDFW's California Natural Diversity Data Base (CNDDDB; CDFW 2020a) and the California Native Plant Society's (CNPS') Electronic Inventory (CNPSEI; CNPS 2020) to determine the special-status plant and wildlife species that have been documented in the vicinity of the Project. The CNDDDB and CNPSEI database searches were conducted on September 24, 2020. ECORP searched CNDDDB and CNPSEI records within the Project Area boundaries as depicted on USGS 7.5-minute Bonds Corner topographic quadrangle, and the surrounding topographic quadrangles: Midway Well NW, Glamis SW, Holtville East, Holtville West, and Calexico. The CNDDDB and CNPSEI contain records of reported occurrences of federally or State-listed endangered, threatened, proposed endangered or threatened species, California Species of Special Concern (SSC), and other special-status species or habitat that may occur within or in the vicinity of the Project. Additional information was gathered from the following sources and includes, but is not limited to:

- U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) *Web Soil Survey* (NRCS 2020a);
- *Special Animals List* (CDFW 2020b);
- *State and Federally Listed Endangered and Threatened Animals of California* (CDFW 2020c);
- *The Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012);
- *The Manual of California Vegetation*, 2nd Edition (Sawyer et al. 2009); and
- various online websites (e.g., CalFlora 2020).

A desktop review of the National Wetlands Inventory (USFWS 2020a) and the corresponding USGS topographic maps was also conducted to determine if there were any blue line streams or drainages in the Survey Area that might potentially fall under the jurisdiction of either federal or State agencies.

3.2 Field Survey

3.2.1 Small Unmanned Aircraft System Survey and Vegetation Mapping

Due to the size of the area and limited road access, an initial survey utilizing a sUAS was conducted to quickly assess current site conditions and gather high-resolution imagery. Upon arrival at the site, an initial field reconnaissance was conducted by the drone pilot to obtain an understanding of the site topography, access, vegetation densities, and staging areas for controlling the aerial flights. The drone was programmed to do a systematic flight over the property to collect high-resolution aerial photographs of the entire property. The photos collected were then combined into a single orthomosaic image that was incorporated into mapping files in a Geographic Information System (GIS).

The information gathered from the sUAS/drone survey were then used to assist the biologists with accurate mapping of the vegetation communities. A botanist utilized the high-resolution drone imagery to map vegetation communities. Vegetation classifications were in accordance with *A Manual of California Vegetation* (Sawyer et al. 2009). Vegetation communities that did not fit within the Sawyer classification system were described following Holland (1986) or Oberbauer (2008). Areas of the site that had already been graded, developed, and/or disturbed were mapped as such. Acreages of each vegetation community were calculated based on GIS data collected during the sUAS survey.

3.2.2 Biological Reconnaissance Survey

The biological reconnaissance survey was conducted by walking the entire Project site to determine the vegetation communities and wildlife habitats on the Project site. Private property and inaccessible areas within the buffer were surveyed utilizing 8x42 binoculars. The biologists documented the plant and animal species present in the Survey Area and the conditions within the Survey Area were assessed for their potential to provide habitat for special-status plant and wildlife species, including those from the literature review. Data were recorded on submeter Global Positioning System (GPS) devices, data sheets, and maps. In instances where a special-status species was observed, the date, species, location and habitat, and GPS coordinates were recorded. The locations of special-status species observations were recorded using a handheld submeter GPS in North American Datum (NAD) 83, Universal Transverse Mercator (UTM) coordinates, Zone 11S. Photographs were also taken during the survey to provide visual representation of the various vegetation communities within the Project site. The Project site was also examined to assess its potential to facilitate wildlife movement or function as a movement corridor for wildlife throughout the region.

Plant and wildlife species, including any special-status species that were observed during the survey, were recorded. Plant nomenclature follows that of *The Jepson Manual: Vascular Plants of California* (Baldwin et al. 2012). Wildlife nomenclature follows that of *The American Ornithologists' Union (AOU) Checklist of North American Birds* (AOU 2020), the Society for the Study of Amphibians and Reptiles (SSAR 2017), and the *Revised Checklist of North American Mammals North of Mexico* (Bradley et al. 2014).

3.2.3 Aquatic Resources Delineation

An aquatic resources delineation was conducted by ECORP delineation specialists in conjunction with the biological reconnaissance survey, the results of which are presented under separate cover (ECORP 2020).

3.3 Potential for Occurrence Determinations

Using information from the literature review and observations in the field, a list of special-status plant and animal species that have potential to occur within the Survey Area was generated. For the purposes of this assessment, special-status species are defined as plants or animals that:

- have been designated as either rare, threatened, or endangered by CDFW, CNPS, or the USFWS, and/or are protected under either the federal or California ESAs;
- are candidate species being considered or proposed for listing under these same acts;
- are fully protected by the California Fish and Game Code, §§ 3511, 4700, 5050, or 5515; and
- are of expressed concern to resource and regulatory agencies or local jurisdictions.

Special-status species reported for the region in the literature review or for which suitable habitat occurs on the Survey Area were assessed for their potential to occur within the Survey Area based on the following guidelines:

Present: The species was observed on site during a site visit or focused survey.

High: Habitat (including soils and elevation factors) for the species occurs within the Survey Area and a known occurrence has recently been recorded (within the last 20 years) within five miles of the area.

Moderate: Habitat (including soils and elevation factors) for the species occurs within the Survey Area and a documented observation occurs within the database search, but not within five miles of the area; a historic documented observation (more than 20 years old) was recorded within five miles of the Survey Area; or a recently documented observation occurs within five miles of the area and marginal or limited amounts of habitat occurs in the Project site.

Low: Limited or marginal habitat for the species occurs within the Survey Area and a recently documented observation occurs within the database search, but not within five miles of the area; a historic documented observation (more than 20 years old) was recorded within five miles of the Survey Area; or suitable habitat strongly associated with the species occurs on site, but no records or only historic records were found within the database search.

Presumed Absent: Species was not observed during a site visit or focused surveys conducted in accordance with protocol guidelines at an appropriate time for identification; habitat (including soils and elevation factors) does not exist on site; or the known geographic range of the species does not include the Survey Area.

Note: Location information on some special-status species may be of questionable accuracy or unavailable. Therefore, for survey purposes, the environmental factors associated with a species'

occurrence requirements may be considered sufficient reason to give a species a positive potential for occurrence. In addition, just because a record of a species does not exist in the databases does not mean it does not occur. In many cases, records may not be present in the databases because an area has not been surveyed for that particular species.

4.0 RESULTS

Summarized below are the results of the literature review and field surveys, including site characteristics, vegetation communities, wildlife, special-status species, and special-status habitats (including any potential wildlife corridors).

4.1 Literature Review

4.1.1 Special-Status Plants and Wildlife

Special-status plants and wildlife species reported for the region in the literature review or for which suitable habitat occurs were evaluated for their potential to occur within the Project Area or in the buffer areas within the Survey Area where indirect impacts could occur. Of all available records, a total of 11 special-status plant species and 18 special-status wildlife species were identified as having the potential for occurrence in the vicinity of the Project site (Attachments B and C).

4.1.2 U.S. Fish and Wildlife Service Designated Critical Habitat

The Project Area is not located within any USFWS designated critical habitat.

4.2 Biological Reconnaissance Survey

The biological reconnaissance survey was conducted on September 28, 2020 by ECORP biologists Christina Congedo, Greg Hampton, Caroline Garcia, and Christina Torres. Summarized below are the results of the biological reconnaissance survey, including site characteristics, plants and plant communities, wildlife, special-status species, and special-status habitats (including any potential wildlife corridors). Weather conditions during the survey are summarized in Table 1.

Date	Time		Temperature (°F)		Cloud Cover (%)		Wind Speed (mph)	
	Start	End	Start	End	Start	End	Start	End
09/28/2020	0715	1615	67	102	0	0	0-3	0-5

4.2.1 Property Characteristics

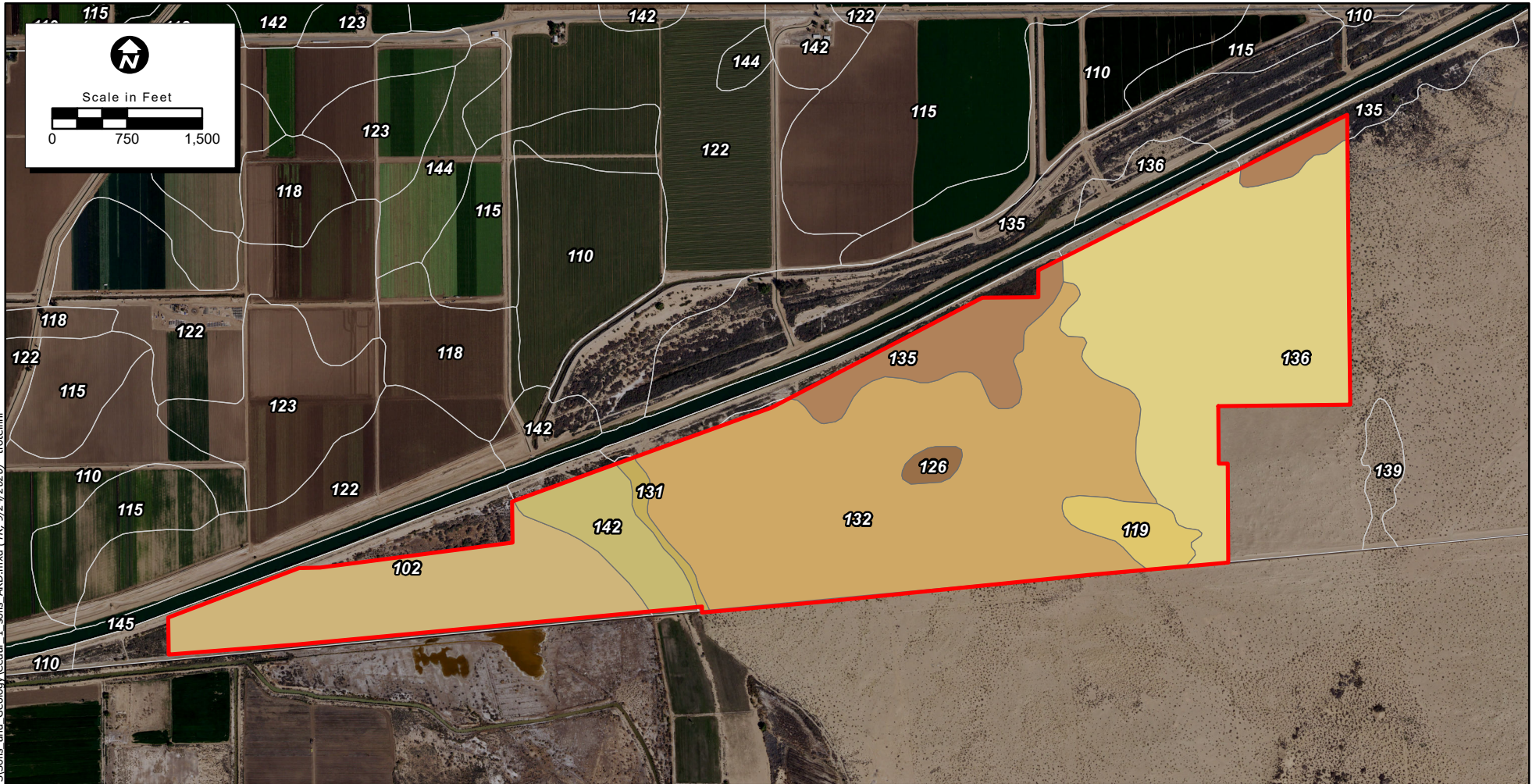
The Project site consists of undeveloped land that appears to have been historically altered. The disturbed nature of the site, including flora composition, old agricultural foundations, and farming equipment including a center-pivot irrigation system, indicates that portions of the land may have been historically

used for agricultural purposes. The eastern portion of the site consists primarily of creosote bush scrub with bordering riparian scrub and wetland habitats to the northern edge and western section. The Project site is surrounded to the north and southwest by agricultural fields, and undeveloped land to the east and southeast. The All-American Canal is just north of the site and the U.S./Mexico border is located just south of the site. Representative site photographs are included in Attachment A.










Topography throughout the Project site is relatively flat with a matrix of subtle depressions located in the western section of the site. These depressions consist of an expansive riparian scrub community with associated wetlands and drainages. A soils analysis search was conducted using NRCS soil survey data (NRCS 2020a). Eight soil series occur within the Project Area (Figure 2). These include:

- 102- Badland
- 119- Indio-Vint complex
- 126- Niland fine sand
- 131- Rositas sand, 2 to 5 percent slopes
- 132- Rositas fine sand, 0 to 2 percent slopes
- 135- Rositas fine sand, wet, 0 to 2 percent slopes
- 136- Rositas loamy fine sand, 0 to 2 percent slopes
- 142- Vint loamy very fine sand, wet

None of the aforementioned soil types contain hydric components (NRCS 2020b). Badland soils are restricted to the western portion of the site and are characterized by high runoff. Indio-Vint complex soils are restricted to the southeastern portion of the site and are characterized as having well-drained soils with low to very low surface runoff. Niland fine sand soils exist in the eastern portion of the site and are characterized as having moderately well-drained soils with low surface runoff. The Rositas series exists throughout the Project site and is characterized as having somewhat excessively drained soils with very low surface runoff. Vint loamy very fine sand exists in the western portion of the site and is characterized as having moderately well-drained soils with very low surface runoff. Three additional soil series occur within the survey buffer: Meloland very fine sandy loam, wet, Superstition loamy fine sand, and Water.



Location: N:\2020\2020-142 Cedar 1 Solar\MAPS\Soils and Geology\Cedar 1 soils_ARC.mxd (TR_9/24/2020) - trottlin

Map Content	
Series Designation	Series Description
	Project Area
	102 - Badland
	119 - Indio-Vint complex
	126 - Niland fine sand
	131 - Rositas sand, 2 to 5 percent slopes
	132 - Rositas fine sand, 0 to 2 percent slopes
	135 - Rositas fine sand, wet, 0 to 2 percent slopes
	136 - Rositas loamy fine sand, 0 to 2 percent slopes
	142 - Vint loamy very fine sand, wet

Map Date: 9/24/2020
 Photo Source: NAIP (2018)

Figure 2. Natural Resources Conservation Service Soil Types

4.2.2 Vegetation Communities/Land Use

The majority of the Project Area consists of creosote bush – white bursage scrub (disturbed), disturbed lands, and tamarisk thickets. The location of each vegetation community in the Project Area and Survey Area are described in detail below and presented on Figure 3. Acreage of each habitat and vegetation community in the Project Area are shown in Table 2. Representative photographs of the habitats within the Project Area are included in Attachment A.

Vegetation Communities and Land Covers	Acres
Arrow weed thickets	17.000
Arrow weed thickets (disturbed)	10.411
Alkali weed – salt grass playas and sinks	26.722
Creosote bush scrub	11.280
Creosote bush – white bursage scrub (disturbed)	181.561
Disturbed	159.850
Tamarisk thickets	104.932
Urban/Developed	0.747
Urban/Developed – Roads	15.505
Project Area Total	528.007

Arrow Weed Thickets (*Pluchea sericea* Shrubland Alliance)

Arrow weed thickets are associated with moderate to dense scrub primarily dominated by arrow weed. Other species that occur as scattered individuals include tamarisk (*Tamarix* spp.), willow baccharis (*Baccharis salicina*), and big saltbush (*Atriplex lentiformis*). This vegetation community appears around springs, seeps, irrigation ditches, canyon bottoms, seasonally flooded washed, stream banks, and within stream beds and ditches.

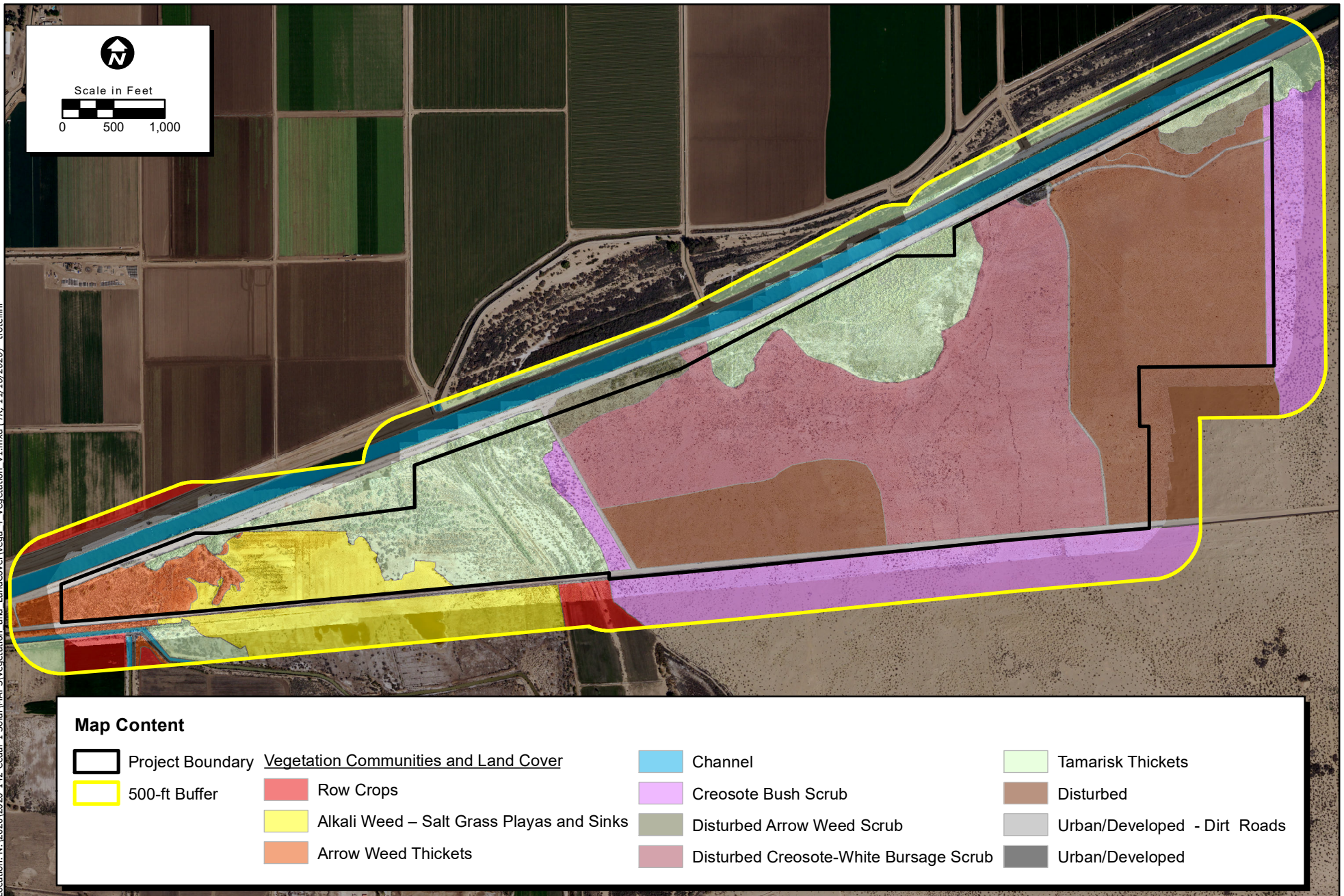
Disturbed Arrow Weed Thickets (Disturbed *Pluchea sericea* Shrubland Alliance)

Disturbed arrow weed thickets are arrow weed thickets that has been previously altered. On this Project, this vegetation cover is characterized as sparser. Other plant species observed included alkali goldenbush (*Isocoma acradenia*).

Alkali weed – salt grass playas and sinks (*Cressa truxillensis* - *Distichlis spicata* Herbaceous Alliance)

Alkali playas and sinks are composed of poorly drained soils with high salinity and/or alkalinity from evaporation of water that accumulates in closed drainages. These playas and sinks are often seasonally inundated and lose water through evaporation. Alkali playas and sinks can be open to continuous in vegetation cover. On the Project site, there were no plant species at the time of the reconnaissance survey, only remnant shrub skeletons remained.

Location: N:\2020\20-142 Cedar 1 Solar\MAPS\Vegetation and LandCover\Vegetation_V1.mxd (TR, 11/16/2020) - trotellini



Map Date: 11/16/2020
Photo Source: NAIP (2018), ECORP UAS Imagery (2020)

Figure 3. Vegetation Communities and Land Cover

Creosote Bush Scrub (*Larrea tridentata* Shrubland Alliance)

Creosote bush scrub is the most characteristic vegetation of the California desert and is found on alluvial fans, bajadas, upland slopes, and washes. Creosote bush scrub is dominated by a nearly monotypic stand of creosote bush with an open canopy and an herbaceous layer of seasonal annuals and perennials. Other species that occurred on the site included burrowbush (*Ambrosia dumosa*), apricot mallow (*Sphaeralcea ambigua*), and fanleaf crinklemat (*Tiquilia plicata*).

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

Disturbed creosote bush – white bursage scrub is creosote bush – white bursage scrub that has been previously altered. Creosote and white bursage are co-dominant in the shrub canopy with an absent to intermittent herbaceous layer of seasonal annuals. On the Project site, this vegetation cover is characterized as sparser with a high percentage of non-native plant species including common Mediterranean grass (*Schismus barbatus*) and Saharan mustard (*Brassica tournefortii*). Other plant species include dyebush (*Psoralea argemone*) and crinklemat.

Tamarisk Thickets (*Tamarix* spp. Shrubland Semi-Natural Alliance)

Tamarisk thickets are characterized by a weedy monoculture of tamarisk. This habitat is typically in ditches, washes, rivers, arroyo margins, lake margins, and other watercourses. On the Project site, tamarisk and arrow weed were often co-dominant in this vegetation community. Other plant species observed included cattails (*Typha* spp.), screw bean mesquite (*Prosopis pubescens*), and willow baccharis.

Other Land Cover Types

Disturbed

Disturbed land includes areas where the native vegetation community has been heavily influenced by human actions, such as grading, trash dumping, and OHV use, but lack development. Disturbed land is not a vegetation classification, but rather a land cover type and is not restricted by elevation. On this Project, the areas consisted primarily of bare ground and Mediterranean grass. Other plant species observed on site included dyebush and white bursage.

Urban/Developed

Urban/Developed areas do not constitute a vegetation classification, but rather a land cover type. Areas mapped as developed have been constructed upon or otherwise physically altered to an extent that natural vegetation communities are no longer supported. There may be irrigated landscaped, ornamental species present between the hardscape. On the Project site, this land cover was dominant and consisted primarily of compacted dirt roads, structures, and landscape trees including Mexican fan palm (*Washingtonia robusta*) and Mexican palo verde (*Parkinsonia aculeata*).

Vegetation Communities within Survey Area

One additional vegetation community was observed within the buffer, but not within the Project Area. This land cover is described in detail below. No impacts to the land cover are expected as a result of Project-related activities.

Row Crops

Row crops include planted, typically monotypic rows of crops of annual and perennial species with open space between rows. Species composition frequently changes by season and year. Row crops often occur in upland areas with high soil quality, or floodplains and are almost always artificially irrigated. This land cover was observed in the eastern portion and southwest of the 500-foot buffer.

4.2.3 Wildlife Observed

Wildlife species observed included zebra-tailed lizard (*Callisaurus draconoides*), northern harrier (*Circus hudsonius*), western burrowing owl (*Athene cunicularia hypugaea*), loggerhead shrike (*Lanius ludovicianus*), black-tailed gnatcatcher (*Polioptila melanura*), yellow warbler (*Setophaga petechia*), great egret (*Ardea alba*), American kestrel (*Falco sparverius*), lesser nighthawk (*Chordeiles acutipennis*), ash-throated flycatcher (*Myiarchus cinerascens*), Gambel's quail (*Callipepla gambelii*), Abert's towhee (*Melospiza aberti*), European starling (*Sturnus vulgaris*), killdeer (*Charadrius vociferus*), turkey vulture (*Cathartes aura*), verdin (*Auriparus flaviceps*), great-tailed grackle (*Quiscalus mexicanus*), horned lark (*Eremophila alpestris*), black-necked stilt (*Himantopus mexicanus*), mourning dove (*Zenaidura macroura*), greater roadrunner (*Geococcyx californianus*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), house finch (*Haemorhous mexicanus*), white-crowned sparrow (*Zonotrichia leucophrys*), Anna's hummingbird (*Calypte anna*), great blue heron (*Ardea herodias*), lesser goldfinch (*Spinus psaltria*), black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), and signs of coyote (*Canis latrans*), antelope ground squirrel (*Ammospermophilus* sp.), and raccoon (*Procyon lotor*).

4.3 Special-Status Species Assessment

The literature review resulted in 11 special-status plant and 18 special-status wildlife species that have historically been recorded in the vicinity of the Project or that are highly associated with habitat that occurs on the Project site. Special-status plants were evaluated for their potential to occur within the Project Area where impacts could occur. Special-status wildlife were evaluated for their potential to occur within the Survey Area, a broader area that includes the Project Area and buffer, where direct or indirect impacts could occur.

4.3.1 Plants

Numerous special-status plant species have been recorded within five miles of the Project Area, according to the CNDDDB (CDFW 2020a), IPaC (USFWS 2020b), and CNPSEI (CNPS 2020). Of all available records, a total of 11 species were identified as those with the potential for occurrence within the vicinity of the Project Area. Descriptions of the CNPS designations are found in Table 3 and a list of the special-status plant species identified in the literature review is presented following Table 3.

List Designation	Meaning
1A	Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
1B	Plants Rare, Threatened, or Endangered in California and Elsewhere
2A	Plants Presumed Extirpated in California, But Common Elsewhere
2B	Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3	Plants about which we need more information; a review list
4	Plants of limited distribution; a watch list
List 1B, 2, and 4 extension meanings:	
.1	Seriously threatened in California (over 80 percent of occurrences threatened / high degree and immediacy of threat)
.2	Moderately threatened in California (20-80 percent occurrences threatened / moderate degree and immediacy of threat)
.3	Not very threatened in California (less than 20 percent of occurrences threatened / low degree and immediacy of threat or no current threats known)

Note: According to CNPS (Skinner and Pavlik 1994), plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California Fish and Game Code (California Department of Fish and Game [CDFG] 1984). This interpretation is inconsistent with other definitions.

Plant Species with a Moderate Potential to Occur

Due to the presence of suitable habitat and several known recent occurrences within five miles of the site, the following species was determined to have a moderate potential to occur:

Abrams' spurge (*Euphorbia abramsiana*) is a CNPS Rare Plant Rank (CRPR) 2B.2 plant species. This species is known to occur at elevations between 50 and 100 meters (164 and 328 feet) and blooms between September – November. Abrams' spurge is known to occur in creosote scrub habitat within sandy flats including playas, fields, disturbed areas, and washes. One historic CNDDDB record was located approximately three miles northwest of the site near the Alamo River. Potential habitat occurs on the site for this species in the disturbed creosote bush scrub habitat.

Plant Species with Low Potential to Occur

The following species were found to have a low potential to occur on the Project site because of limited habitat for the species on the site and a known occurrence has been reported in the database, but not within five miles of the site, or suitable habitat strongly associated with the species occurs on the site, but no records were found in the database search:

- Watson's amaranth (*Amaranthus watsonii*), CNPS 4.3
- gravel milk-vetch (*Astragalus sabulorum*), CNPS 2B.2
- Wiggins' croton (*Croton wigginsii*), CNPS 2B.2

- California snailtail (*Imperfecta brevifolia*), CNPS 2B.1
- ribbed cryptantha (*Johnstonella costata*), CNPS 4.3
- winged cryptantha (*Johnstonella holoptera*), CNPS 4.3
- hairy stickleaf (*Mentzelia hirsutissima*), CNPS 4.3
- Darlington's blazing star (*Mentzelia puberula*), CNPS 2B.2
- Slender cottonheads (*Nemacaulis denudata* var. *gracilis*), CNPS 2B.2
- Sand food (*Pholisma sonora*), CNPS 1B.2

4.3.2 Wildlife

The literature search documented 18 special-status wildlife species in the vicinity of the Project site, two of which are federally and/or State-listed. Of the 18 special-status wildlife species identified in the literature review, four were present within the Project Area, two were found to have a high potential to occur, three were found to have a moderate potential to occur and six were found to have a low potential to occur; the remaining three species are presumed absent from the Project site. One additional special-status species, northern harrier, was observed during the habitat assessment. Descriptions of the federal and state wildlife designations are found in Table 4, and a brief natural history and discussion of the special-status wildlife species found onsite that have a high or moderate potential to occur on the Project site are provided below.

Table 4. Wildlife Status Designations	
List Designation	Meaning
Federal Designation	Jurisdiction under United States Fish and Wildlife Service (USFWS)
END	Federally listed as Endangered
THR	Federally listed as Threatened
CAN	Federal Candidate Species
FSC	Federal Species of Concern
FPD	Federal Proposed for Delisting
BBC	Bird of Conservation Concern
State Designation	Jurisdiction under California Fish and Wildlife Service (CDFW)
END	State listed as Endangered
THR	State listed as Threatened
SSC	California Species of Special Concern
FP	Fully Protected Species
WL	Watch List

Special-Status Wildlife Species Present

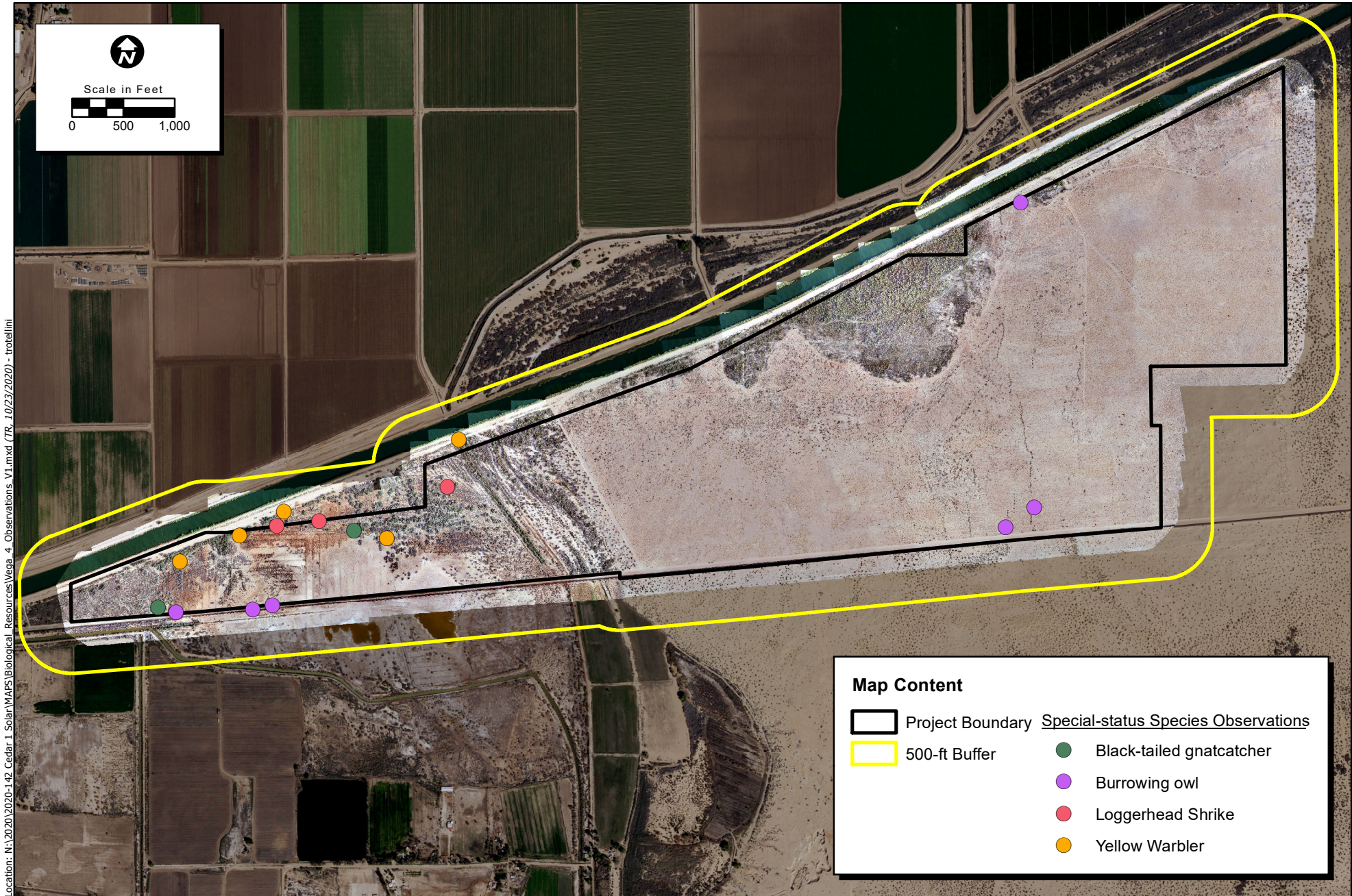
The following species were observed on the site during the reconnaissance survey:

- Northern harrier is a CDFW SSC. This species is typically found in open habitats with dense ground cover including grasslands, agricultural fields, and marshes. Northern harriers nest on the ground, preferring wetland habitat for cover. One adult was observed scanning the landscape during the habitat assessment.
- Burrowing owl is a USFWS BCC, a CDFW SSC, and Imperial County species of conservation focus. It is typically found in dry open areas with few trees and short grasses; it is also found in vacant lots near human habitation. It uses uninhabited mammal burrows for roosts and nests, often in close proximity to California ground squirrel colonies. It primarily feeds on large insects and small mammals but will also eat birds and amphibians. Six burrowing owls were observed flushing from/to their burrows (Figure 4).
- Black-tailed gnatcatcher is a CDFW WL species. This species remains in pairs all year, defending permanent territories. Black-tailed gnatcatchers prefer dry washes or desert brush with varied growth of mesquite, acacias, and paloverdes, but are also known to inhabit tamarisk scrub. Three pairs of black-tailed gnatcatchers were observed foraging and calling within the tamarisk and arrow weed scrub in the western portion of the Project Area (Figure 4).
- Yellow warbler is a USFWS BBC and CDFW SCC. This species prefers scrub and woodlands, particularly along waterways and wetlands. Typically, yellow warblers nest in willows, alders, and cottonwoods, but have been observed nesting in tamarisk scrub. Eleven adults were observed foraging in the tamarisk scrub on the west side of the Project Area (Figure 4).
- Loggerhead shrike is a USFWS BCC and CDFW SSC. This species prefers open country with scattered shrubs and trees. They frequent agricultural fields, abandoned orchards, desert scrublands, and riparian areas. Three individuals were observed perching in the tamarisk and arrow weed scrub in the western section of the Project site.

Special-Status Wildlife Species with a High Potential to Occur

Two species were found to have high potential to occur on the Project site due to the presence of suitable habitat for the species on the site and because a known occurrence has been recorded within five miles of the site:

- Flat-tailed horned lizard (*Phrynosoma mcallii*) is a CDFW SSC and Imperial County Species of conservation focus. This species is most commonly found on sandy flats and valleys within desert scrub habitat with little or no windblown sand. They can also be found on salt flats and gravelly soils. The creosote bush scrub and salt flat habitats provide suitable habitat for the flat-tailed horned lizard.



Location: N:\2020\2020-142_Cedar_1_Solar\MAPS\Biological_Resources\Veget_4_Observations_V1.mxd (TR_10/23/2020) - trolini

Figure 4. Special-status Species Observations

2020-142 Vega SES 4
 INFO ITEM ONLY

- Yuma hispid cotton rat (*Sigmodon hispidus eremicus*) is a CDFW SSC. This species is generally associated with mesic habitats near drainage ditches, streams, and sloughs but also occurs in open fields or on the borders of open fields where there is dense grass habitat or agricultural fields. There is potential for this species to occur near the All-American Canal and nearby creosote bush scrub habitat.

Special-Status Wildlife Species with a Moderate Potential to Occur

Three species were found to have moderate potential to occur on the Project site because habitat (including soils and elevation factors) for the species occurs on the site and a known occurrence exists within the database search, but not within five miles of the site; or a known occurrence exists within five miles of the site and marginal or limited amounts of habitat occurs on the Project site:

- Yuma Ridgway's rail (*Rallus obsoletus yumanensis*) is a USFWS END and CDFW THR species. The Yuma Ridgway's rail prefers freshwater marshes composed of cattails and bulrushes. There is suitable habitat for this species within the wetlands nestled within the tamarisk and arrow weed scrub.
- California horned lark (*Eremophila alpestris ssp. actia*) is a CDFW WL species. It occurs in bare, open areas dominated by low vegetation or widely scattered shrubs, including prairies, deserts, and plowed fields. It nests in a hollow on the ground. The disturbed creosote scrub habitat onsite and in the buffer zones provides potential habitat. No CNDDDB records occur within five miles of the Project site.
- Yellow-breasted chat (*Icteria virens*) is a CDFW SSC. This species is commonly found in shrublands along rivers. There is potential for the yellow-breasted chat to occur within the arrow weed and tamarisk scrub in the eastern portion of the Project site.

Wildlife Species with Low Potential to Occur

Six species were found to have a low potential to occur on the Project site because limited habitat for the species occurs on the site and a known occurrence has been reported in the database, but not within five miles of the site, or suitable habitat strongly associated with the species occurs on the site, but no records were found in the database search:

- southwestern willow flycatcher (*Empidonax traillii ssp. extimus*), USFWS END and CDFW END,
- pallid bat (*Antrozous pallidus*), CDFW SSC,
- Townsend's big-eared bat (*Corynorhinus townsendii*), CDFW SSC,
- western yellow bat (*Lasiurus xanthinus*), CDFW SSC,
- Sonoran desert toad (*Incilius alvarius*), CDFW SSC, and
- red-diamond rattlesnake (*Crotalus ruber*), CDFW SSC.

Wildlife Species Presumed Absent

The following three species are presumed absent from the Project site due to the lack of suitable habitat on the site

- Gila woodpecker (*Melanerpes uropygialis*), USFWS BCC and CDFW END,
- western mastiff bat (*Eumops perotis ssp. californicus*), CDFW SSC, and
- big free-tailed bat (*Nyctinomops macrotis*), CDFW SSC.

4.4 Jurisdictional Aquatic Resources Assessment

An aquatic resources delineation was conducted by ECORP biologists during a separate survey effort, the results of which are presented under separate cover (ECORP 2020).

4.5 Wildlife Movement Corridors, Linkages, and Significant Ecological Areas

The concept of habitat corridors addresses the linkage between large blocks of habitat that allow the safe movement of mammals and other wildlife species from one habitat area to another. The definition of a corridor is varied, but corridors may include such areas as greenbelts, refuge systems, underpasses, and biogeographic land bridges, for example. In general, a corridor is described as a linear habitat, embedded in a dissimilar matrix, which connects two or more large blocks of habitat. Wildlife movement corridors are critical for the survivorship of ecological systems for several reasons. Corridors can connect water, food, and cover sources, spatially linking these three resources with wildlife in different areas. In addition, wildlife movement between habitat areas provides for the potential of genetic exchange between wildlife species populations, thereby maintaining genetic variability and adaptability to maximize the success of wildlife responses to changing environmental conditions. This is especially critical for small populations subject to loss of variability from genetic drift and effects of inbreeding. Naturally, the nature of corridor use and wildlife movement patterns varies greatly among species.

The Project site was assessed for its ability to function as a wildlife corridor. The Project site has an extensive riparian corridor in the western corner of the site that provides cover for migrating and nesting birds. It also provides foraging habitat for raptors and small and large mammals, including rodents and canids. The desert washes located within the western corner of the Project boundaries are likely utilized by wildlife moving through the area; therefore, these features and associated riparian habitat would be considered necessary linkages between conserved natural habitat areas or critical for wildlife movement because of the nearby direct connectivity to wetlands to the south of the Project site. The northern and southern boundaries are restricted by the All-American Canal to the north and the U.S./Mexico border wall borders the southern buffer of the Project Area. Although the border wall inhibits large mammal movement, avian species and small mammals may fly over or cross through the wall.

The disturbed creosote bush scrub portion of the Project is sparse with low plant diversity, and therefore offers little shelter and foraging habitat. The Project site is open with barriers to the north and south, leaving the terrain accessibility constrained for ground-truthing wildlife. The Project borders the western edge of expansive agricultural fields and is surrounded to the north, west, and south by agriculture. Thus,

the creosote scrub habitat only currently provides wildlife movement opportunities to the east because it consists of open and relatively unimpeded land. In conclusion, the creosote bush scrub habitat portion of the Project would not be considered a wildlife movement corridor that would need to be preserved to allow wildlife to move between important natural habitat areas due to the lack of conserved natural lands in the vicinity and the Project's proximity to farming lands. The creosote bush scrub habitat within the Project boundaries is exposed and does not contain any major features that would be considered critical movement corridors for wildlife. Therefore, the creosote bush habitat acts as more of a buffer between agricultural lands and wildlands to the east, but not as a corridor for wildlife.

5.0 IMPACT ASSESSMENT

Implementation of the Project has potential to impact creosote bush scrub habitat, arrow weed scrub, alkali playa habitat, and tamarisk scrub. These communities may provide suitable nesting and foraging habitat for passerines, including Yuma's Ridgway rail, burrowing owl, yellow warbler, loggerhead shrike, black-tailed gnatcatcher, raptor foraging habitat, and Abrams' spurge habitat. Conceptual design of the Project has not been finalized; therefore, impacts and minimization measures cannot be confirmed at this time. The following recommendations would be required to determine if the Project would result in significant impacts to vegetation communities, special-status plant and wildlife species, jurisdictional waters, and wildlife movement corridors.

5.1.1 Special-Status Species

Special-Status Plants

The literature review identified 11 special-status plant species that have the potential to occur within the Project Area. However, 10 of these plant species have a low potential to occur due to the limited suitable habitat within the Project Area. These species include Watsons's amaranth, gravel milk-vetch, Wiggins' croton, California satintail, ribbed cryptantha, winged cryptantha, hairy stickleaf, Darlington's blazing star, slender cottonheads, and sand food.

There is high potential for one rare plant species, Abram's spurge (CRPR 2B.2), to be present within the Project Area. Suitable habitat for this species is present within the creosote bush scrub habitat. Impacts that may occur to the species includes loss of individuals, habitat, and seedbank. Depending on the size of the population, this impact may be significant. Implementation of BIO-1 and BIO-2 is recommended to decrease the chances of a significant impact.

Special-Status Wildlife

The literature review identified 18 special-status wildlife species that have the potential to occur within the Project Area. However, eight of these species have a low or no potential to occur due to the lack of suitable and/or limited habitat within the Project Area. Wildlife species that are presumed absent from the Project Area include Gila woodpecker, western mastiff bat, and big free-tailed bat. Wildlife species with a low potential to occur include Sonoran desert toad, red-diamond rattlesnake, pallid bat, Townsend's big-eared bat, and western yellow bat.

Five special-status wildlife species were observed on site during the habitat assessment. Black-tailed gnatcatchers, northern harrier, burrowing owl, yellow warblers, and loggerhead shrikes were observed in the tamarisk and arrow weed thickets in the western portion of the Project Area. burrowing owl and their burrows were observed in the artificial berms within the alkali playa in the western portion of the Project site and in a concrete pile in the northeastern corner of the site. Direct impacts to these species that could occur include injury, mortality, nest failures, and loss of young. Indirect impacts include loss of nesting and foraging habitat, increase in anthropogenic effects (i.e., noise levels, introduction of invasive/nonnative species, increase in human activity, increase in dust). Impacts to these species could be considered significant; therefore, implementation of BIO-2, BIO-3, BIO-4, BIO-5, and BIO-7 is recommended.

Foraging habitat for a number of raptor species and breeding habitat for numerous passerine species that are protected by the MBTA occurs throughout the Project site. The site provides nesting habitat for ground-nesting species as well as species that nest in riparian scrub habitat. Due to the lack of large trees within the Survey Area, there is no suitable nesting habitat for raptor species. However, northern harriers are ground nesters; therefore, the tamarisk thicket and arrow weed thicket habitats provide potential nesting habitat for this species. Direct impacts to nesting avian species include injury, mortality, loss of young, and nest failure. Indirect impacts include loss of foraging and nesting habitat for passerine and raptors species, increase in noise and human activities, and potential introduction of invasive/nonnative species. Implementation of BIO-4, BIO-5, and BIO-7 are recommended to mitigate for potential impacts.

5.1.2 Sensitive Natural Communities

The 528-acre Project site is comprised of disturbed creosote scrub, arrow weed thickets, tamarisk thickets, alkali weed – salt grass playas and sinks, and urban/developed, which would be directly impacted by the Project. Row crops, creosote bush scrub, and arrow weed thickets occur within the Project buffer area. In-kind mitigation, up to 3:1 ratio, may be required by CDFW to offset impacts to arrow weed thickets, tamarisk thickets, and alkali weed – salt grass playas and sinks in order to reduce impacts to less than significant. Implementation of BIO-7 is recommended to reduce potential impacts.

5.1.3 State- and/or Federally Protected Wetlands and Waters

The results of the Aquatic Resources Delineation and discussion of potential impacts on State or federally protected wetlands or Waters of the U.S. are discussed in the Aquatic Resources Delineation Report (ECORP 2020), prepared under separate cover. Implementation of BIO-6 is recommended to mitigate for potential significant impacts.

5.1.4 Wildlife Corridors and Nursery Sites

The Project site is located adjacent to areas containing existing disturbances (i.e., roads, border wall, and active agricultural land). The majority of the site does not contain suitable vegetation and/or cover to support wildlife movement and is nestled on the edge of agricultural and development; therefore, wildlife movement opportunities connecting the Project site to large, undeveloped natural areas is extremely limited. However, the riparian habitat could act as a potential corridor and nursery site for migrating

wildlife species. Therefore, implementation of BIO-2, BIO-4, BIO-5, BIO-6, and BIO-7 are recommended to mitigate for potential significant impacts.

5.1.5 Habitat and Conservation Plans and Natural Community Conservation

There is no Imperial County Plan or local plan at the time of this report; therefore, consultation with USFWS and CDFW would be required should listed plant and/or wildlife species be found to occur.

6.0 RECOMMENDATIONS AND MITIGATION MEASURES

The following recommendations have been developed in accordance with the CEQA impacts analysis for the Project (see Section 5) but should not be considered mitigation measures at this point in the Project planning process. These actions are recommended prior to Project implementation:

BIO-1 Rare Plant Surveys: Rare plant surveys should be conducted within suitable habitat on the Project site during the appropriate blooming period for the Abrams' spurge (approximately September through November). The surveys should be conducted by a botanist or qualified biologist in accordance with the USFWS Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 1996); the CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018); and the CNPS Botanical Survey Guidelines (CNPS 2001). If any special-status species are observed during the rare plant surveys, the location of the individual plant or population will be recorded with a submeter GPS device for mapping purposes. If Project-related impacts to rare plants on the Project site are unavoidable, then consultation with CDFW may be required to develop a mitigation plan or additional avoidance and minimization measures. Mitigation measures that may be implemented if the species is observed include establishing a no-disturbance buffer around locations of individuals or a population, salvage or seed collection, and additional monitoring requirements.

BIO-2 Biological Monitoring: A qualified biologist should be present to monitor all ground-disturbing and vegetation-clearing activities conducted for the Project. During each monitoring day, the biological monitor should perform clearance survey "sweeps" at the start of each work day that vegetation clearing takes place to minimize impacts on special-status species with potential to occur (including, but not limited to, special-status and/or nesting bird species and flat-tailed horned lizard). The monitor will be responsible for ensuring that impacts to special-status species, nesting birds, and active nests will be avoided to the greatest extent possible. Biological monitoring should take place until the Project site has been completely cleared of any vegetation. If an active nest is identified, the biological monitor should establish an appropriate disturbance limit buffer around the nest using flagging or staking. Construction activities should not occur within any disturbance limit buffer zones until the nest is deemed no longer active by the biologist. If special-status wildlife species are detected during biological monitoring activities, then consultation with the USFWS and/or CDFW should be conducted and a mitigation plan should be developed to avoid and offset impacts to these species. Mitigation measures may consist of work restrictions or additional biological monitoring activities after ground-disturbing activities are complete.

BIO-3 Pre-Construction Surveys for Burrowing Owl: Pre-construction surveys for burrowing owl should be conducted within the Project site and adjacent areas prior to the start of ground-disturbing activities. The surveys should follow the methods described in the CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Two surveys should be conducted, with the first survey being conducted between 30 and 14 days before initial ground disturbance (grading, grubbing, and construction), and the second survey being conducted no more than 24 hours prior to initial ground disturbance. If burrowing owls and/or suitable burrowing owl burrows with sign (e.g., whitewash, pellets, feathers, prey remains) are identified on the Project site during the survey and impacts to those features are unavoidable, consultation with the CDFW should be conducted and the methods described in the CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012) for avoidance and/or passive relocation should be followed.

BIO-4 Pre-Construction Nesting Bird Survey: If construction or other Project activities are scheduled to occur during the bird breeding season (typically February 1 through August 31 for raptors and March 15 through August 31 for the majority of migratory bird species), a pre-construction nesting-bird survey should be conducted by a qualified avian biologist to ensure that active bird nests, including those for the black-tailed gnatcatcher, northern harrier, yellow warbler, burrowing owl, and loggerhead strike, will not be disturbed or destroyed. The survey should be completed no more than three days prior to initial ground disturbance. The nesting-bird survey should include the Project site and adjacent areas where Project activities have the potential to affect active nests, either directly or indirectly due to construction activity or noise. If an active nest is identified, the biologist should establish an appropriately sized disturbance-limit buffer around the nest using flagging or staking. Construction activities should not occur within any disturbance-limit buffer zones until the nest is deemed inactive by the qualified biologist. If construction activities cease for a period of greater than three days during the bird breeding season, a pre-construction nesting bird survey should be conducted prior to the commencement of activities.

BIO-5 Pre-Construction Survey for Special-Status Species: A pre-construction survey should be conducted for special-status wildlife species within all areas of potential permanent and temporary disturbance. The pre-construction survey should take place no more than 14 days prior to the start of ground-disturbing activities. The pre-construction surveys should take place regardless of breeding season timing and should focus on identifying the presence of special-status wildlife species present on the Project site or that were identified as having a high potential to occur on the site. These species include, but are not limited to, flat-tailed horned lizard, burrowing owl, northern harrier, black-tailed gnatcatcher, and yellow warbler. Should any special-status species be identified during the pre-construction survey, consultation to develop suitable avoidance and minimization measures with the appropriate agency (USFWS, CDFW) may need to be undertaken.

BIO-6 Aquatic Resources Regulatory Permitting: If Project-related impacts occur to the riparian areas that may also fall under the jurisdiction of the USACE, CDFW, RWQCB a regulatory permit with those agencies is needed prior to the impact occurring. Refer to the ECORP Jurisdiction Delineation Report (2020) for preliminary determination of regulatory limits that areas that may be regulated by USACE, CDFW, or SWRCB. Permitting includes preparation and submittal of a Pre-Construction Notification under Section 404 of the federal CWA, an Application for Water Quality Certification under Section 401 of the federal CWA and a Notification of Lake or Streambed Alteration under Section 1600 of the California Fish

and Game Code. Other items such as finalized project plans, quantities of fill material, supporting technical studies, etc., are also submitted along with the applications. As a part of this process, the project must also identify and approve mitigation through the respective agencies. Mitigation can include onsite or offsite options or could include payment of an in-lieu fee to a conservation organization. Types of mitigation can include restoration, creation, rehabilitation, enhancement, or other types of habitat improvement. Typically, the type of mitigation and acreage of mitigation is negotiated with the regulatory agencies during the permitting process.

BIO-7 Wetland/Riparian Habitat Avoidance: To the greatest extent possible, plans should avoid impacts to alkali weed – salt grass playas and sinks, arrow weed thicket, and tamarisk thicket habitats to minimize potential impacts to special-status species. Excluding these habitats from the Project should also minimize mitigation and permitting requirements to meet the less-than-significance threshold.

BIO-8 Minimization of Impacts to Wetland/Riparian Habitat: Solar panels, structures, and new access roads should not be placed within 50 feet of wetland and riparian habitat boundaries. A construction buffer of 300 feet should be established around the wetlands and riparian habitat during bird breeding season (February 1 – August 31). Prior to construction, fencing should be installed approximately 10 feet from the wetland and riparian habitat boundaries within 50 feet of the Project. Fencing should be easily visible to construction.

The following best management practices are not mitigation measures pursuant to CEQA but are recommended to further reduce impacts to special-status species that have potential to occur on the property:

- Confine all work activities to a pre-determined work area.
- To prevent inadvertent entrapment of wildlife during the construction phase of the Project, all excavated, steep-walled holes or trenches more than two feet deep should be covered at the close of each working day by plywood or similar materials. If the trenches cannot be closed, one or more escape ramps constructed of earthen fill or wooden planks should be installed. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals.
- Wildlife are often attracted to burrow- or den-like structures such as pipes, and may enter stored pipes and become trapped or injured. To prevent wildlife use of these structures, all construction pipes, culverts, or similar structures with a diameter of four inches or greater should be capped while stored onsite.
- All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in securely closed containers and removed at least once a week from a construction or Project site.
- Use of rodenticides and herbicides on the Project site should be restricted. This is necessary to prevent primary or secondary poisoning of wildlife, including burrowing owl and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the USEPA, California Department of Food and Agriculture, and

other state and federal legislation. If rodent control must be conducted, zinc phosphide should be used because of a proven lower risk to burrowing owl.

7.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Field work conducted for this assessment was performed by me or under my direct supervision. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project applicant or the applicant's representative and that I have no financial interest in the project.

Signed: _____ Date: November 2, 2020
Christina Congedo
Senior Biologist

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LIST OF ATTACHMENTS

Attachment A – Representative Site Photographs

Attachment B – Special-Status Plant Potential for Occurrence Table

Attachment C – Special-Status Wildlife Potential for Occurrence Table

ATTACHMENT A

Representative Site Photographs

Attachment A: Representative Site Photographs

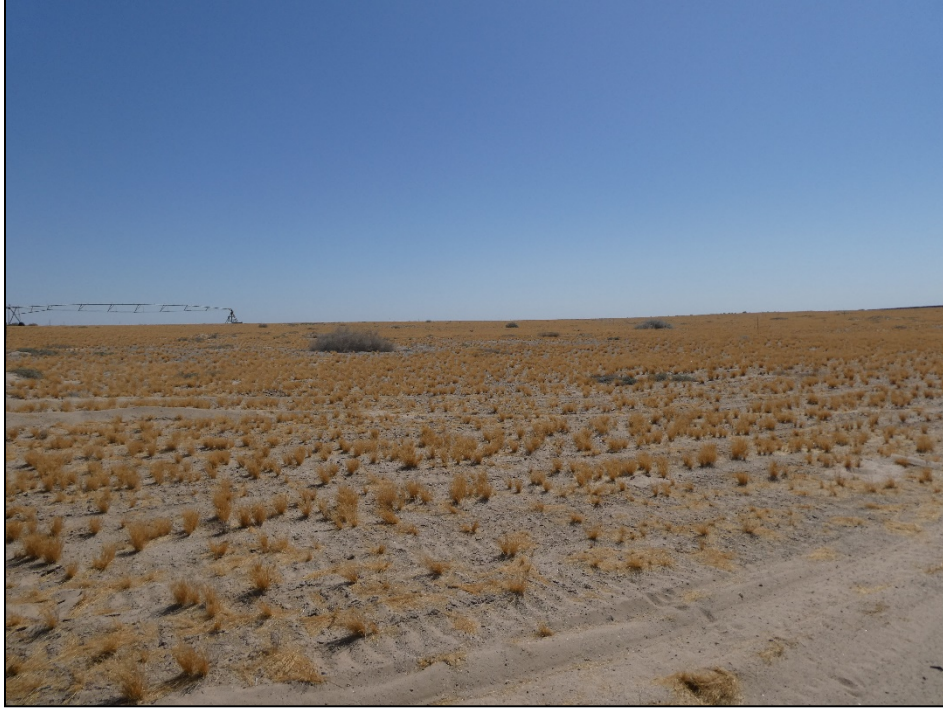


Photo 1. Southeastern section of the Project Area in disturbed lands, facing northeast.



Photo 2. Northeastern section of the Project Area in disturbed creosote bush – white bursage scrub habitat, facing west.

Attachment A: Representative Site Photographs



Photo 3. Disturbed arrow weed thickets in northeastern section of the Project, facing west.



Photo 4. Alkali playa in southwestern section of the Project, facing north.



Photo 5. Arrow weed thickets with tamarisk thickets in the background (circled in red), facing west.



Photo 6. Edge of tamarisk thickets in Project Area, facing west.

Attachment A: Representative Site Photographs



Photo 7. View of creosote bush scrub in the western section of the Project Area, facing west.



Photo 8. Close-up view of active burrowing owl burrow with whitewash and pellets near entrance, located in the southwestern section of the Project Area, facing southwest.

Attachment A: Representative Site Photographs



Photo 9. View of All-American Canal lined with riparian vegetation, including arrow weed and tamarisk thickets, facing northwest.



Photo 10. View of border wall lining the southern perimeter, facing south.

Special-Status Plant Potential for Occurrence Table

Special-Status Plant Species with Potential to Occur within the Project site				
Scientific Name Common Name	Status	Blooming Period/ Elevation Range (meters)	Habitat	Potential to Occur in the Project site
<i>Amaranthus watsonii</i> Watson's amaranth	USFWS: None CDFW: None CRPR: 4.3 BLM: None	Apr-Sep (20 - 1700)	Mojavean desert scrub Sonoran desert scrub	Low: Habitat for this species occurs within the Project site. No CNDDDB records within 5 miles of the site..
<i>Astragalus sabulorum</i> gravel milk-vetch	USFWS: None CDFW: None CRPR: 2B.2 BLM: None	Feb-Jun (-60 - 930)	Desert dunes Mojavean desert scrub Sonoran desert scrub	Low: Habitat for this species occurs within the Project site. No CNDDDB records occur within 5 miles of the site.
<i>Croton wigginsii</i> Wiggins' croton	USFWS: None CDFW: Rare CRPR: 2B.2 BLM: Sensitive	Mar-May (50 - 100)	Desert dunes Sonoran desert scrub	Low: Limited habitat occurs within the Project site. No CNDDDB records occur within 5 miles of the site.
<i>Euphorbia abramsiana</i> Abrams' spurge	USFWS: None CDFW: None CRPR: 2B.2 BLM: None	Sep-Nov (-5 - 1310)	Mojavean desert scrub Sonoran desert scrub	Moderate: Habitat for the species occurs in the Project site and a historic known occurrence (1912) has been recorded within approximately four miles north of the site.
<i>Imperata brevifolia</i> California satintail	USFWS: None CDFW: None CRPR: 2B.1 BLM: None	Sep-May (0 - 1215)	Chaparral Coastal scrub Mojavean desert scrub Meadows and seeps Riparian scrub	Low: Habitat for this species occurs within the Project site. No CNDDDB records occur within 5 miles of the site.
<i>Johnstonella costata</i> ribbed cryptantha	USFWS: None CDFW: None CRPR: 4.3 BLM: None	Feb-May (-60 - 500)	Desert dunes Mojavean desert scrub Sonoran desert scrub	Low: Habitat for this species occurs within the Project site. No CNDDDB records occur within 5 miles of the site.
<i>Johnstonella holoptera</i> winged cryptantha	USFWS: None CDFW: None CRPR: 4.3 BLM: None	Mar-Apr (100 - 1690)	Mojavean desert scrub Sonoran desert scrub	Low: Limited habitat occurs within the Project site. No CNDDDB records occur within 5 miles of the site.
<i>Mentzelia hirsutissima</i> hairy stickleaf	USFWS: None CDFW: None CRPR: 4.3 BLM: None	Mar-May (0 - 700)	Sonoran desert scrub	Low: Habitat for this species occurs within the Project site. No CNDDDB records occur within 5 miles of the site.
<i>Mentzelia puberula</i> Darlington's blazing star	USFWS: None CDFW: None CRPR: 2B.2 BLM: None	Mar-May (90 - 1280)	Mojavean desert scrub Sonoran desert scrub	Low: Limited habitat occurs within the Project site. No CNDDDB records occur within 5 miles of the site.
<i>Nemacaulis denudata</i> var. <i>gracilis</i> slender cottonheads	USFWS: None CDFW: None CRPR: 2B.2 BLM: None	Apr-May (-50 - 400)	Coastal dunes Desert dunes Sonoran desert scrub	Low: Habitat for this species occurs within the Project site. No CNDDDB records occur within 5 miles of the site.

Special-Status Plant Species with Potential to Occur within the Project site				
Scientific Name Common Name	Status	Blooming Period/ Elevation Range (meters)	Habitat	Potential to Occur in the Project site
<i>Pholisma sonorae</i> sand food	USFWS: None CDFW: None CRPR: 1B.2 BLM: Sensitive	Apr-Jun (0 - 200)	Desert dunes Sonoran desert scrub	Low: Habitat for this species occurs within the Project site. No CNDDDB records occur within 5 miles of the site.

California Native Plant Society (CNPS) Rare Plant Ranks:

- 1B: Plants rare, threatened, and endangered in California and elsewhere.
- 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.
- 4: Plants of limited distribution; a watch list.

CNPS Threat Ranks:

- 0.1: Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- 0.2: Fairly threatened in California (20-80% of occurrences threatened / moderate degree and immediacy of threat)
- 0.3-Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Sources:

- California Natural Diversity Data Base (CNDDDB) (CDFW 2020)
- CNPS Rare and Endangered Plant Inventory (CNPS 2020)
- Calflora Information on California Plants (Calflora 2020)
- IPaC (USFWS 2020)
- Special Status Plants (BLM 2015)

Special-Status Wildlife Potential for Occurrence Table

Special-Status Wildlife Species Potential For Occurrence

Scientific Name Common Name	Status	Habitat Requirements	Potential for Occurrence
AMPHIBIANS			
BUFONIDAE (true toads)			
<i>Inciilius alvarius</i> Sonoran Desert toad	USFWS: CDFW:	none SSC	Creosote bush desert scrub, grasslands up into oak-pine woodlands, thorn scrub and tropical deciduous forest in Mexico.
REPTILES			
PHRYNOSOMATIDAE (spiny lizards)			
<i>Phrynosoma mcallii</i> flat-tailed horned lizard	USFWS: CDFW:	none SSC	Desert scrub on sandy flats and valleys with little or no windblown sand, salt flats, and areas with gravelly soils.
VIPERIIDAE (vipers)			
<i>Crotalus ruber</i> red-diamond rattlesnake	USFWS: CDFW:	none SSC	Found in coastal chaparral, arid scrub, rocky grassland, oak and pine woodlands, desert mountain slopes and rocky desert flats.
BIRDS			
ALAUDIDAE (larks)			
<i>Eremophila alpestris ssp. actia</i> California horned lark	USFWS: CDFW:	none WL	Bare open areas dominated by low vegetation or widely scattered shrubs, includes prairies, deserts, and plowed fields. Nests in a hollow on the ground.
LANIIDAE (shrikes)			
<i>Lanius ludovicianus</i> loggerhead shrike (nesting)	USFWS: CDFW:	BCC SSC	Open country, with scattered shrubs and trees or other perches for hunting; includes agricultural fields, deserts, grasslands, savanna, and chaparral. Nests 2.5 to 4 feet off ground in thorny vegetation.

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PARULIDAE (new world warblers)				
<i>Icteria virens</i> yellow-breasted chat	USFWS: CDFW:	none SSC	Riparian and upland thickets, and dry overgrown pastures. Prefers to nest in dense scrub along streams or at the edges of ponds or swamps.	Moderate. The arrow weed and tamarisk thickets provides suitable nesting and foraging habitat for this species. No CNDDDB records within 5 miles of the site.
<i>Setophaga petechia</i> yellow warbler	USFWS: CDFW:	BCC SSC	Riparian woodlands especially with willows, open scrub, gardens, and thickets often near water.	Present. This species was observed within the tamarisk thickets in the western portion of the Project. This habitat provides suitable nesting areas for this species.
PICIDAE (woodpeckers)				
<i>Melanerpes uropygialis</i> Gila woodpecker	USFWS: CDFW:	none END	Arid environments, especially deserts and dry forests of the southwestern U.S. and adjacent Mexico, usually below elevations of 3,300 feet. Most common in low swales and arroyos, including riparian corridors with cottonwood, willow, and mesquite. Nests in cacti and other tree species.	Presumed absent. Unlikely to occur onsite due to absence of suitable nesting cavity locations, i.e. large trees and/or cacti. No recent CNDDDB records within 5 miles of the site.
POLIOPTILIDAE (gnatcatchers)				
<i>Polioptila melanura</i> black-tailed gnatcatcher	USFWS: CDFW:	none WL	Semiarid and desert thorn scrub habitats. This species is well adapted to dry habitats and tend to be most common in areas with less than 8 inches of annual rainfall. They often live far from streams and other bodies of water.	Present. Several pairs were observed in the tamarisk thickets in the western portion of the Project. No CNDDDB records within 5 miles of the site.
RALLIDAE (rails)				
<i>Rallus obsoletus ssp. yumanensis</i> Yuma Ridgway's rail	USFWS: CDFW:	END THR, FP	Consistently found in freshwater marshes that are composed of cattail and bulrush. This emergent vegetation averages greater than 6 feet tall. Water depth tends to be around 3.5 inches deep. Range extends from Nevada, California, and Arizona to Baja California and Sonora Mexico.	Moderate. Presence of cattail dominated wetland habitat within the tamarisk and arrow weed thickets on site are suitable nesting habitats for this species. Two CNDDDB records within 5 miles of the site, one record from 1998 approximately 2.2 west of the site and one record from 1982 approximately 3 miles northeast of the site.
TYRANNIDAE (tyrant flycatchers)				
<i>Empidonax traillii ssp. extimus</i> southwestern willow flycatcher	USFWS: CDFW:	END END	Riparian woodlands particularly with willow thickets. Nests in densest areas of shrubs and trees with low-density canopies.	Low. Suitable riparian woodland habitat. No CNDDDB records within 5 miles of the site.

STRIGIDAE (owls)				
<i>Athene cunicularia</i> burrowing owl	USFWS: CDFW:	none SSC	Open grasslands including prairies, plains, and savannah, or vacant lots and airports. Nests in abandoned dirt burrows.	Present. A burrowing owl and two active satellite burrows were observed during the habitat assessment. Eight CNDDDB records within 5 miles of the site; two historic records and six recent records with the closest being 1.7 miles away in 2007.
MAMMALS				
MOLOSSIDAE (free-tailed bats)				
<i>Eumops perotis ssp. californicus</i> western mastiff bat	USFWS: CDFW:	none SSC	Roosts high above ground in rock and cliff crevices, shallow caves, and rarely in buildings. Occurs in arid and semiarid regions including rocky canyon habitats.	Presumed absent. No suitable roosting habitat within site or in buffer. No CNDDDB records within 5 miles of the site.
<i>Nyctinomops macrotis</i> big free-tailed bat	USFWS: CDFW:	none SSC	Roosts in cliff crevices, and less often in buildings, caves, and tree cavities. Occurs in rocky areas of rugged and hilly country including woodlands, evergreen forests, river floodplain-arroyo habitats, and desert scrub.	Presumed absent. No suitable roosting habitat within site or in buffer. No CNDDDB records within 5 miles of the site.
VESPERTILIONIDAE (evening bats)				
<i>Antrozous pallidus</i> pallid bat	USFWS: CDFW:	none SSC	Roosts in rock crevices, caves, mines, buildings, bridges, and in trees. Generally, in mountainous areas, lowland desert scrub, arid grasslands near water and rocky outcrops, and open woodlands.	Low. No suitable roosting habitat on site or in buffer; however, desert scrub provides suitable foraging habitat. No CNDDDB records within 5 miles of the site.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	USFWS: CDFW:	none SSC	Roosts in mines, caves, buildings, or other crevices, sometimes trees. Usually requires large crevices. Most common in moist areas or those with access to water.	Low. There is limited suitable roosting habitat within the site and buffer. No CNDDDB records within 5 miles of the site.
<i>Lasiurus xanthinus</i> western yellow bat	USFWS: CDFW:	none SSC	Roosts in trees, particularly palms, in desert wash, desert riparian, valley foothill riparian, and palm oasis habitats.	Low. There is marginally suitable roosting habitat within the buffer in the palm trees. This species has a strong association with roosting under dead palm frond skirts. No CNDDDB records within 5 miles of the site.

CRICETIDAE (New World rats and mice)				
<p><i>Sigmodon hispidus ssp. eremicus</i> Yuma hispid cotton rat</p>	<p>USFWS: CDFW:</p>	<p>none SSC</p>	<p>Inhabits a variety of habitats, but generally associated with drainage ditches, canals, and seeps vegetated with plants such as arrow weed, saltgrass, common reed, cattails, sedges, tamarisk, heliotrope, and annual grasses. They utilize runways through dense herbaceous growth and nests are built of woven grass. Noted presence in moist agricultural fields.</p>	<p>High. There is suitable arrow weed and tamarisk thickets within the site. One recent CNDDDB record occurs within 5 miles of the site. Species was found in arrow weed scrub and freshwater marsh adjacent to irrigation canal in 2007.</p>
<p>Federal Designations: (Federal Endangered Species Act, USFWS)</p> <p>END: Federally-listed, Endangered THR: Federally-listed, Threatened CAN: Federal Candidate Species FSC: Federal Species of Concern FPD: Federal Proposed for Delisting BCC: Bird of Conservation Concern</p>			<p>State Designations: (California Endangered Species Act, CDFW)</p> <p>END: State-listed, Endangered THR: State-listed, Threatened CAN: State Candidate Species SSC: California Species of Special Concern FP: Fully Protected Species WL: Watch List</p>	

Energy Impact Assessment

Vega SES 4 Solar Energy Storage Project

County of Imperial, California

Prepared For:

Vega SES 4, LLC
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Suite 250
Folsom, California 95630

February 2021



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

INFO ITEM ONLY

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ATTACHMENTS

Attachment A - Energy Consumption Modeling Output

LIST OF ACRONYMS AND ABBREVIATIONS

APNs	Assessor's Parcel Numbers
CalEEMod	California Emissions Estimator Model
CAISO	California Independent System Operator
CARB	California Air Resources Board
CEC	California Energy Commission
CPUC	California Public Utility Commission
EPS	Emissions Performance Standard
HSAT	Horizontal Single-Axis Tracker
IID	Imperial Irrigation District
kWh	Kilowatt-Hours
MW	Megawatt
mWh	Megawatt Hour
PV	Photovoltaic
Project	Vega SES 4 Solar Energy Storage Project
RPS	Renewables Portfolio Standard

1.0 INTRODUCTION

This report documents the results of an Energy Impact Assessment completed for the Vega SES 4 Solar Energy Storage Project (Project), which includes the construction of a nominal 100-megawatt (MW) alternating current solar photovoltaic (PV) energy generation system with an integrated 100 MW battery storage project on approximately 531.53 acres of land in Imperial County, California. This report was prepared to analyze the potential direct and indirect environmental impacts associated with Project energy consumption, including the depletion of nonrenewable resources (oil, natural gas, coal, etc.) during the construction and operational phases. The impact analysis focuses on the four sources of energy that are relevant to the proposed Project: electricity, natural gas, the equipment-fuel necessary for Project construction, and the automotive fuel necessary for Project operations.

1.1 Project Overview

The Project proposes to construct a nominal 100 MW alternative current PV energy generation system, accompanied by a 100 MW battery storage, utilizing either thin film or crystalline solar PV technology modules mounted either on fixed frames or horizontal single-axis tracker (HSAT) systems. The fixed frame PV module arrays would be mounted on racks that would be supported by driven piles. The individual PV systems would be arranged in large arrays by placing them in columns spaced approximately ten feet apart to maximize operational performance and to allow access for panel cleaning and maintenance.

1.2 Project Location

The Project site is an approximately 531.53-acre site located between the California/Mexico border and the All-American Canal (Aqueduct), on the California side in southcentral Imperial County (County) (see Figure 1). The Project site is located approximately 1.92 miles southeast of the Bonds Corner Road/East Cedar Street/California State Route 98 intersection near the unincorporated community of Bonds Corner. The Project would be located on Imperial County Assessor's Parcel Numbers (APNs) 059-300-015-000 (approximately 301.73 acres), 059-300-017-000 (approximately 148.88 acres) and 059-290-010-000 (approximately 80.92 acres). The irregular shaped site is bound by undeveloped agricultural land to the south, west and east, and the Aqueduct running southwest on the northern border of the proposed Project site. The Project site is currently characterized by flat and undeveloped agricultural land.

1.3 Applicable Land Use Regulations

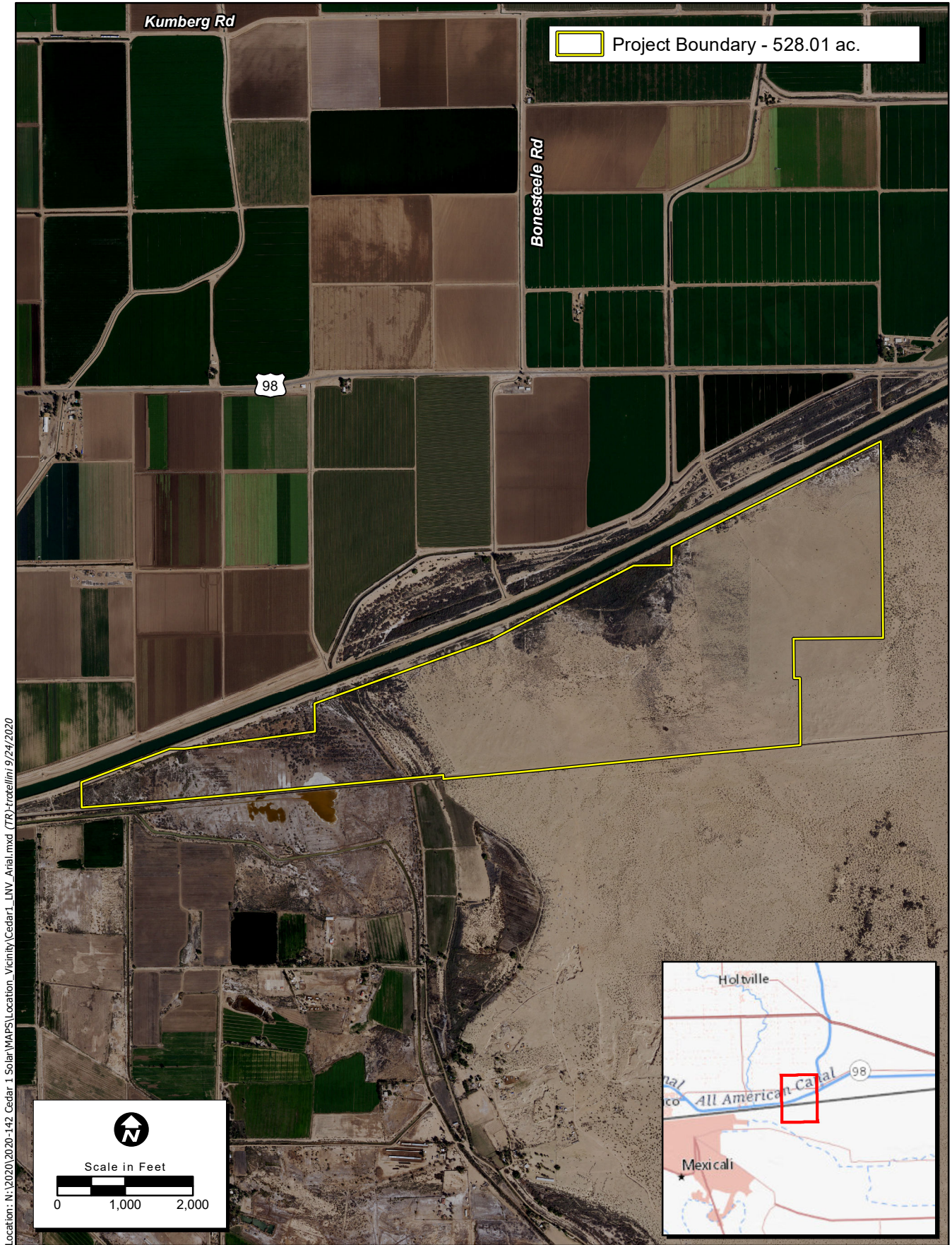
All three of the Project area parcels are designated as "Agriculture" in the Imperial County General Plan and are zoned A-3-RE (Heavy Agriculture with a Renewable Energy Overlay-areas that are suitable for agricultural land uses; to prevent the encroachment of incompatible uses onto and within agricultural lands; and to prohibit the premature conversion of such lands to non-agricultural uses). Pursuant to Section 91703.02 (*Conditional Use Permits*), Renewable Energy Projects must be located within the Renewable Energy Overlay Zone and may be permitted only through the issuance of a Conditional Use Permit (CUP) as approved by the Approving Authority unless otherwise allowed by applicable law. At present, the Project is located within the Renewable Energy Zone.

1.4 Project Site Access

The Project site would include one primary access driveway, currently contemplated across the East Highline Check of the Aqueduct, in the far northeastern corner of the Project area and a secondary access driveway (if required) with a to-be-determined location. This driveway would be provided with a minimum of 30-foot double swing gates with "Knox Box" for keyed entry. Internal to the Project site up to 30-foot wide roads would be provided between the PV arrays, as well as around the perimeter of each Project site inside the perimeter security fence to provide access to all areas of each site for maintenance and emergency vehicles.

1.5 Project Construction

Construction activities would primarily involve demolition and grubbing; grading of the Project area to establish access roads and pads for electrical equipment (inverters and step-up transformers); trenching for underground electrical collection lines; and the installation of solar equipment and security fencing. The construction of the site is estimated to take 12-18 months and would begin in 2022. A temporary, portable construction supply container would be located at the Project site at the beginning of construction and removed at the end of construction. The number of on-site construction workers for the solar project facilities is not expected to exceed 150 workers at any one time. The number of on-site construction workers for the battery storage facility and the substation is not expected to exceed 100 workers at any one time. Onsite parking would be provided for all construction workers.



Location: N:\2020\2020-142_Cedar_1_Solar\WAPS\Location_Vicinity\Cedar1_LINV_Arial.mxd (TR)-trastellin_9/24/2020

Map Date: 9/24/2020
 Service Layer Credits:
 Photo Source: NAIP (2018)

Figure 1. Project Location and Vicinity

2020-142 Vega SES 4

2.0 ENERGY CONSUMPTION

2.1 Energy Types and Sources

California relies on a regional power system comprised of a diverse mix of natural gas, renewable, hydroelectric, and nuclear generation resources. Natural gas provides California with a majority of its electricity followed by renewables, large hydroelectric and nuclear (California Energy Commissions [CEC] 2020). Imperial Irrigation District (IID), the sixth largest electrical utility in California serving more than 150,000 customers in the Imperial Valley and parts of Riverside and San Diego counties, provides electrical services to the Project area. IID controls more than 1,100 megawatts of energy derived from a diverse resource portfolio that includes its own generation, and long- and short-term power purchases. Located in a region with abundant sunshine, enviable geothermal capacity, wind and other renewable potential, IID has met or exceeded all Renewable Portfolio Standard requirements to date, procuring renewable energy from diverse sources, including biomass, biowaste, geothermal, hydroelectric, solar and wind.

The Southern California Gas Company provides natural gas services to Imperial County. As the nation's largest natural gas distribution utility, the Southern California Gas Company delivers natural gas energy to 21.6 million consumers through 5.9 million meters in more than 500 communities. The Southern California Gas Company's service territory encompasses approximately 20,000 square miles throughout Central and Southern California, from Visalia to the Mexican border.

2.1.1 Energy Consumption

Electricity use is measured in kilowatt-hours (kWh), and natural gas use is measured in therms. Vehicle fuel use is typically measured in gallons (e.g. of gasoline or diesel fuel), although energy use for electric vehicles is measured in kWh.

The electricity consumption associated with all uses in Imperial County from 2015 to 2019 is shown in Table 2-1. As indicated, the demand has remained constant since 2015.

Table 2-1. Electricity Consumption in Imperial County 2015-2019	
Year	Electricity Consumption (kilowatt hours)
2019	1,415,790,908
2018	1,467,590,638
2017	1,445,167,336
2016	1,440,493,016
2015	1,419,088,130

Source: CEC 2019

The natural gas consumption associated with all uses in Imperial County from 2015 to 2019 is shown in Table 2-2. As indicated, the demand has increased since 2015.

Table 2-2. Natural Gas Consumption in Imperial County 2015-2019	
Year	Natural Gas Consumption (therms)
2019	42,914,053
2018	38,729,625
2017	40,442,318
2016	36,089,854
2015	31,494,256

Source: CEC 2019

Automotive fuel consumption in Imperial County from 2016 to 2020 is shown in Table 2-3. Fuel consumption has decreased between 2016 and 2020.

Table 2-3. Automotive Fuel Consumption in Imperial County 2016-2020	
Year	Total Fuel Consumption (gallons)
2020	196,177,597
2019	198,822,094
2018	201,793,138
2017	204,312,157
2016	208,822,214

Source: California Air Resources Board (CARB) 2017

2.2 Regulatory Framework

2.2.1 State

Executive Order B-55-18

In September 2018 Governor Jerry Brown Signed Executive Order (EO) B-55-18, which establishing a new statewide goal “to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter.” Carbon neutrality refers to achieving a net zero carbon dioxide emissions. This can be achieved by reducing or eliminating carbon emissions, balancing carbon emissions with carbon removal, or a combination of the two. This goal is in addition to existing statewide targets for GHG emission reduction. EO B-55-18 requires the California Air Resource Board (CARB) to “work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal.

Senate Bill 1368

On September 29, 2006, Governor Arnold Schwarzenegger signed into law Senate Bill (SB) 1368 (Perata, Chapter 598, Statutes of 2006). The law limits long-term investments in baseload generation by the state's utilities to those power plants that meet an emissions performance standard jointly established by the CEC and the California Public Utilities Commission (CPUC).

The CEC has designed regulations that:

- Establish a standard for baseload generation owned by, or under long-term contract to, publicly owned utilities, of 1,100 pounds carbon dioxide per megawatt hour (mWh). This would encourage the development of power plants that meet California's growing energy needs while minimizing their emissions of greenhouse gas.
- Require posting of notices of public deliberations by publicly owned utilities on long-term investments on the CEC website. This would facilitate public awareness of utility efforts to meet customer needs for energy over the long term while meeting the State's standards for environmental impact.
- Establish a public process for determining the compliance of proposed investments with the emissions performance standard (EPS) (Perata, Chapter 598, Statutes of 2006).

Renewable Energy Sources (Renewable Portfolio Standards)

Established in 2002 under SB 1078, and accelerated by SB 107 (2006) and SB 2 (2011), California's Renewables Portfolio Standard (RPS) obligates investor-owned utilities, energy service providers, and community choice aggregators to procure 33 percent of their electricity from renewable energy sources by 2020. Eligible renewable resources are defined in the 2013 RPS to include biodiesel; biomass; hydroelectric and small hydro (30 megawatts or less); Los Angeles Aqueduct hydro power plants; digester gas; fuel cells; geothermal; landfill gas; municipal solid waste; ocean thermal, ocean wave, and tidal current technologies; renewable derived biogas; multi-fuel facilities using renewable fuels; solar photovoltaic; solar thermal electric; wind; and other renewables that may be defined later. Governor Jerry Brown signed SB 350 on October 7, 2015, which expands the RPS by establishing a goal of 60 percent of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses upon which an energy efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, establish efficiency targets for electrical and gas corporations consistent with this goal. SB 350 also provides for the transformation of the California Independent System Operator (CAISO) into a regional organization to promote the development of regional electricity transmission markets in the western states and to improve the access of consumers served by the CAISO to those markets, pursuant to a specified process. In 2018, SB 100 was signed by Governor Brown, codifying a goal of 60 percent renewable procurement by 2030 and 100 percent by 2045 Renewables Portfolio Standard.

2.3 Energy Consumption Impact Assessment

2.3.1 Thresholds of Significance

The impact analysis provided below is based on the following CEQA Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to energy if it would do any of the following:

- 1) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

- 2) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The impact analysis focuses on the four sources of energy that are relevant to the proposed Project: electricity, natural gas, the equipment fuel necessary for Project construction, and the automotive fuel necessary for Project operations. Addressing energy impacts requires an agency to make a determination as to what constitutes a significant impact. There are no established thresholds of significance, statewide or locally, for what constitutes a wasteful, inefficient, and unnecessary consumption of energy for a proposed land use. For the purposes of this analysis, the amount of electricity and natural gas estimated to be consumed by the Project are quantified and compared to that consumed by all land uses in Imperial County. Similarly, the amount of fuel necessary for Project construction and operations is calculated and compared to that consumed in Imperial County.

2.3.2 Methodology

Levels of construction and operational related energy consumption estimated to be consumed by the Project include the number of kWh of electricity, therms of natural gas and gallons of gasoline. Modeling was based on Project specific information such as construction timing and equipment as well as site operations. Energy consumption estimates were calculated using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. CalEEMod is a statewide land use computer model designed to quantify resources associated with both construction and operations from a variety of land use projects.

2.3.3 Impact Analysis

2.4 Energy Consumption

The Project is proposing the development of a 100 MW alternating current PV energy generation system with an integrated 100 MW battery on approximately 531.53 acres of land. Operations of the proposed Project would not result in the consumption of electricity or natural gas and thus, would not contribute to the County wide usage and would directly support the RPS goal of increasing the percentage of electricity procured from renewable sources.

Therefore, this impact analysis focuses on the two sources of energy that are most relevant to the Project: the equipment fuel necessary for construction and the automotive fuel necessary for ongoing maintenance activities. The amount of total construction-related fuel use was estimated using ratios provided in the Climate Registry's General Reporting Protocol for the Voluntary Reporting Program, Version 2.1. The amount of operational fuel use was estimated using CARB's EMFAC2017 computer program, which provides projections for typical daily fuel usage in Imperial County. This analysis conservatively assumes that all of the automobile trips projected to arrive at the Project during operations would be new to Imperial County.

Energy consumption associated with the proposed Project is summarized in Table 2-4. Project increases in automotive fuel consumption are compared with the countywide fuel consumption in 2020, the most recent full year of data.

Table 2-4. Proposed Project Energy and Fuel Consumption		
Energy Type	Annual Energy Consumption	Percentage Increase Countywide
Electricity Consumption ¹	0 kilowatt-hours	0.00000 percent
Natural Gas ¹	0 therms	0.00000 percent
<i>Automotive Fuel Consumption</i>		
Project Construction 2022 ²	77,931 gallons	0.03971 percent
Project Construction 2023 ²	45,123 gallons	0.02299 percent
Project Operations ³	128 gallons	0.00006 percent

Source: ¹CalEEMod; ²Climate Registry 2016; ³EMFAC2017 (CARB 2017)

Notes: The Project increases in electricity and natural gas consumption are compared with all uses in Imperial County in 2019, the latest data available. The Project increases in automotive fuel consumption are compared with the countywide fuel consumption in 2020, the most recent full year of data.

Fuel necessary for Project construction would be required for the operation and maintenance of construction equipment and the transportation of materials to the Project site. The fuel expenditure necessary to construct the solar facility and infrastructure would be temporary, lasting only as long as Project construction. As indicated in Table 2-4, the Project’s gasoline fuel consumption during the one-time construction period is estimated to be 77,931 gallons during 2022 construction and 45,123 gallons during 2023 construction. This would increase the annual countywide gasoline fuel use in the county by 0.03971 percent and 0.02299 percent respectively. As such, Project construction would have a nominal effect on local and regional energy supplies. No unusual Project characteristics would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in the region or the state. Construction contractors would purchase their own gasoline and diesel fuel from local suppliers and would judiciously use fuel supplies to minimize costs due to waste and subsequently maximize profits. Additionally, construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency combined with state regulations limiting engine idling times and requiring recycling of construction debris, would further reduce the amount of transportation fuel demand during Project construction. For these reasons, it is expected that construction fuel consumption associated with the Project would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature.

Once construction is completed the Project would be remotely controlled. No employees would be based at the Project site. The only operational emissions associated with the Project would be associated with motor vehicle use for routine maintenance work and site security as well as panel upkeep and cleaning. A conservative estimate of one vehicle trip per day generated by the Project was assumed. This is a conservative estimate as most days would require no operational related vehicle trips. As indicated in Table 2-4, this would estimate to a consumption of approximately 128 gallons of automotive fuel per year, which would increase the annual countywide automotive fuel consumption by 0.00006 percent. Fuel consumption associated with both the construction equipment needed to construction the Project and the vehicle trips generated by the Project during ongoing maintenance activities would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region.

State and Local Plans for Renewable Energy/Energy Efficiency

The purpose of the proposed Project is the construction of a renewable energy and storage facility in Imperial County. Once in operation, it will decrease the need for energy from fossil fuel-based power plants in the state. The result would be a net increase in electricity resources available to the regional grid, generated from a renewable source. Therefore, the Project would directly support the RPS goal of increasing the percentage of electricity procured from renewable sources. Additionally, the Project would also be consistent with the County's General Plan Conservation and Open Space Element, Objective 9.2 which encourages renewable energy developments. Therefore, the Project would directly support state and local plans for renewable energy development.

3.0 REFERENCES

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Climate Registry. 2016. *General Reporting Protocol for the Voluntary Reporting Program version 2.1*.

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LIST OF ATTACHMENTS

Attachment A - Energy Consumption Modeling Output

Energy Consumption Modeling Output

Action	Carbon Dioxide Equivalents (CO ₂ e) in Metric Tons ¹	Conversion of Metric Tons to Kilograms ²	Construction Equipment Emission Factor ²	Total Gallons of Fuel Consumed
Project Construction	791	791000	10.15	77,931

Per Climate Registry
Equation 13e

Per Climate Registry Equation 13e

Per CalEEMod Output Files.

Total Gallons Consumed During 2022 Project Construction:

77,931

Notes:

Fuel used by all construction equipment, including vehicle hauling trucks, assumed to be diesel.

Sources:

¹ECORP Consulting, 2021.

²Climate Registry. 2016. *General Reporting Protocol for the Voluntary Reporting Program version 2.1*. January 2016.
<http://www.theclimateregistry.org/wp-content/uploads/2014/11/General-Reporting-Protocol-Version-2.1.pdf>

**Proposed Project
Total Construction-Related
and Operational
Gasoline Usage**

Action	Carbon Dioxide Equivalents (CO₂e) in Metric Tons¹	Conversion of Metric Tons to Kilograms²	Construction Equipment Emission Factor²	Total Gallons of Fuel Consumed
Project Construction	458	458000	10.15	45,123
		<small>Per Climate Registry Equation 13e</small>	<small>Per Climate Registry Equation 13e</small>	
	<small>Per CalEEMod Output Files.</small>			

Total Gallons Consumed During 2023 Project Construction: 45,123

Notes:
Fuel used by all construction equipment, including vehicle hauling trucks, assumed to be diesel.

Sources:
¹ECORP Consulting, 2021.

²Climate Registry. 2016. *General Reporting Protocol for the Voluntary Reporting Program version 2.1*. January 2016.
<http://www.theclimateregistry.org/wp-content/uploads/2014/11/General-Reporting-Protocol-Version-2.1.pdf>

Total Gallons During Project Operations³

Area	Sub-Area	Cal. Year	Season	Veh_tech	EMFAC 2011 Category	Fuel_GAS Output	Daily Total	ANNUAL TOTAL
Sub-Areas	Imperial	2023	Annual	All Vehicles	All Vehicles ⁴	0.000350094	0.350093775	127.8

Sources:
³Californai Air Resource Board. 2017. EMFAC2017 Mobile Emissions Model.

Notes:
⁴Excluding Heavy-Duty Highway Trucks, T6 Agricultural Truck, T6 Instate Construction (heavy and small), T7 Agricultural Truck, T7 CAIRP Construction, T7 Single Construction, T7 Tractor Truck, and T7 Tractor Construction

Geotechnical Report

Vega 4 Solar Facility

32.6854, -115.2935

Imperial County, California

Prepared for:

Vega SES 4, LLC

750 W. Main Street

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December 2020

INFO ITEM ONLY

January 8, 2021

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**Geotechnical Report
Vega 4 Solar Facility
South of All American Canal at Bonesteel Road
Imperial County, California
LCI Report No. LE20130**

Dear Ms. Nagel:

This geotechnical report is provided for design and construction of the proposed development of a 100 MW PV solar power generation facility at the approximately 530-acre project site located south of the All-American Canal (AAC) at Bonesteel Road approximately 10 miles east of Calexico, California. The Vega 4 Solar Facility will include an electrical substation and battery storage containers. Our geotechnical exploration was conducted in response to your request for our services. The enclosed report describes our soil engineering site evaluation and presents our professional opinions regarding geotechnical conditions at the site to be considered in the design and construction of the project.

Based on the geotechnical conditions encountered at the points of exploration, the project site appears suitable for the proposed construction provided the professional opinions contained in this report are considered in the design and construction of this project.

We appreciate the opportunity to provide our findings and professional opinions regarding geotechnical conditions at the site. Please provide our office with a set of the foundation plans and civil plans for review to insure that the geotechnical site constraints have been included in the design documents. If you have any questions or comments regarding our findings, please call our office at (760) 370-3000.

Respectfully Submitted,
Landmark Consultants, Inc.

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EXECUTIVE SUMMARY

This executive summary presents *selected* elements of our findings and professional opinions. This summary *may not* present all details needed for the proper application of our findings and professional opinions. Our findings, professional opinions, and application options are *best related through reading the full report*, and are best evaluated with the active participation of the engineer of record who developed them. The findings of this study are summarized below:

- Sand (SP/SM) soils predominate the site with minor silty sand and clay layers.
- *The photovoltaic panel installation is not recommended in the western parcel with the current saturated soil conditions and existing elevation of the area.*
- Special foundation designs to mitigate expansive soil conditions are not required for the two eastern parcels.
- The granular soil encountered at the points of exploration (Boring B-10) at the project site is not considered to be susceptible to liquefaction. There is a very low risk of ground rupture and/or sand boil formation should liquefaction occur.
- The native soils are aggressive to concrete and steel. Concrete mixes for concrete placed in contact with native soils shall have a maximum water cement ratio of 0.45 and a minimum compressive strength of 4,500 psi (minimum of 6 sacks Type V cement per cubic yard).
- All reinforcing bars, anchor bolts and hold down bolts shall have a minimum concrete cover of 3.0 inches unless epoxy coated (ASTM D3963/A934).
- All-weather accessways should consist of a minimum of 6 inches of Caltrans Class 2 aggregate base material placed over 12 inches of compacted native sand (95%).

Section 1
INTRODUCTION

1.1 Project Description

This report presents the findings of our geotechnical exploration for the proposed development of a 100 MW PV solar power generation facility at the approximately 530-acre site located on the south side of the All American Canal (AAC) at Bonesteele Road approximately 10 miles east of Calexico, California (See Vicinity Map, Plate A-1). The solar power generation facility will consist of installing PV solar panels mounted on steel racks supported by short piers, shallow driven posts or shallow spread footings. The proposed solar energy facility will have an electrical substation with step-up transformers and dead-end A-frames for overhead power line connections and battery storage containers near the east 1/3 northern boundary of the site. The photovoltaic modules are planned to be ground mounted on single-axis tracker frames or fixed-tilt frames. A proposed site layout was provided by the client.

Footing loads at exterior bearing walls are estimated at 1 to 5 kips per lineal foot. Column loads are estimated to range from 5 to 30 kips. Site development will include minimal site grading for the PV panel areas, building pad preparation for the battery containers, underground utility installation, site paving and all weather road surfacing.

1.2 Purpose and Scope of Work

The purpose of this geotechnical study was to investigate the upper 50 feet of subsurface soil at selected locations within the site for evaluation of physical/engineering properties, liquefaction potential during seismic events, field testing for steel post capacities and soil electrical/thermal resistivity parameters. Professional opinions were developed from field and laboratory test data and are provided in this report regarding geotechnical conditions at this site and the effect on design and construction. The scope of our services consisted of the following:

- Field exploration and in-situ testing of the site soils at selected locations and depths.
- Laboratory testing for physical and/or chemical properties of selected samples.
- Review of the available literature and publications pertaining to local geology, faulting, and seismicity.
- Engineering analysis and evaluation of the data collected.
- Preparation of this report presenting our findings and professional opinions regarding the geotechnical aspects of project design and construction.

This report addresses the following geotechnical parameters:

- Subsurface soil and groundwater conditions
- Site geology, regional faulting and seismicity, near source factors, and site seismic accelerations
- Liquefaction potential and its mitigation
- Existence of expansive soils
- Aggressive soil conditions to metals and concrete

Professional opinions with regard to the above parameters are provided for the following:

- Site grading and earthwork
- Building pad and foundation subgrade preparation
- Allowable soil bearing pressures and expected settlements
- Capacities for drilled piers and/or driven steel posts
- Soil parameters for All-Pile program for Driven Steel Piles and Drilled Pier Foundations Design
- Concrete slabs-on-grade
- Excavation conditions and buried utility installations
- Mitigation of the potential effects of salt concentrations in native soil to concrete mixes and steel reinforcement
- Seismic design parameters
- Structural section for unpaved roadways and construction laydown areas

Our scope of work for this report did not include an evaluation of the site for the presence of environmentally hazardous materials or conditions, groundwater mounding, soil infiltration rates (storm water basins), soil percolation rates (septic systems), or landscape suitability of the soil.

1.3 Authorization

Ziad Alaynan, PE of APEX Energy Solutions, LLC provided authorization by written agreement to proceed with our work on August 26, 2020. We conducted our work according to our written proposal dated March 2, 2020 and after access was approved by the client.

Section 2

METHODS OF INVESTIGATION

2.1 Field Exploration

Subsurface exploration was performed on November 30 thru December 2, 2020 using 2R Drilling of Ontario, California to advance ten (10) borings to depths of 14 to 50 feet below existing ground surface. The borings were advanced with a truck-mounted, CME 75 drill rig using 8-inch diameter, hollow-stem, continuous-flight augers. The approximate boring locations were established in the field and plotted on the site map by sighting to discernible site features. The boring locations are shown on the Site and Exploration Plan (Plate A-2).

A professional engineer observed the drilling operations and maintained logs of the soil encountered with sampling depths. Soils were visually classified during drilling according to the Unified Soil Classification System and relatively undisturbed and bulk samples of the subsurface materials were obtained at selected intervals. The relatively undisturbed soil samples were retrieved using a 2-inch outside diameter (OD) split-spoon sampler or a 3-inch OD Modified California Split-Barrel (ring) sampler. In addition, Standard Penetration Tests (SPT) were performed in accordance with ASTM D1586. The samples were obtained by driving the samplers ahead of the auger tip at selected depths using a 140-pound CME automatic hammer with a 30-inch drop. The number of blows required to drive the samplers the last 12 inches of an 18-inch drive depth into the soil is recorded on the boring logs as “blows per foot”. Blow counts (N values) reported on the boring logs represent the field blow counts. No corrections have been applied to the blow counts shown on the boring logs for effects of overburden pressure, automatic hammer drive energy, drill rod lengths, liners, and sampler diameter.

After logging and sampling the soil, the exploratory borings were backfilled with the excavated material. The backfill was loosely placed and was not compacted to the requirements specified for engineered fill.

The logs were edited in final form after a review of retrieved samples and the field and laboratory data. Logs of the subsurface boring logs are presented on Plates B-1 through B-10 in Appendix B. A key to the boring log symbols is presented on Plate B-11. The stratification lines shown on the subsurface logs represent the approximate boundaries between the various strata. However, the transition from one stratum to another may be gradual over some range of depth.

2.2 Field Electrical Resistivity Testing

Wenner 4-pin field resistivity testing was conducted by RF Yeager Engineering of Lakeside, California under sub-contract to Landmark at three (3) locations within the proposed solar array site in accordance with ASTM G57 standards. Tests were conducted with both North-South and East-West pin orientations. The tests were conducted at pin spacings of 2.5, 5, 10, 15 and 20 feet. Additionally, near surface soil samples (upper 5 feet) were obtained for laboratory soil corrosivity testing at the select location. The results of the electrical resistivity and soil corrosivity testing are presented in Appendix E.

2.3 Thermal Resistivity Testing

Laboratory soil thermal resistivity testing was conducted by RF Yeager Engineering at three (3) locations within the project site. The tests were conducted at the locations shown on Figure 1 in Appendix E. The testing was conducted in accordance with ASTM D5334. Near surface soil samples were obtained from Borings B-3, B-7, and B-9 as shown on Figure 1 in Appendix E.

The thermal resistivity testing consisted of determining a thermal dry-out curve at each test location. The results of the thermal resistivity testing are presented in Appendix E.

2.4 Laboratory Testing

Laboratory tests were conducted on selected bulk (auger cuttings) and relatively undisturbed soil samples obtained from the soil borings to aid in classification and evaluation of selected engineering properties of the site soils. The tests were conducted in general conformance to the procedures of the American Society for Testing and Materials (ASTM) or other standardized methods as referenced below.

The laboratory testing program consisted of the following tests:

- Plasticity Index (ASTM D4318)
- Particle Size Analyses (ASTM D422)
- Unit Dry Densities (ASTM D2937)
- Moisture Contents (ASTM D2216)
- Unconfined Compression (ASTM D2166)
- Direct Shear Tests (ASTM D3080)
- Chemical Analyses (soluble sulfates & chlorides, pH, and resistivity) (Caltrans Method)

The laboratory test results are presented on the subsurface logs (Appendix B) and in Appendix C and E.

Engineering parameters of soil strength, compressibility and relative density utilized for developing design criteria provided within this report were obtained from the field and laboratory testing program.

Section 3

DISCUSSION

3.1 Site Conditions

The approximately 530-acre project site located south of the All American Canal at Bonesteele Road approximately 10 miles east of Calexico, California. The project consists of three (3) parcels (APN 059-290-010, 059-300-017, 059-300-015). The triangular shaped project site, bounded by the All American Canal and the US-Mexico Border Wall, is currently a combination of a fallowed agricultural fields and vacant desert land.

The two eastern parcels have fallowed center pivot irrigated farm systems and pumps station. These two parcels have sparse vegetation with denser vegetation growing along the northern diagonal boundary that parallels the All American Canal.

The western parcel is of lower elevation with larger vegetation growth and standing water in many areas. The soil is very wet to saturated at the ground surface with salt crust visible in many areas. *In the current state this portion of the site is not recommended for photo-voltaic panel installation.*

The project site lies at an elevation of approximately 30 to 60 feet above mean sea level (MSL) (El. 1030 to 1065 local datum) in the northwestern region of the Imperial Valley in the California low desert. The surrounding properties lie on terrain which is flat (planar), part of a large agricultural valley at the edge of the east mesa desert, which was previously an ancient lake bed covered with fresh water (about 300 years ago) to an elevation of 43± feet above MSL. Annual rainfall in this arid region is less than 3 inches per year with four months of average summertime temperatures above 100 °F. Winter temperatures are mild, seldom reaching freezing.

3.2 Geologic Setting

The project site is located in the East Mesa portion of the Salton Trough physiographic province. The Salton Trough is a topographic and geologic structural depression resulting from large scale regional faulting. The trough is bounded on the northeast by the San Andreas Fault and Chocolate Mountains and the southwest by the Peninsular Range and faults of the San Jacinto Fault Zone. The Salton Trough represents the northward extension of the Gulf of California, containing both marine and non-marine sediments deposited since the Miocene Epoch (Morton, 1977). Tectonic activity that formed the trough continues at a high rate as evidenced by deformed young sedimentary deposits and high levels of seismicity. Figure 1 shows the location of the site in relation to regional faults and physiographic features.

The East Mesa lies east of the Imperial Valley, which is underlain by lacustrine deposits consisting of interbedded lenticular and tabular silt, sand, and clay, and west of the Algodones Sand Dunes. The East Mesa is underlain by deep sand deposits derived from eolian deposition along the eastern margin of the Imperial Valley.

The Late Pleistocene to Holocene lake deposits of the Imperial Valley are probably less than 100 feet thick and derived from periodic flooding of the Colorado River which intermittently formed Lake Cahuilla. Older deposits consist of Miocene to Pleistocene non-marine and marine sediments deposited during intrusions of the Gulf of California. Basement rock consisting of Mesozoic granite and Paleozoic metamorphic rocks are estimated to exist at depths between 15,000 - 20,000 feet

3.3 Subsurface Soil

The UC Davis California Soil Resource Lab “SoilWeb Earth” computer application (UC Davis, 2020) for Google Earth indicates that surficial deposits at the two eastern parcels of the project site consist predominantly of sand loams of the Rositas, Indio, Niland and Vint soil groups (see Plate A-3). These loams and sands are formed in sediment and alluvium of mixed origin (Colorado River overflows, Mountain run-off and fresh-water lake-bed sediments). The western parcel of the project site is classified as “Badlands” soil type 102.

Subsurface soils encountered during the field exploration of the proposed solar array areas conducted on November 30 thru December 2, 2020 consist of predominantly medium to very dense sands (SP) with some silty sand (SM) layers to a depth of 50 feet below ground surface. Thin (2 to 5 feet thick) clay (CL-CH) layers were encountered sporadically throughout the project site below depths of 9 feet except at Boring B-1 where lean clays (CL) were found at the ground surface. The subsurface logs (Plates B-1 through B-10) depict the stratigraphic relationships of the various soil types.

3.4 Groundwater

Groundwater was encountered in Boring B-10, proposed electrical substation area, (Plate B-10) at about 8.5 feet at the time of exploration. Groundwater was encountered between 10 and 20 feet throughout the remaining borings within the two eastern parcels of the project site. The western parcel of the project site has standing water in some areas and saturated surface conditions throughout this portion of the project site.

There is uncertainty in the accuracy of short-term water level measurements, particularly in fine-grained soil. The referenced groundwater levels should not be interpreted to represent permanent condition. Groundwater levels may fluctuate with precipitation, All American Canal water stage, site watering, drainage, and site grading.

3.5 Faulting

The project site is located in the seismically active Imperial Valley of southern California with numerous mapped faults traversing the region including the San Andreas, San Jacinto, and Elsinore Fault Zones in southern California. The Imperial fault represents a transition from the more continuous San Andreas fault to a more nearly echelon pattern characteristic of the faults under the Gulf of California (USGS, 1990). We have performed a computer-aided search of known faults or seismic zones that lie within a 62 mile (100 kilometer) radius of the project site (Table 1).

A fault map illustrating known active faults relative to the site is presented on Figure 1, *Regional Fault Map*. Figure 2 shows the project site in relation to local faults. The criterion for fault classification adopted by the California Geological Survey defines Earthquake Fault Zones along Holocene-active or pre-Holocene faults (CGS, 2019b). Earthquake Fault Zones are regulatory zones that address the hazard of surface fault rupture. A Holocene-active fault is one that has ruptured during Holocene time (within the last 11,700 years). A pre-Holocene fault is a fault that has not ruptured in the last 11,700 years. Pre-Holocene faults may still be capable of surface rupture in the future, but are not regulated by the A-P act.

Review of the current Earthquake Fault Zone maps (CGS, 2019a) indicates that the nearest zoned fault is the Imperial fault located approximately 1.5 miles west of the project site.

3.6 General Ground Motion Analysis

The project site is considered likely to be subjected to moderate to strong ground motion from earthquakes in the region. Ground motions are dependent primarily on the earthquake magnitude and distance to the seismogenic (rupture) zone. Acceleration magnitudes also are dependent upon attenuation by rock and soil deposits, direction of rupture and type of fault; therefore, ground motions may vary considerably in the same general area.

2019 CBC General Ground Motion Parameters: The California Building Code (CBC) requires that a site-specific ground motion hazard analysis be performed in accordance with ASCE 7-16 Section 11.4.8 for structures on Site Class D and E sites with S_1 greater than or equal to 0.2 and Site Class E sites with S_s greater than or equal to 1.0. **This project site has been classified as Site Class E and has a S_1 value of 0.71, which would require a site-specific ground motion hazard analysis.** However, ASCE 7-16 Section 11.4.8 provides three exceptions which permit the use of conservative values of design parameters for certain conditions for Site Class D and E sites in lieu of a site specific hazard analysis.

The exceptions are:

- Exception 1: Structures on Site Class E sites with S_s greater than or equal to 1.0, provided the site coefficient F_a is taken as equal to that of Site Class C.
- Exception 2: Structures on Site Class D sites with S_1 greater than or equal to 0.2, provided the value of the seismic response coefficient C_s is determined by Equations 12.8-2 for values of $T \leq 1.5T_s$ and taken as equal to 1.5 times the value computed in accordance with either Equation 12.8-3 for $T_L \geq T > 1.5T_s$ or Equation 12.8-4 for $T > T_L$.
- Exception 3: Structures on Site Class E sites with S_1 greater than or equal to 0.2, provided that T is less than or equal to T_s and the equivalent static force procedure is used for design.

The project design engineer should confirm that an exception applies to the project. If none of the exceptions apply, our office should be consulted to perform a site-specific ground motion hazard analysis.

The 2019 CBC general ground motion parameters are based on the Risk-Targeted Maximum Considered Earthquake (MCE_R). The Structural Engineers Association of California (SEAOC) and Office of Statewide Health Planning and Development (OSHPD) Seismic Design Maps Web Application (SEAOC, 2020) was used to obtain the site coefficients and adjusted maximum considered earthquake spectral response acceleration parameters. Design spectral response acceleration parameters are defined as the earthquake ground motions that are two-thirds (2/3) of the corresponding MCE_R ground motions. The Maximum Considered Earthquake Geometric Mean (MCE_G) peak ground acceleration adjusted for soil site class effects (PGA_M) value to be used for liquefaction and seismic settlement analysis in accordance with 2019 CBC Section 1803.5.12 ($PGA_M = F_{PGA} * PGA$) is estimated at 0.92g for the project site. **Design earthquake ground motion parameters are provided in Table 2.**

3.7 Seismic and Other Hazards

- **Groundshaking.** The primary seismic hazard at the project site is the potential for strong groundshaking during earthquakes along the Imperial, Brawley, and Superstition Hills faults.
- **Surface Rupture.** The California Geological Survey (2019b) has established Earthquake Fault Zones in accordance with the 1972 Alquist-Priolo Earthquake Fault Zone Act. The Earthquake Fault Zones consists of boundary zones surrounding well defined, active faults or fault segments. The project site does not lie within an A-P Earthquake Fault Zone; therefore, surface fault rupture is considered to be low at the project site. However, because of the high tectonic activity and deep alluvium of the region, we cannot preclude the potential for surface rupture on undiscovered or new faults that may underlie the site.
- **Liquefaction.** Liquefaction is a potential design consideration because of underlying saturated sandy substrata. Although the Imperial Valley has not yet been evaluated for seismic hazards by the California Geological Survey seismic hazards zonation program, liquefaction is well documented in the Imperial Valley after strong seismic events (McCrink, et al, 2011 and Rymer et al, 2011). The potential for liquefaction at the site is discussed in more detail in Section 3.8. Liquefaction induced lateral spreading is not expected to occur at this site due to the planar topography.

Other Potential Geologic Hazards.

- **Landsliding.** The hazard of landsliding is unlikely due to the regional planar topography. No ancient landslides are shown on geologic maps of the region and no indications of landslides were observed during our site investigation.
- **Volcanic hazards.** The site is not located in proximity to any known volcanically active area and the risk of volcanic hazards is considered very low.
- **Tsunamis and seiches.** The site is not located near any large bodies of water, so the threat of tsunami, seiches, or other seismically-induced flooding is unlikely.
- **Flooding.** The project site is located in FEMA Flood Zone X, an area determined to be outside the 0.2% annual chance floodplain (FIRM Panels 06025C2125C). The project site is also along the All American Canal which has potential to overflow or seep into the lower western parcel of the project site.
- **Expansive soil.** The near surface soils in the two eastern parcels of the project site are sands which are considered non-expansive. The western parcel has expansive saturated surface clays, this area is not recommended for any development in its current state.

3.8 Liquefaction

Liquefaction occurs when granular soil below the water table is subjected to vibratory motions, such as produced by earthquakes. With strong ground shaking, an increase in pore water pressure develops as the soil tends to reduce in volume. If the increase in pore water pressure is sufficient to reduce the vertical effective stress (suspending the soil particles in water), the soil strength decreases and the soil behaves as a liquid (similar to quicksand). Liquefaction can produce excessive settlement, ground rupture, lateral spreading, or failure of shallow bearing foundations.

Four conditions are generally required for liquefaction to occur:

- (1) the soil must be saturated (relatively shallow groundwater);
- (2) the soil must be loosely packed (low to medium relative density);
- (3) the soil must be relatively cohesionless (not clayey); and
- (4) groundshaking of sufficient intensity must occur to function as a trigger mechanism.

All of these conditions exist to some degree at this site.

The sand soil encountered at the point of exploration (Boring B-10) at the project site is not considered to be susceptible to liquefaction due to the density of the sands shown in the high SPT blow counts recorded in the field. Computer printouts of the liquefaction analyses are provided in Appendix F.

Mitigation: Mitigation for liquefaction induced settlement is not required at this project site.

Section 4

DESIGN CRITERIA

4.1 Site Preparation

Clearing and Grubbing: All surface improvements, debris or vegetation including grass, brush, and weeds on the site at the time of construction should be removed from the construction area. Root balls should be completely excavated. Organic strippings should be stockpiled and not used as engineered fill. All trash, construction debris, concrete slabs, old pavement, landfill, and buried obstructions such as old foundations and utility lines exposed during rough grading should be traced to the limits of the foreign material by the grading contractor and removed under our supervision. Any excavations resulting from site clearing should be sloped to a bowl shape to the lowest depth of disturbance and backfilled under the observation of the geotechnical engineer's representative.

Mass Grading: Prior to placing any fills, the surface 12 inches of native soil shall be scarified uniformly moisture conditioned to within 2% of optimum and compacted to at least 90% of ASTM D1557 maximum density. Onsite native soils used for fill should be placed in lifts no greater than 8 inches in loose thickness and compacted to a minimum of 90% of ASTM D1557 maximum dry density at optimum moisture $\pm 2\%$.

Structural Pads Preparation: The existing surface soil within the inverter pad areas, battery storage container pads or electrical substation foundations area should be removed to 18 inches below the lowest foundation grade or 36 inches below the original grade (whichever is deeper), extending five (5) feet beyond all exterior wall/column lines (including adjacent concreted areas). Exposed subgrade should be scarified to a depth of 8 inches, uniformly moisture conditioned to 2 to 6% above optimum (silts) or 2% below to 4% above optimum (sands) and recompacted to 87 to 92% (silts) or a minimum of 90% (sands) of the maximum density determined in accordance with ASTM D1557 methods. During this process, the exposed surface will also be observed for any loose areas by wheel-rolling with heavy equipment. The exposed surface should then be tested at the rate of 1 test per 1,000 square foot or at least 2 tests per building pad, to conform to the above compaction requirements.

The native soil is suitable for use as engineered fill provided it is free from concentrations of organic matter or other deleterious material. The fill soil should be uniformly moisture conditioned by discing and watering to the limits specified above, placed in maximum 8-inch lifts (loose), and compacted to the limits specified above. Clay soil, if encountered, should not be incorporated into any engineered building pads.

Imported fill soils, if needed, should meet the USCS classifications of ML (non-plastic), SM, SP-SM, or SW-SM with a maximum rock size of 3 inches and no less than 5% passing the No. 200 sieve. The geotechnical engineer should approve imported fill soil sources before hauling material to the site. Imported fill should be placed in lifts no greater than 8 inches in loose thickness and compacted to a minimum of 90% of ASTM D1557 maximum dry density at optimum moisture $\pm 2\%$. The geotechnical engineer should approve imported fill soil sources before hauling material to the site.

Subgrade Preparation for Mat Foundations: The native sandy soil within mat foundation areas should be removed to 18 inches below the bottom of the mat foundations to 2 feet beyond the edges of the foundation. Exposed subgrade should be scarified to a depth of 12 inches, uniformly moisture conditioned to $\pm 2\%$ of optimum moisture content, and recompacted to a minimum of 90% of the maximum density determined in accordance with ASTM D1557 methods.

A minimum of 6-inches of Caltrans Class 2 aggregate base compacted to at least 95% of ASTM D1557 maximum density, shall be placed over the compacted subgrade prior to placing mat foundations.

Sidewalk and Concrete Hardscape Areas: In areas other than the building pad which are to receive sidewalks or area concrete slabs, the ground surface should be presaturated to a minimum depth of 24 inches and then scarified to 8 inches, moisture conditioned to a minimum of 2% below to 4% above optimum, and recompacted to a minimum of 90% of ASTM D1557 maximum density just prior to concrete placement.

Utility Trench Backfill: On-site soil free of debris, vegetation, and other deleterious matter is suitable for use as utility trench backfill above pipe zone. Native backfill should only be placed and compacted after encapsulating buried pipes with suitable bedding and pipe envelope material. Backfill soil of utility trenches within paved areas should be placed in layers not more than 8 inches in thickness and mechanically compacted to a minimum of 90% relative compaction (ASTM D1557) for trench backfill (above pipe zone). The top 12 inches in roadway areas shall be compacted to a minimum of 95%.

Observation and Density Testing: All site preparation and fill placement should be continuously observed and tested by a representative of a qualified geotechnical engineering firm. Full-time observation services during the excavation and scarification process is necessary to detect undesirable materials or conditions and soft areas that may be encountered in the construction area. The geotechnical firm that provides observation and testing during construction shall assume the responsibility of "*geotechnical engineer of record*" and, as such, shall perform additional tests and investigation as necessary to satisfy themselves as to the site conditions and the geotechnical parameters for site development.

Auxiliary Structures Foundation Preparation: Auxiliary structures such as free standing or retaining walls should have footings extended to a minimum of 30 inches below grade. The existing soil beneath the structure foundation prepared in the manner described for the building pad except the preparation needed only to extend 24 inches below and beyond the footing.

4.2 Foundations and Settlements

Shallow spread footings and continuous wall footings are suitable to support the battery storage containers provided they are founded on a layer of properly prepared and compacted soil as described in Section 4.1. The foundations may be designed using an allowable soil bearing pressure of 2,000 psf. The allowable soil pressure may be increased by 20% for each foot of embedment depth in excess of 18 inches and by one-third for short term loads induced by winds or seismic events. The maximum allowable soil pressure at increased embedment depths shall not exceed 3,000 psf.

Resistance to horizontal loads will be developed by passive earth pressure on the sides of footings and frictional resistance developed along the bases of footings and concrete slabs. Passive resistance to lateral earth pressure may be calculated using an equivalent fluid pressure of 300 pcf to resist lateral loadings. The top one foot of embedment should not be considered in computing passive resistance unless the adjacent area is confined by a slab or pavement. An allowable friction coefficient of 0.35 may also be used at the base of the footings to resist lateral loading.

All exterior footings should be embedded a minimum of 18 inches below the building support pad or lowest adjacent final grade, whichever is deeper. Minimum embedment depth of interior footings should be at least 12 inches into the building support pad to account for variable environmental conditions.

Interior and exterior embedment depths listed herein are minimum depths and greater depths/widths may be required by the structural engineer/designer and should be sufficient to limit differential movement to $L/480$ for center lift and $L/720$ for edge lift to comply with the current standards. Continuous wall footings should have a minimum width of 12 inches. Spread footings should have a minimum dimension of 24 inches and should be structurally tied to perimeter footings or grade beams. Concrete reinforcement and sizing for all footings should be provided by the structural engineer.

As an alternative to shallow spread foundations, flat plate structural mats may be used.

Flat Plate Structural Mats: Structural mats may be designed for a modulus of subgrade reaction (Ks) of 175 pci when placed on compacted native soil and 200 pci when placed on 6 inches of Class 2 aggregate base. The structure support pad shall be moisture conditioned and re-compacted as specified in Section 4.1 of this report. Resistance to horizontal loads will be developed by passive earth pressure on the sides of footings and frictional resistance developed along the bases of footings and concrete slabs. Passive resistance to lateral earth pressure may be calculated using an equivalent fluid pressure of 300 pcf to resist lateral loadings. The top one foot of embedment should not be considered in computing passive resistance unless the adjacent area is confined by a slab or pavement. An allowable friction coefficient of 0.35 may also be used at the base of the footings to resist lateral loading.

Settlements: Foundation movement under the estimated loadings and site conditions are estimated to not exceed 1 inch with differential movement of about two-thirds of total movement for the loading assumptions stated above when the subgrade preparation guidelines given above are followed.

4.3 Drilled Piers and Driven Steel Piles

Drilled Piers: Individual short piers should be adequate to support solar panel frames, inverter frames, and security camera poles. Embedment depth for short piers to resist lateral loads where no lateral constraint at ground surface is provided may be designed using the following formula per 2019 CBC Section 1807.3.2.1:

$$d = A/2 [1 + (1+4.36h/A)^{1/2}]$$

where:

$$A = 2.34P/S_1b$$

b = Pier diameter in feet

d = Embedment depth in feet (but not over 12 feet for purpose of computing lateral pressure)

h = Distance in feet from ground surface to point of application of “P”

P = Applied lateral force in pounds

S_1 = Allowable lateral soil bearing pressure (basic value of 150 psf/ft. Isolated piers such solar panel short piers that are not adversely affected by a 0.5 inch motion at the ground surface due to short-term lateral loads are permitted to be designed using lateral soil bearing pressures equal to two times the provided value (300 psf/ft). Reduced lateral soil bearing pressures should be used for the security camera pole foundation designs to reduce pole sway in windy conditions.

The short pier foundations may be designed using an allowable soil bearing pressure of 2,000 psf for the native sandy soils.

Installation: Excavation for piers should be inspected by the geotechnical consultant. A tremie pipe should be used to pour concrete from the bottom up and to ensure less than five feet of free fall. The structural steel and concrete should be placed immediately after drilling. Prior to placing any structural steel or concrete, loose soil or slough material should be removed from the bottom of the drilled pier excavation.

Driven Steel Piles: The use of driven steel posts requires special provisions for corrosion protection. Steel posts for PV panel mounting frames have been preliminary sized as W8x10 (frame and axle supports).

Vertical Capacity: Vertical capacity for the preliminary W8x10 steel post section is presented in Table 3. End bearing and skin friction parameters have been used to determine the allowable shaft capacity. The allowable capacities include a factor of safety of 2.5. The allowable vertical compression capacities may be increased by 33 percent to accommodate temporary loads from wind or seismic forces. The allowable vertical shaft capacities are based on the supporting capacity of the soil.

Lateral Capacity: The allowable lateral capacity for a W8x10 steel post section at 5, 6 and 8 feet embedment depths are given in Table 3. The allowable lateral capacity is based on a deflection of one-half inch at the top of the steel post section. If greater deflection can be tolerated, lateral load capacity can be increased directly in proportion to a maximum of one inch deflection. Axial and lateral loads were applied at 4 feet above ground surface.

Table 3: Allowable Capacities of Driven Steel Posts

Pile Type:	Driven W8x10		
Pile Length (ft):	9 ft	10 ft	12 ft
Specified Tip Depth (ft):	5 ft	6 ft	8 ft
Height Above Ground (ft):	4 ft	4 ft	4 ft
Allowable Axial Capacity (kips) – FS=2.5:	0.77	1.10	1.40
Allowable Uplift Capacity (kips) – FS=2.5:	0.36	0.48	0.77
Lateral Load – Free Head Condition (kips):	0.70	1.00	1.20
Top Deflection (in) – Free Head Condition	0.50	0.50	0.50
Maximum Moment from Lateral Load, Free Head Condition (ft-kips):	3.9	5.7	7.0
Depth of Maximum Moment (from Top of Post), Free Head (ft):	5.7	6.1	6.5

Recommendations for other post sections can be made available upon request.

Soil Parameters: Interpretive soil parameters of the subsoil for AllPile software are presented in Table 4 below.

Table 4: Soil Strength Parameters for AllPile Program

Layer Type	Depth (ft)	Unit Weight (pcf)	Friction Angle (deg)	Cohesion (ksf)	Lateral Soil Modulus, k (pci) (*)	Strain Factor, E50 or Dr (%)
SP-SM	0 to 10	115	35°	0.0	110	55
CH	10 to 13	125	---	1.5	500	0.70
SP-SM	13 to 20	115	38°	0.0	100	65

(*) k value for static loading. For cycling loading, use 50% of listed value.

Settlement: Total settlements of less than ¼ inch, and differential movement of about two-thirds of total movement for single piles designed according to the preceding recommendations.

Axial Load Group Effect: Reduction in axial load capacity shall be considered necessary for group effect. The axial load capacity shall be reduced by an efficiency factor, η . Efficiency factor, η should be 0.65 for shafts with spacing center to center equal to 2.5 shaft diameters and increases linearly to 1.0 for shafts with center to center spacing equal to 6.0 shaft diameters or more. The factor of safety of the group is the same as that of individual shaft elements.

4.4 Drilled Pier Foundations

Substation structural components such as the A-frame structures, bus supports, dead-end frames, masts, switch, surge arrester, CVT stands and new steel gen-tie line poles may be supported on cast-in-place drilled piers. Design criteria are provided below for the drilled pier foundations.

Vertical Capacity: Vertical capacity for 24, 36, 60 and 72 inch diameter shafts are presented in Plate F-1 in Appendix F. Capacities for other shaft sizes can be determined in direct proportion to shaft diameters. Point bearing and skin friction parameters have been used to determine the allowable shaft capacity. The allowable capacities include a factor of safety of 2.5. The allowable vertical compression capacities may be increased by 33 percent to accommodate temporary loads that result from wind or seismic forces.

Lateral Capacity: The allowable lateral capacity for 24, 36, 60 and 72 inch diameter shafts are given in the table shown below for exploratory boring B-10. The horizontal deflection at the top of the drilled pier for the lateral loads indicated is one-half inch (0.50 inch).

Table 5: Lateral Capacities of Drilled Pier Foundations – B-10 Boring Location

Shaft Diameter (in.)	24		36		60		72	
	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed
Head Condition	Free	Fixed	Free	Fixed	Free	Fixed	Free	Fixed
Allowable Head Deflection (in.)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Minimum Length (ft.)	10	10	10	10	10	10	10	10
Lateral Capacity (kips)	19.5	78	26.3	138	33	221	33	250
Maximum Moment (foot-kips)	57.3	-460.8	78.4	-883.3	94.2	-1466.7	94.2	-1666.7
@Depth from Pier Head (ft.)	4.5	0	4.5	0	4.5	0	4.5	0
Minimum Length (ft.)	20	20	20	20	20	20	20	20
Lateral Capacity (kips)	40.8	93	79	182	118	470	130	629
Maximum Moment (foot-kips)	175.8	-480.8	400.8	-1308.3	607.5	-5108.3	663.3	-7433.3
@Depth from Pier Head (ft.)	7.0	0	7.6	0	8.0	0	8.0	0
Minimum Length (ft.)	30	30	30	30	30	30	30	30
Lateral Capacity (kips)	41.2	95	91	206	197	501	227	660
Maximum Moment (foot-kips)	179.2	-490	503.3	-1383.3	1350	-4991.7	1566.7	-7850
@Depth from Pier Head (ft.)	7.1	0	9.0	0	11.3	0	11.5	0

Settlement: Total static (non-seismic) settlements of less than ¼ inch are anticipated for single piles designed according to the preceding recommendations. If pile spacing is a least 2.5 pile diameters center-to-center, no reduction in axial load capacity is considered necessary for a group effect.

Uplift Capacity: Pier capacity in tension should be taken as 50% of the compression capacity.

Soil Parameters: Interpretive engineering soil parameters of the subsurface soil for Allpile Computer Program are presented in the tables below.

Table 6: Drilled Pier Soil Parameters (Boring B-10 Location)

Layer Type	Depth (ft)	Unit Weight (pcf)	Friction Angle (deg)	Cohesion (ksf)	Modulus of Subgrade Reaction (pci)	E50 or Dr
SP-SM	0 to 24	115	35°	0.0	110	55
CH	24 to 28	125	---	1.5	500	0.70
SP-SM	28 to 43	115	38°	0.0	100	65
CH	43 to 48	125	---	1.5	500	0.70
CL-ML	48 to 50	125	---	2.0	700	0.55

Installation: The drilled piers shall be placed in conformance to ACI 336 guidelines. Excavation for piers should be inspected by the geotechnical consultant. The bottom of the excavation for piers should be reasonably free of loose or slough material. A tremie pipe should be used to place concrete from the bottom up and to ensure less than five feet of free fall. Steel reinforcement and concrete shall be placed immediately after drilling.

Due to the presence of granular soils, drilled piers shall be cased to prevent caving or lateral deformation. Groundwater was encountered in Boring B-10, proposed electrical substation area, (Plate B-10) at about 8.5 feet at the time of exploration. Groundwater was encountered between 10 and 20 feet throughout the remaining borings within the two eastern parcels of the project site. The structural steel and concrete should be placed immediately after drilling. Prior to placing any structural steel or concrete, loose soil or slough material should be removed from the bottom of the drilled pier excavation.

4.5 Slabs-On-Grade

Structural Concrete: Structural concrete slabs are those slabs (foundations) that underlie structures or shades. Concrete slabs and flatwork placed on the native non-cohesive (granular) soils should have a minimum thickness of 5 inches. Concrete floor slabs shall be monolithically placed with the footings (no cold joints). The concrete slabs should be underlain by a 10-mil polyethylene vapor retarder that works as a capillary break to reduce moisture migration into the slab section. The vapor retarder should be properly lapped and continuously sealed. The vapor retarder should be overlain by 2 inches of clean sand (Sand Equivalent SE>30). Concrete slabs may be placed without a sand cover directly over a 15-mil vapor retarder (Stego-Wrap or equivalent).

Concrete slab and flatwork reinforcement should consist of chaired rebar slab reinforcement (minimum of No. 4 bars at 16-inch centers, both horizontal directions) placed at slab mid-height to resist potential swell forces and cracking.

Slab thickness and steel reinforcement are minimums only and should be verified by the structural engineer/designer knowing the actual project loadings. All steel components of the foundation system should be protected from corrosion by maintaining a 3-inch minimum concrete cover of densely consolidated concrete at footings (by use of a vibrator). The construction joint between the foundation and any sidewalks placed adjacent to foundations should be sealed with a polyurethane based non-hardening sealant to prevent moisture migration between the joint. Epoxy coated embedded steel components or permanent waterproofing membranes placed at the exterior footing sidewall may also be used to mitigate the corrosion potential of concrete placed in contact with native soil.

Control joints should be provided in all concrete slabs-on-grade at a maximum spacing (in feet) of 2 to 3 times the slab thickness (in inches) as recommended by American Concrete Institute (ACI) guidelines. All joints should form approximately square patterns to reduce randomly oriented contraction cracks. Contraction joints in the slabs should be tooled at the time of the pour or sawcut (1/4 of slab depth) within 6 to 8 hours of concrete placement. Construction (cold) joints in foundations and area flatwork should either be thickened butt-joints with dowels or a thickened keyed-joint designed to resist vertical deflection at the joint. All joints in flatwork should be sealed to prevent moisture, vermin, or foreign material intrusion. Precautions should be taken to prevent curling of slabs in this arid desert region (refer to ACI guidelines).

Non-structural Concrete: All non-structural independent flatwork (sidewalks and housekeeping slabs) shall be a minimum of 4 inches thick and should be placed on a minimum of 2 inches of concrete sand or aggregate base, dowelled to the perimeter foundations where adjacent to the building to prevent separation. The ground surface should be pre-saturated to a minimum of 24 inches and then scarified to 8 inches, moisture conditioned to minimum of 2% over optimum, and recompacted to 90% of ASTM D1557 maximum relative density just prior to concrete placement. All flatwork should be jointed in square patterns and at irregularities in shape at a maximum spacing of 8 feet or the least width of the sidewalk.

4.6 Concrete Mixes and Corrosivity

Selected chemical analyses for corrosivity were conducted on bulk samples of the near surface soil from the project site (Appendix E). The native soils were found to have S0 (low) to S2 (severe) levels of sulfate ion concentration (30 to 2,850 ppm). Sulfate ions in high concentrations can attack the cementitious material in concrete, causing weakening of the cement matrix and eventual deterioration by raveling.

The following table provides American Concrete Institute (ACI) recommended cement types, water-cement ratio and minimum compressive strengths for concrete in contact with soils:

Table 7. Concrete Mix Design Criteria due to Soluble Sulfate Exposure

Sulfate Exposure Class	Water-soluble Sulfate (SO ₄) in soil, ppm	Cement Type	Maximum Water-Cement Ratio by weight	Minimum Strength f'c (psi)
S0	0-1,000	–	–	–
S1	1,000-2,000	II	0.50	4,000
S2	2,000-20,000	V	0.45	4,500
S3	Over 20,000	V (plus Pozzolon)	0.45	4,500

Note: From ACI 318-14 Table 19.3.1.1 and Table 19.3.2.1

A minimum of 6.0 sacks per cubic yard of concrete (4,500 psi) of Type V Portland Cement with a maximum water/cement ratio of 0.45 (by weight) should be used for concrete placed in contact with native soil on this project (sitework including sidewalks, driveways, housekeeping slabs and foundations). Admixtures may be required to allow placement of this low water/cement ratio concrete.

The native soil has low to very severe levels of chloride ion concentration (20 to 9,720 ppm). Chloride ions can cause corrosion of reinforcing steel, anchor bolts and other buried metallic conduits. Resistivity determinations on the soil indicate moderate to very severe potential for metal loss because of electrochemical corrosion processes. Mitigation of the corrosion of steel can be achieved by using steel elements coated with epoxy corrosion inhibitors, asphaltic and epoxy coatings, cathodic protection or by zinc galvanizing.

Foundation designs shall provide a minimum concrete cover of three (3) inches around steel reinforcing or embedded components (anchor bolts, etc.) exposed to native soil or landscape water (to 18 inches above grade). If the 3-inch concrete edge distance cannot be achieved, all embedded steel components (anchor bolts, etc.) shall be epoxy dipped for corrosion protection or a corrosion inhibitor and a permanent waterproofing membrane shall be placed along the exterior face of the exterior footings. Additionally, the concrete should be thoroughly vibrated at footings during placement to decrease the permeability of the concrete.

4.7 Excavations

All site excavations should conform to CalOSHA requirements for Type C soil. The contractor is solely responsible for the safety of workers entering trenches. Temporary excavations with depths of 4 feet or less may be no steeper than 1:1 (horizontal:vertical). Sandy soil slopes should be kept moist, but not saturated, to reduce the potential of raveling or sloughing. Excavations deeper than 4 feet will require shoring or slope inclinations in conformance to CAL/OSHA regulations for Type C soil. Surcharge loads of stockpiled soil or construction materials should be set back from the top of the slope a minimum distance equal to the height of the slope. All permanent slopes should not be steeper than 3:1 to reduce wind and rain erosion. Protected slopes with ground cover may be as steep as 2:1. However, maintenance with motorized equipment may not be possible at this inclination.

4.8 Seismic Design

This site is located in the seismically active southern California area and the site structures are subject to strong ground shaking due to potential fault movements along the Brawley, Superstition Hills, and Imperial faults. Engineered design and earthquake-resistant construction are the common solutions to increase safety and development of seismic areas. Designs should comply with the latest edition of the CBC for Site Class D using the seismic coefficients given in Section 3.6 and Table 2 of this report.

4.9 All Weather Access Roadways

Unpaved roads may be used for stabilized roadways. The unpaved roads should consist of 12 inches of native soils compacted to 95% of ASTM D1557 maximum density at a minimum of optimum moisture with a 6 inch layer of Class 2 aggregate base compacted to a minimum of 95% of ASTM D1557 maximum density placed over the compacted subgrade.

Cement stabilization is an alternative for internal road stabilization within this project since the existing subgrade is comprised of fine to medium grained sands. An 80,000 lb. two-axle truck (fire truck) was considered for the subgrade soil stabilization recommendations. Soil–cement stabilization of the subgrade soils will result in a Gravel Factor for the treated depth, typically in the range of 1.2 to 1.5.

A minimum of 8 inches of cement-treated subgrade soil (estimated at 4% by weight) compacted to 95% minimum should yield a minimum Unconfined Compressive Strength of 300 psi. The cement application ratio should be confirmed through proper testing to obtain the minimum Unconfined Compressive Strength of 300 psi. The 80,000 lb. axle load will be adequately supported by the compacted soil–cement.

Section 5

LIMITATIONS AND ADDITIONAL SERVICES

5.1 Limitations

The findings and professional opinions within this report are based on current information regarding the proposed 100MW Vega 4 photo-voltaic solar power generation facility situated on the approximately 530-acre site located south of the All-American Canal at Bonesteele Road approximately 10 miles east of Calexico, California. The conclusions and professional opinions of this report are invalid if:

- Structural loads change from those stated or the structures are relocated.
- The Additional Services section of this report is not followed.
- This report is used for adjacent or other property.
- Changes of grade or groundwater occur between the issuance of this report and construction other than those anticipated in this report.
- Any other change that materially alters the project from that proposed at the time this report was prepared.

This report was prepared according to the generally accepted *geotechnical engineering standards of practice* that existed in Imperial County at the time the report was prepared. No express or implied warranties are made in connection with our services.

Findings and professional opinions in this report are based on selected points of field exploration, geologic literature, limited laboratory testing, and our understanding of the proposed project. Our analysis of data and professional opinions presented herein are based on the assumption that soil conditions do not vary significantly from those found at specific exploratory locations. Variations in soil conditions can exist between and beyond the exploration points or groundwater elevations may change. The nature and extend of such variations may not become evident until, during or after construction. If variations are detected, we should immediately be notified as these conditions may require additional studies, consultation, and possible design revisions.

Environmental or hazardous materials evaluations were not performed by Landmark for this project. Landmark will assume no responsibility or liability whatsoever for any claim, damage, or injury which results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials.

The client has responsibility to see that all parties to the project including designer, contractor, and subcontractor are made aware of this entire report within a reasonable time from its issuance. This report should be considered invalid for periods after two years from the date of report issuance without a review of the validity of the findings and professional opinions by our firm, because of potential changes in the Geotechnical Engineering Standards of Practice. This report is based upon government regulations in effect at the time of preparation of this report. Future changes or modifications to these regulations may require modification of this report. Land or facility use, on and off-site conditions, regulations, design criteria, procedures, or other factors may change over time, which may require additional work. Any party other than the client who wishes to use this report shall notify Landmark of such intended use. Based on the intended use of the report, Landmark may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Landmark from any liability resulting from the use of this report by any unauthorized party and client agrees to defend, indemnify, and hold Landmark harmless from any claim or liability associated with such unauthorized use or non-compliance.

This report contains information that may be useful in the preparation of contract specifications. However, the report is not worded in such a manner that we recommend its use as a construction specification document without proper modification. The use of information contained in this report for bidding purposes should be done at the contractor's option and risk.

5.2 Plan Review

Landmark Consultants, Inc. should be retained during development of design and construction documents to check that the geotechnical professional opinions are appropriate for the proposed project and that the geotechnical professional opinions are properly interpreted and incorporated into the documents. Landmark should have the opportunity to review the final design plans and specifications for the project prior to the issuance of such for bidding.

Governmental agencies may require review of the plans by the geotechnical engineer of record for compliance to the geotechnical report.

5.3 Additional Services

We recommend that Landmark Consultant be retained to provide the tests and observations services during construction. *The geotechnical engineering firm providing such tests and observations shall become the geotechnical engineer of record and assume responsibility for the project.*

Landmark Consultants, Inc. professional opinions for this site are, to a high degree, dependent upon appropriate quality control of subgrade preparation, fill placement, and foundation construction. Accordingly, the findings and professional opinions in this report are made contingent upon the opportunity for Landmark Consultants to observe grading operations and foundation excavations for the proposed construction.

If parties other than Landmark Consultants, Inc. are engaged to provide observation and testing services during construction, such parties must be notified that they will be required to assume complete responsibility as the geotechnical engineer of record for the geotechnical phase of the project by concurring with the professional opinions in this report and/or by providing alternative professional guidance.

Additional information concerning the scope and cost of these services can be obtained from our office.

TABLES

Table 1
Summary of Characteristics of Closest Known Active Faults

Fault Name	Approximate Distance (miles)	Approximate Distance (km)	Maximum Moment Magnitude (Mw)	Fault Length (km)	Slip Rate (mm/yr)
Imperial	1.5	2.4	7	62 ± 6	20 ± 5
Rico *	9.7	15.5			
Brawley *	13.8	22.1			
Cerro Prieto *	14.4	23.1			
Superstition Hills	19.5	31.1	6.6	23 ± 2	4 ± 2
Cucapah (Mexico)*	19.8	31.7			
Pescadores (Mexico)*	20.7	33.1			
Unnamed 2*	21.2	33.9			
Borrego (Mexico)*	21.4	34.3			
Laguna Salada	22.7	36.3	7	67 ± 7	3.5 ± 1.5
Algodones *	24.1	38.5			
Unnamed 1*	25.2	40.3			
Superstition Mountain	25.8	41.4	6.6	24 ± 2	5 ± 3
Yuha*	26.3	42.1			
Shell Beds	30.4	48.7			
Yuha Well *	31.0	49.6			
Vista de Anza*	33.5	53.5			
Painted Gorge Wash*	36.9	59.1			
Ocotillo*	38.6	61.7			
Elmore Ranch	39.2	62.7	6.6	29 ± 3	1 ± 0.5
Elsinore - Coyote Mountain	42.3	67.7	6.8	39 ± 4	4 ± 2
San Jacinto - Borrego	45.6	73.0	6.6	29 ± 3	4 ± 2

* Note: Faults not included in CGS database.

Table 2
2019 California Building Code (CBC) and ASCE 7-16 Seismic Parameters

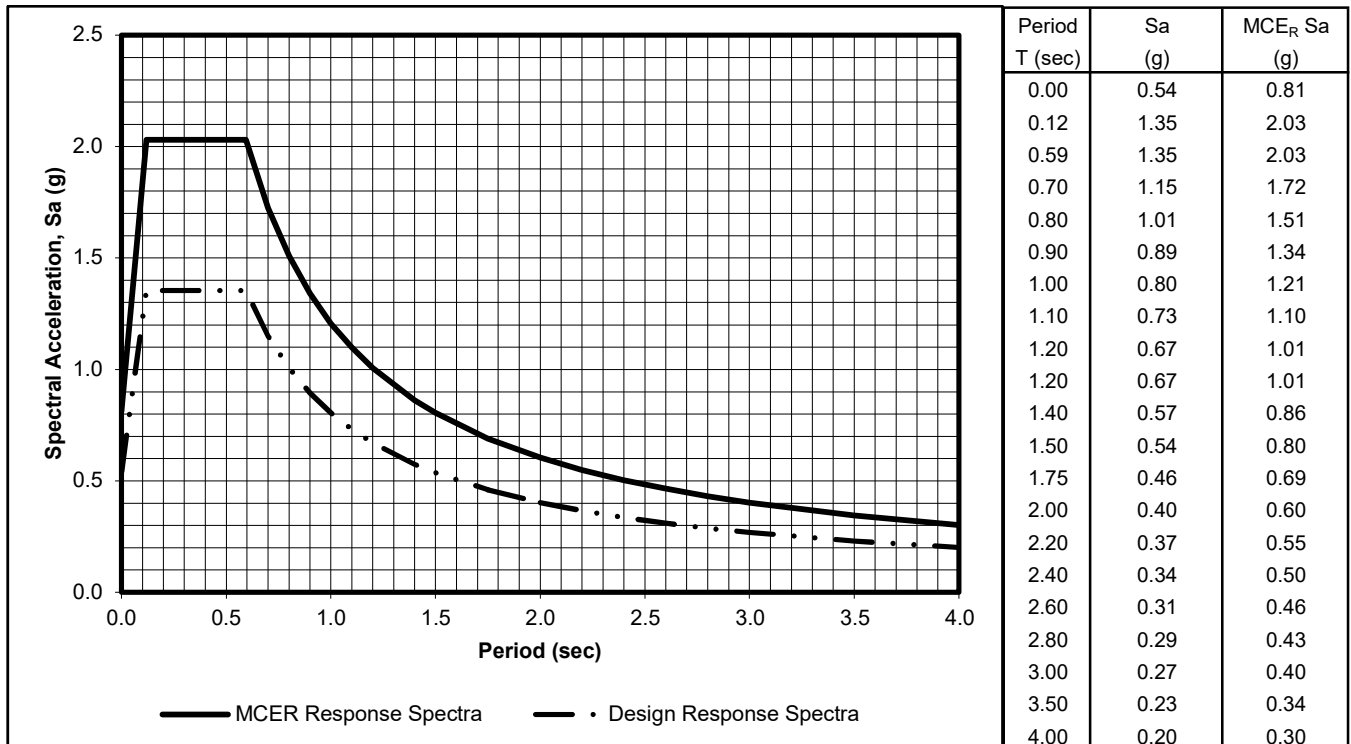
Soil Site Class:	D	<u>ASCE 7-16 Reference</u>
Latitude:	32.6803 N	Table 20.3-1
Longitude:	-115.3142 W	
Risk Category:	III	
Seismic Design Category:	D	

Maximum Considered Earthquake (MCE) Ground Motion

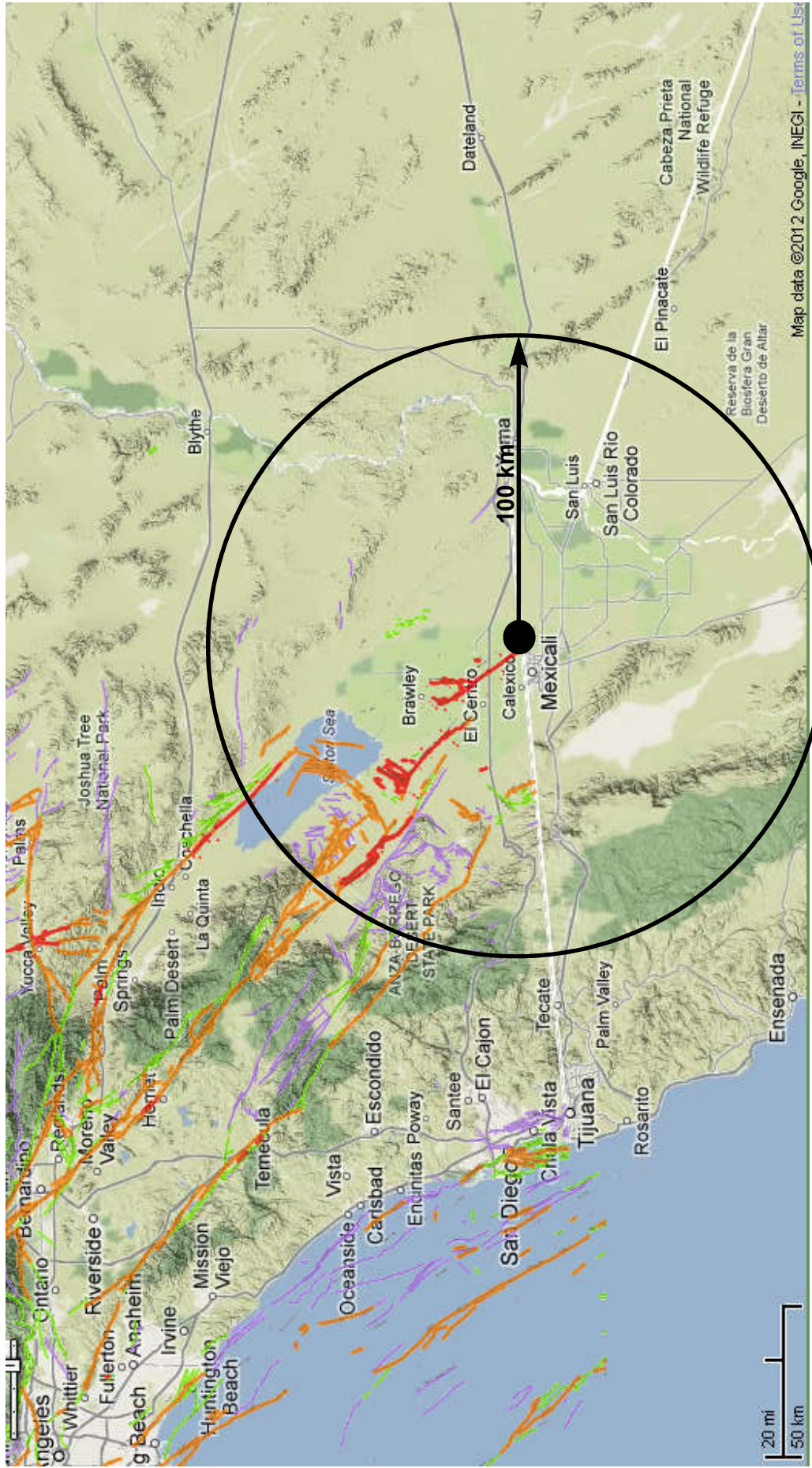
Mapped MCE _R Short Period Spectral Response	S_s	2.031 g	ASCE Figure 22-1
Mapped MCE _R 1 second Spectral Response	S₁	0.710 g	ASCE Figure 22-2
Short Period (0.2 s) Site Coefficient	F_a	1.00	ASCE Table 11.4-1
Long Period (1.0 s) Site Coefficient	F_v	1.70	ASCE Table 11.4-2
MCE _R Spectral Response Acceleration Parameter (0.2 s)	S_{MS}	2.031 g	= F _a * S _s ASCE Equation 11.4-1
MCE _R Spectral Response Acceleration Parameter (1.0 s)	S_{MI}	1.207 g	= F _v * S ₁ ASCE Equation 11.4-2

Design Earthquake Ground Motion

Design Spectral Response Acceleration Parameter (0.2 s)	S_{DS}	1.354 g	= 2/3*S _{MS}	ASCE Equation 11.4-3
Design Spectral Response Acceleration Parameter (1.0 s)	S_{D1}	0.805 g	= 2/3*S _{MI}	ASCE Equation 11.4-4
Risk Coefficient at Short Periods (less than 0.2 s)	C_{RS}	0.902		ASCE Figure 22-17
Risk Coefficient at Long Periods (greater than 1.0 s)	C_{R1}	0.889		ASCE Figure 22-18
	T_L	8.00 sec		ASCE Figure 22-12
	T_O	0.12 sec	= 0.2*S _{D1} /S _{DS}	
	T_S	0.59 sec	= S _{D1} /S _{DS}	
Peak Ground Acceleration	PGA_M	0.92 g		ASCE Equation 11.8-1



FIGURES

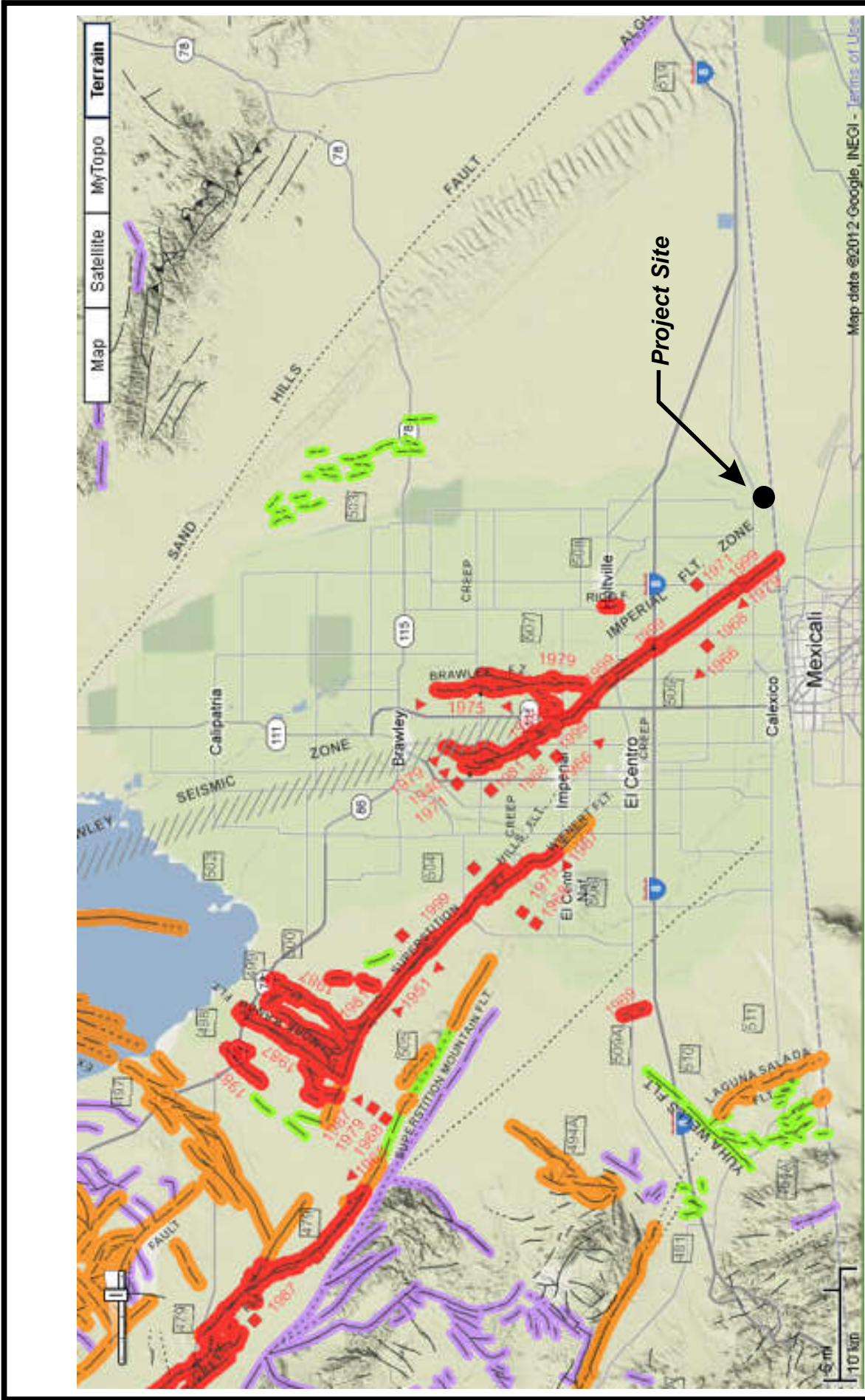


Source: California Geological Survey 2010 Fault Activity Map of California
<http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html#>

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Regional Fault Map

Figure 1



Source: California Geological Survey 2010 Fault Activity Map of California
<http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html#>

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Map of Local Faults

Figure 2

EXPLANATION

Fault traces on land are indicated by solid lines where well located, by dashed lines where approximately located or inferred, and by dotted lines where concealed by younger rocks or by lakes or bays. Fault traces are queried where continuation or existence is uncertain. Concealed faults in the Great Valley are based on maps of selected subsurface horizons, so locations shown are approximate and may indicate structural trend only. All offshore faults based on seismic reflection profile records are shown as solid lines where well defined, dashed where inferred, queried where uncertain.

FAULT CLASSIFICATION COLOR CODE (Indicating Recency of Movement)



Fault along which historic (last 200 years) displacement has occurred and is associated with one or more of the following:

- (a) a recorded earthquake with surface rupture. (Also included are some well-defined surface breaks caused by ground shaking during earthquakes, e.g. extensive ground breakage, not on the White Wolf fault, caused by the Arvin-Tehachapi earthquake of 1952). The date of the associated earthquake is indicated. Where repeated surface ruptures on the same fault have occurred, only the date of the latest movement may be indicated, especially if earlier reports are not well documented as to location of ground breaks.
- (b) fault creep slippage - slow ground displacement usually without accompanying earthquakes.
- (c) displaced survey lines.



A triangle to the right or left of the date indicates termination point of observed surface displacement. Solid red triangle indicates known location of rupture termination point. Open black triangle indicates uncertain or estimated location of rupture termination point.



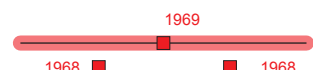
Date bracketed by triangles indicates local fault break.



No triangle by date indicates an intermediate point along fault break.



Fault that exhibits fault creep slippage. Hachures indicate linear extent of fault creep. Annotation (creep with leader) indicates representative locations where fault creep has been observed and recorded.



Square on fault indicates where fault creep slippage has occurred that has been triggered by an earthquake on some other fault. Date of causative earthquake indicated. Squares to right and left of date indicate terminal points between which triggered creep slippage has occurred (creep either continuous or intermittent between these end points).



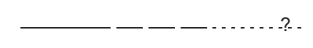
Holocene fault displacement (during past 11,700 years) without historic record. Geomorphic evidence for Holocene faulting includes sag ponds, scarps showing little erosion, or the following features in Holocene age deposits: offset stream courses, linear scarps, shutter ridges, and triangular faceted spurs. Recency of faulting offshore is based on the interpreted age of the youngest strata displaced by faulting.



Late Quaternary fault displacement (during past 700,000 years). Geomorphic evidence similar to that described for Holocene faults except features are less distinct. Faulting may be younger, but lack of younger overlying deposits precludes more accurate age classification.

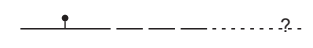


Quaternary fault (age undifferentiated). Most faults of this category show evidence of displacement sometime during the past 1.6 million years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age. Unnumbered Quaternary faults were based on Fault Map of California, 1975. See Bulletin 201, Appendix D for source data.

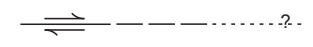


Pre-Quaternary fault (older than 1.6 million years) or fault without recognized Quaternary displacement. Some faults are shown in this category because the source of mapping used was of reconnaissance nature, or was not done with the object of dating fault displacements. Faults in this category are not necessarily inactive.

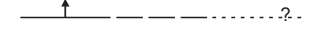
ADDITIONAL FAULT SYMBOLS



Bar and ball on downthrown side (relative or apparent).



Arrows along fault indicate relative or apparent direction of lateral movement.

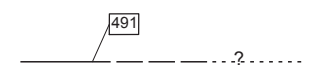


Arrow on fault indicates direction of dip.

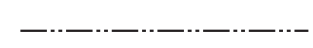


Low angle fault (barbs on upper plate). Fault surface generally dips less than 45° but locally may have been subsequently steepened. On offshore faults, barbs simply indicate a reverse fault regardless of steepness of dip.

OTHER SYMBOLS



Numbers refer to annotations listed in the appendices of the accompanying report. Annotations include fault name, age of fault displacement, and pertinent references including Earthquake Fault Zone maps where a fault has been zoned by the Alquist-Priolo Earthquake Fault Zoning Act. This Act requires the State Geologist to delineate zones to encompass faults with Holocene displacement.



Structural discontinuity (offshore) separating differing Neogene structural domains. May indicate discontinuities between basement rocks.

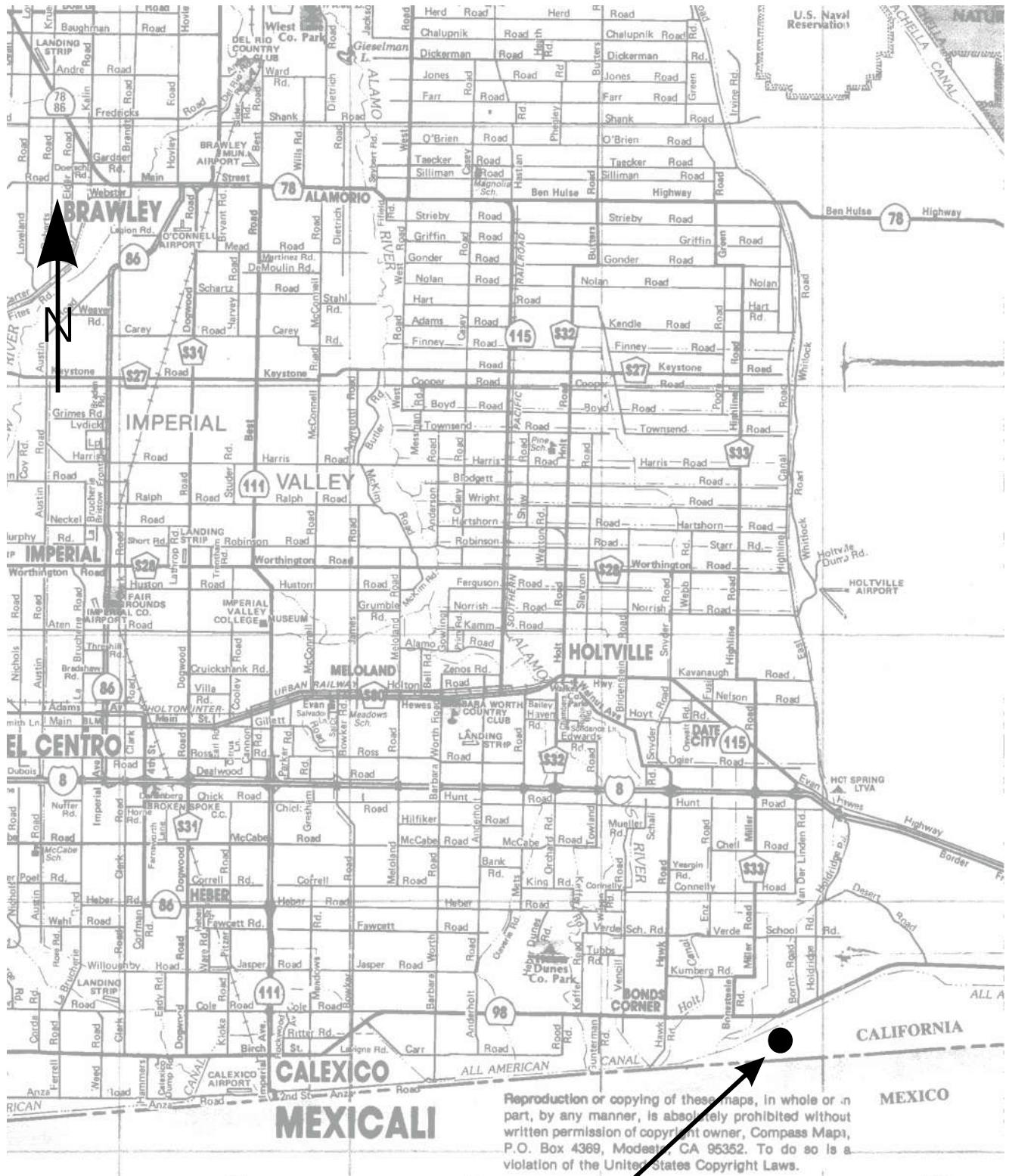


Brawley Seismic Zone, a linear zone of seismicity locally up to 10 km wide associated with the releasing step between the Imperial and San Andreas faults.

Geologic Time Scale	Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION	
				ON LAND	OFFSHORE
Quaternary	Historic			Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
	Late Quaternary	Holocene			Displacement during Holocene time. Fault offsets seafloor sediments or strata of Holocene age.
		11,700			Faults showing evidence of displacement during late Quaternary time. Fault cuts strata of Late Pleistocene age.
	Early Quaternary	Pleistocene			Undivided Quaternary faults - most faults in this category show evidence of displacement during the last 1,600,000 years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age. Fault cuts strata of Quaternary age.
Pre-Quaternary	1,600,000*			Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive. Fault cuts strata of Pliocene or older age.	
	4.5 billion (Age of Earth)				

* Quaternary now recognized as extending to 2.6 Ma (Walker and Geissman, 2009). Quaternary faults in this map were established using the previous 1.6 Ma criterion.

APPENDIX A



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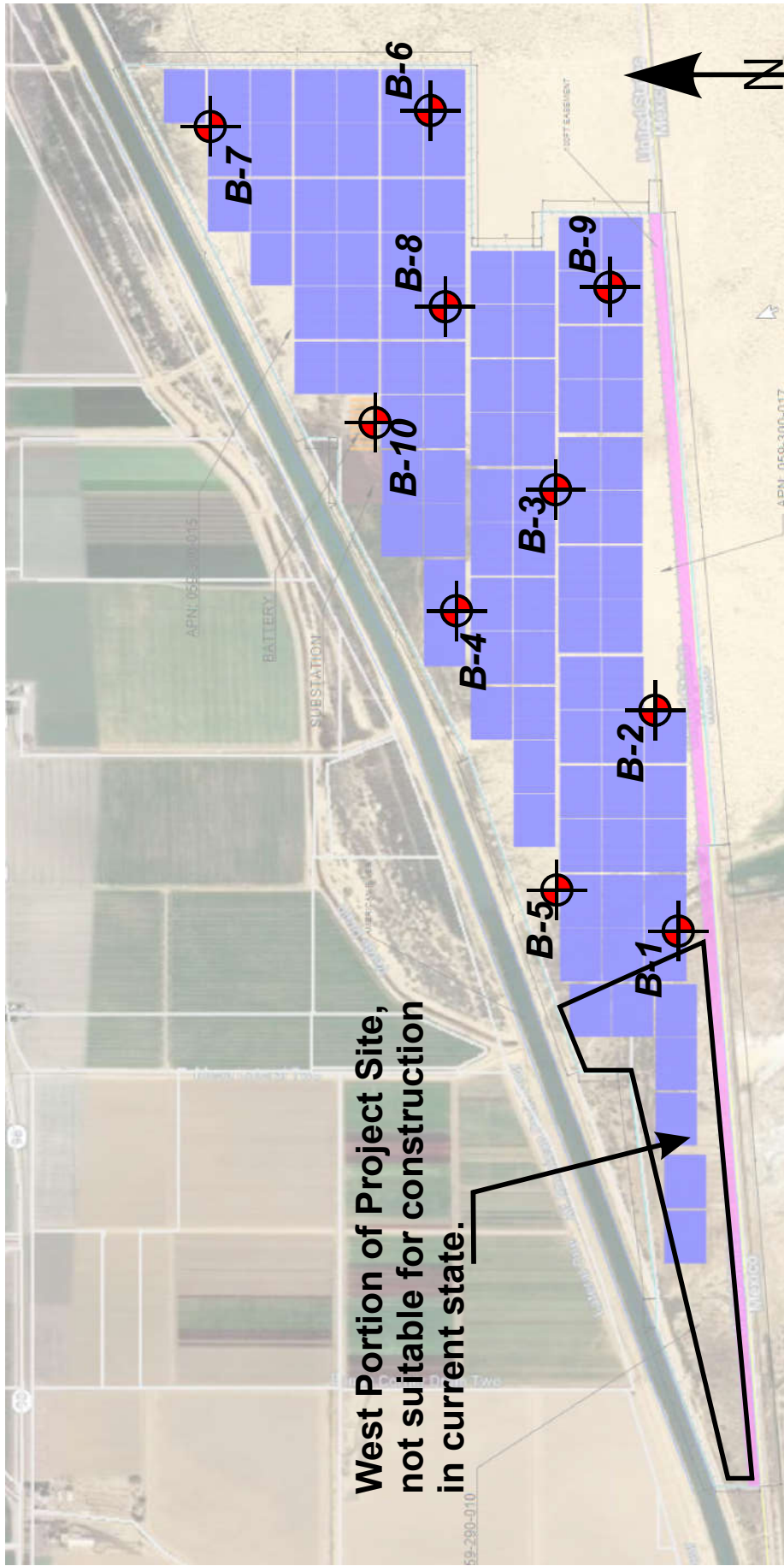
Project Site

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Vicinity Map

**Plate
 A-1**

INFO ITEM ONLY



West Portion of Project Site,
not suitable for construction
in current state.

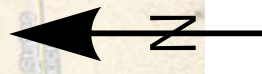


Plate
A-2

Site and Exploration Map

LANDMARK
Geo-Engineers and Geologists
Project No.: LE20130



Plate
A-3

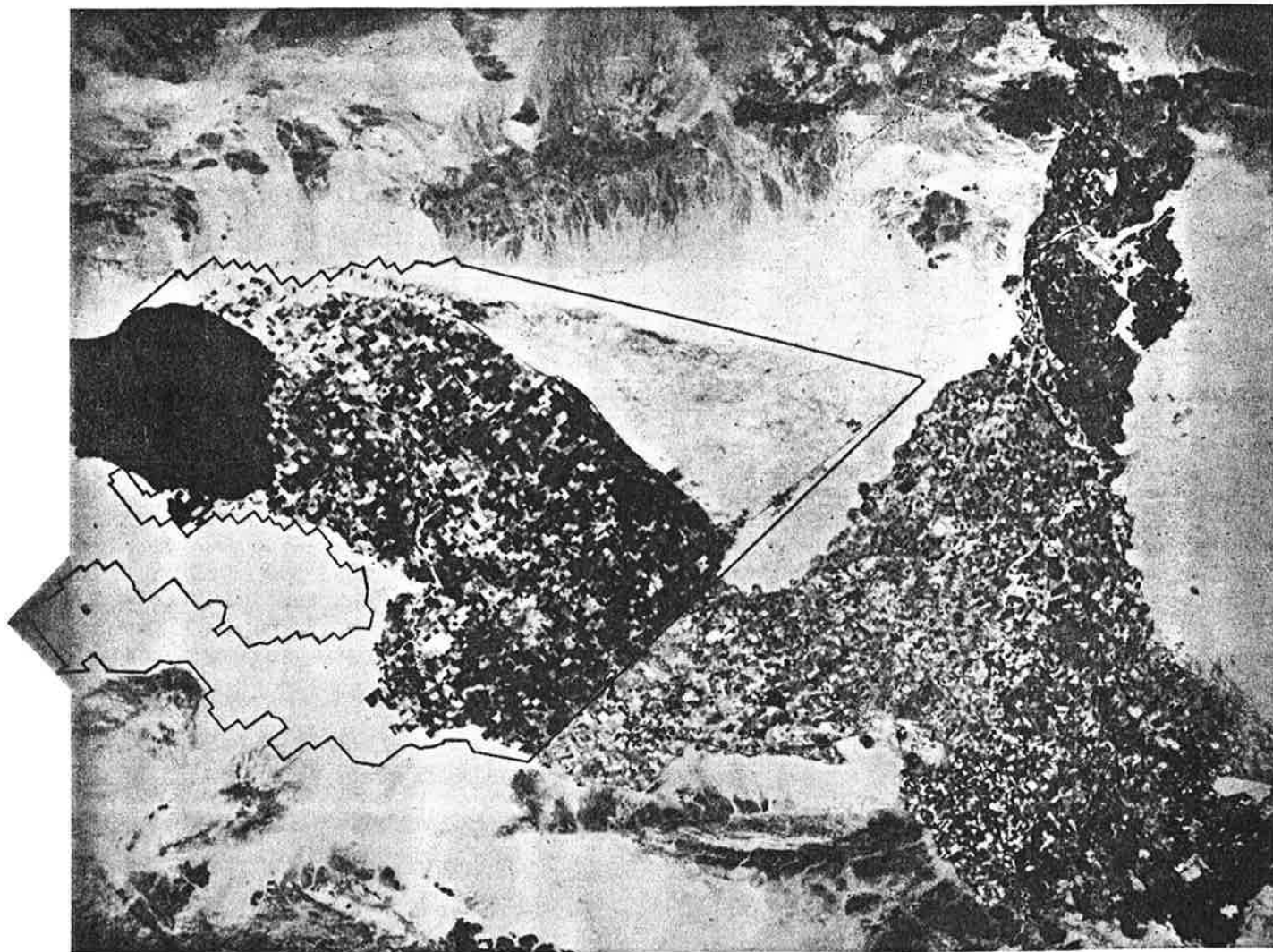
Soil Map

LANDMARK
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INFO ITEM ONLY

Soil Survey of

**IMPERIAL COUNTY
CALIFORNIA
IMPERIAL VALLEY AREA**



United States Department of Agriculture Soil Conservation Service
in cooperation with
University of California Agricultural Experiment Station
and
Imperial Irrigation District

INFO ITEM ONLY

TABLE 11.--ENGINEERING INDEX PROPERTIES

[The symbol > means more than. Absence of an entry indicates that data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
100----- Antho	0-13 13-60	Loamy fine sand Sandy loam, fine sandy loam.	SM SM	A-2 A-2, A-4	0 0	100 90-100	100 75-95	75-85 50-60	10-30 15-40	--- ---	NP NP
101*: Antho-----	0-8 8-60	Loamy fine sand Sandy loam, fine sandy loam.	SM SM	A-2 A-2, A-4	0 0	100 90-100	100 75-95	75-85 50-60	10-30 15-40	--- ---	NP NP
Superstition-----	0-6 6-60	Fine sand----- Loamy fine sand, fine sand, sand.	SM SM	A-2 A-2	0 0	100 100	95-100 95-100	70-85 70-85	15-25 15-25	--- ---	NP NP
102*. Badland											
103----- Carsitas	0-10 10-60	Gravelly sand--- Gravelly sand, gravelly coarse sand, sand.	SP, SP-SM SP, SP-SM	A-1, A-2 A-1	0-5 0-5	60-90 60-90	50-85 50-85	30-55 25-50	0-10 0-10	--- ---	NP NP
104* Fluvaquents											
105----- Glenbar	0-13 13-60	Clay loam----- Clay loam, silty clay loam.	CL CL	A-6 A-6	0 0	100 100	100 100	90-100 90-100	70-95 70-95	35-45 35-45	15-30 15-30
106----- Glenbar	0-13 13-60	Clay loam----- Clay loam, silty clay loam.	CL CL	A-6, A-7 A-6, A-7	0 0	100 100	100 100	90-100 90-100	70-95 70-95	35-45 35-45	15-25 15-25
107*----- Glenbar	0-13 13-60	Loam----- Clay loam, silty clay loam.	ML, CL-ML, CL	A-4 A-6, A-7	0 0	100 100	100 100	100 95-100	70-80 75-95	20-30 35-45	NP-10 15-30
108----- Holtville	0-14 14-22 22-60	Loam----- Clay, silty clay Silt loam, very fine sandy loam.	ML CL, CH ML	A-4 A-7 A-4	0 0 0	100 100 100	100 100 100	85-100 95-100 95-100	55-95 85-95 65-85	25-35 40-65 25-35	NP-10 20-35 NP-10
109----- Holtville	0-17 17-24 24-35 35-60	Silty clay----- Clay, silty clay Silt loam, very fine sandy loam. Loamy very fine sand, loamy fine sand.	CL, CH CL, CH ML SM, ML	A-7 A-7 A-4 A-2, A-4	0 0 0 0	100 100 100 100	100 100 100 100	95-100 95-100 95-100 75-100	85-95 85-95 65-85 20-55	40-65 40-65 25-35 ---	20-35 20-35 NP-10 NP
110----- Holtville	0-17 17-24 24-35 35-60	Silty clay----- Clay, silty clay Silt loam, very fine sandy loam. Loamy very fine sand, loamy fine sand.	CH, CL CH, CL ML SM, ML	A-7 A-7 A-4 A-2, A-4	0 0 0 0	100 100 100 100	100 100 100 100	95-100 95-100 95-100 75-100	85-95 85-95 55-85 20-55	40-65 40-65 25-35 ---	20-35 20-35 NP-10 NP

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pct	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
111*: Holtville-----	0-10	Silty clay loam	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-35
	10-22	Clay, silty clay	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-35
	22-60	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	65-85	25-35	NP-10
Imperial-----	0-12	Silty clay loam	CL	A-7	0	100	100	100	85-95	40-50	10-20
	12-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
112-----	0-12	Silty clay-----	CH	A-7	0	100	100	100	85-95	50-70	25-45
Imperial	12-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
113-----	0-12	Silty clay-----	CH	A-7	0	100	100	100	85-95	50-70	25-45
Imperial	12-60	Silty clay, clay, silty clay loam.	CH	A-7	0	100	100	100	85-95	50-70	25-45
114-----	0-12	Silty clay-----	CH	A-7	0	100	100	100	85-95	50-70	25-45
Imperial	12-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
115*: Imperial-----	0-12	Silty clay loam	CL	A-7	0	100	100	100	85-95	40-50	10-20
	12-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
Glenbar-----	0-13	Silty clay loam	CL	A-6, A-7	0	100	100	90-100	70-95	35-45	15-25
	13-60	Clay loam, silty clay loam.	CL	A-6, A-7	0	100	100	90-100	70-95	35-45	15-25
116*: Imperial-----	0-13	Silty clay loam	CL	A-7	0	100	100	100	85-95	40-50	10-20
	13-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
Glenbar-----	0-13	Silty clay loam	CL	A-6, A-7	0	100	100	90-100	70-95	35-45	15-25
	13-60	Clay loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-95	35-45	15-30
117, 118----- Indio	0-12	Loam-----	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
	12-72	Stratified loamy very fine sand to silt loam.	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
119*: Indio-----	0-12	Loam-----	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
	12-72	Stratified loamy very fine sand to silt loam.	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
Vint-----	0-10	Loamy fine sand	SM	A-2	0	95-100	95-100	70-80	25-35	---	NP
	10-60	Loamy sand, loamy fine sand.	SM	A-2	0	95-100	95-100	70-80	20-30	---	NP
120*----- Laveen	0-12	Loam-----	ML, CL-ML	A-4	0	100	95-100	75-85	55-65	20-30	NP-10
	12-60	Loam, very fine sandy loam.	ML, CL-ML	A-4	0	95-100	85-95	70-80	55-65	15-25	NP-10

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth In	USDA texture	Classification		Frag- ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pet	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
121----- Meloland	0-12	Fine sand-----	SM, SP-SM	A-2, A-3	0	95-100	90-100	75-100	5-30	---	NP
	12-26	Stratified loamy fine sand to silt loam.	ML	A-4	0	100	100	90-100	50-65	25-35	NP-10
	26-71	Clay, silty clay, silty clay loam.	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-40
122----- Meloland	0-12	Very fine sandy loam.	ML	A-4	0	95-100	95-100	95-100	55-85	25-35	NP-10
	12-26	Stratified loamy fine sand to silt loam.	ML	A-4	0	100	100	90-100	50-70	25-35	NP-10
	26-71	Clay, silty clay, silty clay loam.	CH, CL	A-7	0	100	100	95-100	85-95	40-65	20-40
123*: Meloland	0-12	Loam-----	ML	A-4	0	95-100	95-100	95-100	55-85	25-35	NP-10
	12-26	Stratified loamy fine sand to silt loam.	ML	A-4	0	100	100	90-100	50-70	25-35	NP-10
	26-38	Clay, silty clay, silty clay loam.	CH, CL	A-7	0	100	100	95-100	85-95	40-65	20-40
	38-60	Stratified silt loam to loamy fine sand.	SM, ML	A-4	0	100	100	75-100	35-55	25-35	NP-10
Holtville	0-12	Loam-----	ML	A-4	0	100	100	85-100	55-95	25-35	NP-10
	12-24	Clay, silty clay	CH, CL	A-7	0	100	100	95-100	85-95	40-65	20-35
	24-36	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	55-85	25-35	NP-10
	36-60	Loamy very fine sand, loamy fine sand.	SM, ML	A-2, A-4	0	100	100	75-100	20-55	---	NP
124, 125----- Niland	0-23	Gravelly sand---	SM, SP-SM	A-2, A-3	0	90-100	70-95	50-65	5-25	---	NP
	23-60	Silty clay, clay, clay loam.	CL, CH	A-7	0	100	100	85-100	80-95	40-65	20-40
126----- Niland	0-23	Fine sand-----	SM, SP-SM	A-2, A-3	0	90-100	90-100	50-65	5-25	---	NP
	23-60	Silty clay-----	CL, CH	A-7	0	100	100	85-100	80-95	40-65	20-40
127----- Niland	0-23	Loamy fine sand	SM	A-2	0	90-100	90-100	50-65	15-30	---	NP
	23-60	Silty clay-----	CL, CH	A-7	0	100	100	85-100	80-95	40-65	20-40
128*: Niland	0-23	Gravelly sand---	SM, SP-SM	A-2, A-3	0	90-100	70-95	50-65	5-25	---	NP
	23-60	Silty clay, clay, clay loam.	CL, CH	A-7	0	100	100	85-100	80-100	40-65	20-40
Imperial	0-12	Silty clay-----	CH	A-7	0	100	100	100	85-95	50-70	25-45
	12-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
129*: Pits											
130, 131----- Rositas	0-27	Sand-----	SP-SM	A-3, A-1, A-2	0	100	80-100	40-70	5-15	---	NP
	27-60	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2, A-1	0	100	80-100	40-85	5-30	---	NP

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
132, 133, 134, 135-Rositas	0-9	Fine sand-----	SM	A-3, A-2	0	100	80-100	50-80	10-25	---	NP
	9-60	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2, A-1	0	100	80-100	40-85	5-30	---	NP
136-----Rositas	0-4	Loamy fine sand	SM	A-1, A-2	0	100	80-100	40-85	10-35	---	NP
	4-60	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2, A-1	0	100	80-100	40-85	5-30	---	NP
137-----Rositas	0-12	Silt loam-----	ML	A-4	0	100	100	90-100	70-90	20-30	NP-5
	12-60	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2, A-1	0	100	80-100	40-85	5-30	---	NP
138*: Rositas-----	0-4	Loamy fine sand	SM	A-1, A-2	0	100	80-100	40-85	10-35	---	NP
	4-60	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2, A-1	0	100	80-100	40-85	5-30	---	NP
Superstition-----	0-6	Loamy fine sand	SM	A-2	0	100	95-100	70-85	15-25	---	NP
	6-60	Loamy fine sand, fine sand, sand.	SM	A-2	0	100	95-100	70-85	15-25	---	NP
139-----Superstition	0-6	Loamy fine sand	SM	A-2	0	100	95-100	70-85	15-25	---	NP
	6-60	Loamy fine sand, fine sand, sand.	SM	A-2	0	100	95-100	70-85	15-25	---	NP
140*: Torriorthents											
Rock outcrop											
141*: Torriorthents											
Orthids											
142-----Vint	0-10	Loamy very fine sand.	SM, ML	A-4	0	100	100	85-95	40-65	15-25	NP-5
	10-60	Loamy fine sand	SM	A-2	0	95-100	95-100	70-80	20-30	---	NP
143-----Vint	0-12	Fine sandy loam	ML, CL-ML, SM, SM-SC	A-4	0	100	100	75-85	45-55	15-25	NP-5
	12-60	Loamy sand, loamy fine sand.	SM	A-2	0	95-100	95-100	70-80	20-30	---	NP
144*: Vint-----	0-10	Very fine sandy loam.	SM, ML	A-4	0	100	100	85-95	40-65	15-25	NP-5
	10-40	Loamy fine sand	SM	A-2	0	95-100	95-100	70-80	20-30	---	NP
	40-60	Silty clay-----	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-35
Indio-----	0-12	Very fine sandy loam.	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
	12-40	Stratified loamy very fine sand to silt loam.	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
	40-72	Silty clay-----	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-35

* See description of the map unit for composition and behavior characteristics of the map unit.

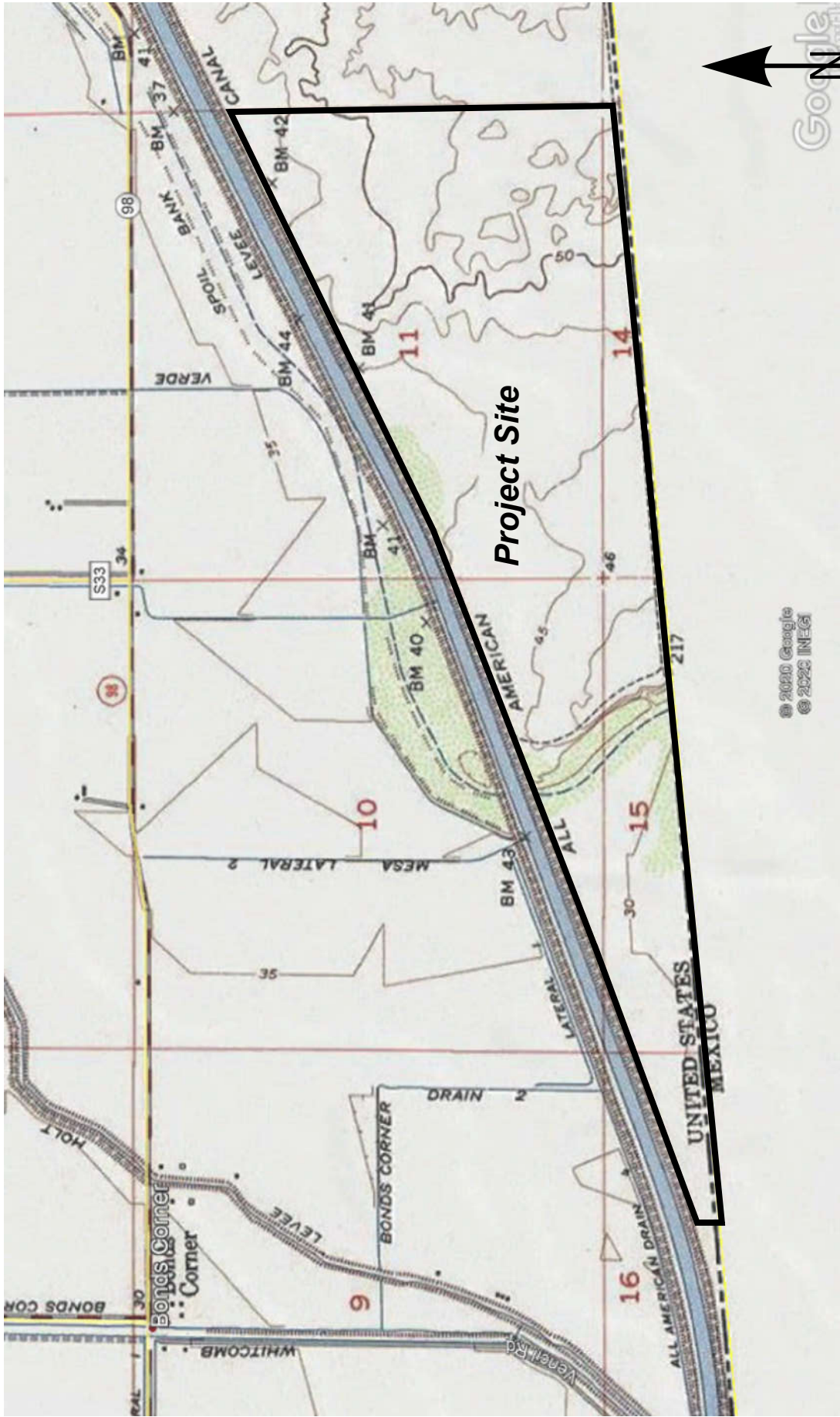


Plate
A-4

Topo Map

LANDMARK
Geo-Engineers and Geologists
Project No.: LE20130

INFO ITEM ONLY

APPENDIX B

DEPTH	FIELD				LOG OF BORING NO. B-1 SHEET 1 OF 1	LABORATORY		
	SAMPLE	USCS CLASS.	BLOW COUNT	POCKET PEN. (tsf)		DESCRIPTION OF MATERIAL	DRY DENSITY (pcf)	MOISTURE CONTENT (% dry wt.)
5			22	2.5	SANDY SILTY CLAY (CL): Brown, very moist, with fine grain sands. Top 4" fluff.	91.6	23.3	LL=30% PI=13%
					SANDY SILTY CLAY (CL): Brown, very moist, with fine grain sands.			
10			8	1.0	SANDY SILTY CLAY (CL): Brown, wet, with fine grain sands.			
15			16		SILTY SAND (SM): Light brown, saturated, medium grain sands.			
20		31		SAND (SP): Tan, saturated, medium & fine grain sands.				
25				Groundwater measured at 10 feet at time of drilling. This is not considered the stabilized groundwater depth as groundwater may rise to a level higher than that measured in borehole.				
30								

DATE DRILLED: 11/30/20 TOTAL DEPTH: 20 Feet DEPTH TO WATER: 10 ft.
 LOGGED BY: P. LaBrucherie TYPE OF BIT: Hollow Stem Auger DIAMETER: 8 in.
 SURFACE ELEVATION: Approximately 39' HAMMER WT.: 140 lbs. DROP: 30 in.

PROJECT No. LE20130		PLATE B-1
---------------------	--	-----------

DEPTH	FIELD				LOG OF BORING NO. B-2 SHEET 1 OF 1	LABORATORY		
	SAMPLE	USCS CLASS.	BLOW COUNT	POCKET PEN. (tsf)		DESCRIPTION OF MATERIAL	DRY DENSITY (pcf)	MOISTURE CONTENT (% dry wt.)
5			50		SILTY SAND/SAND (SM-SP): Tan, dry, medium, fine and very fine grain sands.			Passing #200 = 6.4%
10			60		SAND (SP): Tan, dry, medium, fine and very fine grain sands.			
15			40		SAND (SW): Light brown, wet, coarse to fine grain sands.			
20			18	1.5	CLAY (CH): Brown, saturated, stiff to very stiff.			
25					Groundwater measured at 16.5 feet at time of drilling. This is not considered the stabilized groundwater depth as groundwater may rise to a level higher than that measured in borehole.			
30								

DATE DRILLED: 11/30/20 TOTAL DEPTH: 20 Feet DEPTH TO WATER: 16.5 ft.
 LOGGED BY: P. LaBrucherie TYPE OF BIT: Hollow Stem Auger DIAMETER: 8 in.
 SURFACE ELEVATION: Approximately 53' HAMMER WT.: 140 lbs. DROP: 30 in.

PROJECT No. LE20130

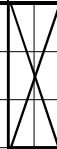
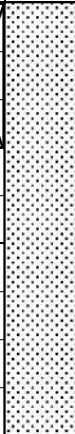







PLATE B-2

DEPTH	FIELD				LOG OF BORING NO. B-3 SHEET 1 OF 1	LABORATORY		
	SAMPLE	USCS CLASS.	BLOW COUNT	POCKET PEN. (tsf)		DESCRIPTION OF MATERIAL	DRY DENSITY (pcf)	MOISTURE CONTENT (% dry wt.)
5		SAND (SP)	19		SAND (SP): Tan, dry, medium dense, medium and fine grain sands.			Passing #200 = 3.3%
10			42		SAND (SP): Tan, very moist, dense, medium grain sands.			
15			43		SAND (SP): Tan, saturated, dense, medium grain sands.			
20			12		SAND (SP): Tan, saturated, dense, medium grain sands.			
				0.5	SILTY CLAY (CL): Brown, saturated, soft, bottom 6" of sampler.			
25					Groundwater measured at 11.5 feet at time of drilling. This is not considered the stabilized groundwater depth as groundwater may rise to a level higher than that measured in borehole.			
30								

DATE DRILLED: 12/1/20 TOTAL DEPTH: 17.5 Feet DEPTH TO WATER: 11.5 ft.
LOGGED BY: P. LaBrucherie TYPE OF BIT: Hollow Stem Auger DIAMETER: 8 in.
SURFACE ELEVATION: Approximately 46' HAMMER WT.: 140 lbs. DROP: 30 in.

PROJECT No. LE20130		PLATE B-3
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DEPTH	FIELD				LOG OF BORING NO. B-4 SHEET 1 OF 1	LABORATORY		
	SAMPLE	USCS CLASS.	BLOW COUNT	POCKET PEN. (tsf)		DESCRIPTION OF MATERIAL	DRY DENSITY (pcf)	MOISTURE CONTENT (% dry wt.)
5			34		<p>SILTY SAND/SAND (SM-SP): Tan, dry to moist, fine and very fine grain sands.</p> <p>SAND (SP): Tan, wet, dense, medium and fine grain sands.</p>		23.7	Passing #200 = 7.6%
10			45	3.5	CLAY (CH): Brown, very wet, very stiff.	106.1	23.2	LL=69% PI=48%
15			6	2.5	SILTY CLAY (CL): Brown, saturated, medium stiff to stiff.			
20			9	0.25	SILTY CLAY (CL): Brown, saturated, soft.			
25					Groundwater measured at 16.0 feet at time of drilling. This is not considered the stabilized groundwater depth as groundwater may rise to a level higher than that measured in borehole.			
30								

DATE DRILLED: 12/1/20 TOTAL DEPTH: 20 Feet DEPTH TO WATER: 16 ft.
LOGGED BY: P. LaBrucherie TYPE OF BIT: Hollow Stem Auger DIAMETER: 8 in.
SURFACE ELEVATION: Approximately 43' HAMMER WT.: 140 lbs. DROP: 30 in.

PROJECT No. LE20130



PLATE B-4

INFO ITEM ONLY

DEPTH	FIELD				LOG OF BORING NO. B-5 SHEET 1 OF 1	LABORATORY		
	SAMPLE	USCS CLASS.	BLOW COUNT	POCKET PEN. (tsf)		DESCRIPTION OF MATERIAL	DRY DENSITY (pcf)	MOISTURE CONTENT (% dry wt.)
5			23		SAND (SP): Tan, dry to little moist, medium and fine grain sands. SAND (SP): Tan, moist, medium dense, medium and fine grain sands.		8.3	Passing #200 = 3.4%
10			46	2.0	SANDY CLAY (CL): Brown, very wet, med grain sands.	109.4	19.5	
15			17	3.5	SAND (SP): Tan, wet, dense, medium grain sands. CLAY (CL): Brown, wet, very stiff.			
20			22		SAND (SP): Tan, saturated, medium dense, medium grain sands. SILT (ML): Brown, saturated, soft, bottom 6" of sampler.			
25					Groundwater measured at 13.0 feet at time of drilling. This is not considered the stabilized groundwater depth as groundwater may rise to a level higher than that measured in borehole.			
30								

DATE DRILLED: 12/1/20 TOTAL DEPTH: 17.5 Feet DEPTH TO WATER: 13 ft.
 LOGGED BY: P. LaBrucherie TYPE OF BIT: Hollow Stem Auger DIAMETER: 8 in.
 SURFACE ELEVATION: Approximately 47' HAMMER WT.: 140 lbs. DROP: 30 in.

PROJECT No. LE20130		PLATE B-5
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DEPTH	FIELD				LOG OF BORING NO. B-6 SHEET 1 OF 1	LABORATORY		
	SAMPLE	USCS CLASS.	BLOW COUNT	POCKET PEN. (tsf)		DESCRIPTION OF MATERIAL	DRY DENSITY (pcf)	MOISTURE CONTENT (% dry wt.)
5			74		SAND (SP): Tan, dry to little moisture, medium and fine grain sands.			
10			37		SAND (SP): Tan, dry, very dense, medium and fine grain sands.			
15			49		SAND (SP): Tan, dry, dense, medium and fine grain sands. 3" clay layer within bottom 12" and coarse sands at tip.			
20			52		SAND (SP): Tan, moist, dense, medium and fine grain sands.			
25					Groundwater measured at 20 feet at time of drilling. This is not considered the stabilized groundwater depth as groundwater may rise to a level higher than that measured in borehole.			
30								

DATE DRILLED: 12/1/20 TOTAL DEPTH: 20 Feet DEPTH TO WATER: 20 ft.
 LOGGED BY: P. LaBrucherie TYPE OF BIT: Hollow Stem Auger DIAMETER: 8 in.
 SURFACE ELEVATION: Approximately 56' HAMMER WT.: 140 lbs. DROP: 30 in.

PROJECT No. LE20130



PLATE B-6

INFO ITEM ONLY

DEPTH	FIELD				LOG OF BORING NO. B-7 SHEET 1 OF 1	LABORATORY		
	SAMPLE	USCS CLASS.	BLOW COUNT	POCKET PEN. (tsf)		DESCRIPTION OF MATERIAL	DRY DENSITY (pcf)	MOISTURE CONTENT (% dry wt.)
5					SILTY SAND/SAND (SM-SP): Tan, moist to very moist, fine and very fine grain sands.	106.0	18.1	Passing #200 = 6.8%
			12		SAND (SP): Tan, wet, loose to medium dense, medium and fine grain sands.			
10			54		SAND (SP): Tan with some red-yellow, very wet, very dense, medium and fine grain sands.			
15			71		SAND (SW-SP): Tan, very wet, very dense, coarse and medium grain with some fine grain sands.			Φ=35°
15					Groundwater not found at time of drilling. This is not considered the stabilized groundwater depth as groundwater may rise to a level higher than that measured in borehole.			
20								
25								
30								

DATE DRILLED: 12/1/20 TOTAL DEPTH: 12.5 Feet DEPTH TO WATER: NA
 LOGGED BY: P. LaBrucherie TYPE OF BIT: Hollow Stem Auger DIAMETER: 8 in.
 SURFACE ELEVATION: Approximately 45' HAMMER WT.: 140 lbs. DROP: 30 in.

PROJECT No. LE20130		PLATE B-7
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DEPTH	FIELD				LOG OF BORING NO. B-8 SHEET 1 OF 1		LABORATORY		
	SAMPLE	USCS CLASS.	BLOW COUNT	POCKET PEN. (tsf)	DESCRIPTION OF MATERIAL	DRY DENSITY (pcf)	MOISTURE CONTENT (% dry wt.)	OTHER TESTS	
5		[USCS CLASSIFICATION]	29		SAND (SP): Gray, dry, fine grain sands.			Passing #200 = 2.2%	
10			28		SAND (SP): Gray, slight moisture, medium dense to dense, fine grain sands.				
15			53		SAND (SP): Tan, moist to wet, very dense, medium grain sands.				
20			34		SAND/SILTY SAND (SM-SP): Tan to light brown, saturated, dense, medium and fine grain sands.				
25					Groundwater measured at 20 feet at time of drilling. This is not considered the stabilized groundwater depth as groundwater may rise to a level higher than that measured in borehole.				
30									

DATE DRILLED: 12/1/20 TOTAL DEPTH: 20 Feet DEPTH TO WATER: 20 ft.
 LOGGED BY: P. LaBrucherie TYPE OF BIT: Hollow Stem Auger DIAMETER: 8 in.
 SURFACE ELEVATION: Approximately 52' HAMMER WT.: 140 lbs. DROP: 30 in.

PROJECT No. LE20130		PLATE B-8
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DEPTH	FIELD				LOG OF BORING NO. B-9 SHEET 1 OF 1	LABORATORY		
	SAMPLE	USCS CLASS.	BLOW COUNT	POCKET PEN. (tsf)		DESCRIPTION OF MATERIAL	DRY DENSITY (pcf)	MOISTURE CONTENT (% dry wt.)
5			12		CLAYEY SAND/SAND (SC-SP): Tan, dry, fine grain with few medium grain sands and dry clay later at tip of sampler.			
10			27		SAND (SP): Tan and grays, dry, medium dense, fine grain sands.			Passing #200 = 4.1%
15			52		SILTY SAND/SAND (SM-SP): Tan, slight moisture, very dense, fine and very fine grain sands.			Passing #200 = 5.0%
20			31	4.0	CLAY (CL): Brown, very moist, very stiff to hard.			
25					Groundwater not found at time of drilling. This is not considered the stabilized groundwater depth as groundwater may rise to a level higher than that measured in borehole.			
30								

DATE DRILLED: 12/1/20 TOTAL DEPTH: 17.5 Feet DEPTH TO WATER: NA
LOGGED BY: P. LaBrucherie TYPE OF BIT: Hollow Stem Auger DIAMETER: 8 in.
SURFACE ELEVATION: Approximately 54' HAMMER WT.: 140 lbs. DROP: 30 in.

PROJECT No. LE20130



PLATE B-9

DEPTH	FIELD				LOG OF BORING No. B-10 SHEET 1 OF 1	LABORATORY		
	SAMPLE	USCS CLASS.	BLOW COUNT	POCKET PEN. (tsf)		DESCRIPTION OF MATERIAL	DRY DENSITY (pcf)	MOISTURE CONTENT (% dry wt.)
5			49		SAND/SILTY SAND (SM-SP): Tan, dry to moist, fine grain sands.	104.1	18.0	Φ=35° Passing #200 = 9.8%
					SAND/SILTY SAND (SM-SP): Tan, wet, dense, fine grain sands.			
10			50		SAND/SILTY SAND (SM-SP): Tan, saturated, dense to very dense, fine grain sands.			
15			54		SAND/SILTY SAND (SM-SP): Tan, saturated, dense, fine grain sands.			
20			32		SAND/SILTY SAND (SM-SP): Tan, saturated, dense, fine grain sands.	102.9	24.2	LL=64% PI=46%
25			33	2.5	FAT CLAY (CH): Brown, very moist, very stiff, high plasticity.			
30			55		SAND/SILTY SAND (SM-SP): Tan, saturated, very dense, fine grain sands.			
35			50/3"		SAND/SILTY SAND (SM-SP): Tan, saturated, very dense, fine grain sands.			
40			86/9"		SAND/SILTY SAND (SM-SP): Tan, saturated, very dense, fine grain sands, with interbedded layer of fat clay..	19	3.5	
45			19	3.5	FAT CLAY (CH): Brown, very moist, very stiff, high plasticity.			
50			40	4.0	SILTY CLAY/CLAYEY SILT (CL-ML): Red-brown, very moist, very stiff, medium plasticity.			
55					Groundwater measured at 8.5 feet at time of drilling. This is not considered the stabilized groundwater depth as groundwater may rise to a level higher than that measured in borehole.			
60								

DATE DRILLED: 12/2/2020 TOTAL DEPTH: 50 Feet DEPTH TO WATER: 8.5 ft.
 LOGGED BY: J. Avalos TYPE OF BIT: Hollow Stem Auger DIAMETER: 8 in.
 SURFACE ELEVATION: Approximately 43' HAMMER WT.: 140 lbs. DROP: 30 in.















PROJECT NO. LE20130



PLATE B-10

INFO ITEM ONLY

DEFINITION OF TERMS

PRIMARY DIVISIONS	SYMBOLS	SECONDARY DIVISIONS	
Coarse grained soils More than half of material is larger than No. 200 sieve	Gravels	Clean gravels (less than 5% fines)	 GW Well graded gravels, gravel-sand mixtures, little or no fines
	More than half of coarse fraction is larger than No. 4 sieve	Gravel with fines	 GP Poorly graded gravels, or gravel-sand mixtures, little or no fines
			 GM Silty gravels, gravel-sand-silt mixtures, non-plastic fines
	More than half of coarse fraction is smaller than No. 4 sieve	Sands with fines	 GC Clayey gravels, gravel-sand-clay mixtures, plastic fines
			 SW Well graded sands, gravelly sands, little or no fines
			 SP Poorly graded sands or gravelly sands, little or no fines
 SM Silty sands, sand-silt mixtures, non-plastic fines			
Fine grained soils More than half of material is smaller than No. 200 sieve	Silts and clays	 ML Inorganic silts, clayey silts with slight plasticity	
		Liquid limit is less than 50%	 CL Inorganic clays of low to medium plasticity, gravelly, sandy, or lean clays
		 OL Organic silts and organic clays of low plasticity	
	Silts and clays	Liquid limit is more than 50%	 MH Inorganic silts, micaceous or diatomaceous silty soils, elastic silts
		 CH Inorganic clays of high plasticity, fat clays	
		 OH Organic clays of medium to high plasticity, organic silts	
Highly organic soils	 PT Peat and other highly organic soils		

GRAIN SIZES

Silts and Clays	Sand			Gravel		Cobbles	Boulders
	Fine	Medium	Coarse	Fine	Coarse		
	200	40	10	4	3/4"	3"	12"
	US Standard Series Sieve			Clear Square Openings			

Sands, Gravels, etc.	Blows/ft. *
Very Loose	0-4
Loose	4-10
Medium Dense	10-30
Dense	30-50
Very Dense	Over 50

Clays & Plastic Silts	Strength **	Blows/ft. *
Very Soft	0-0.25	0-2
Soft	0.25-0.5	2-4
Firm	0.5-1.0	4-8
Stiff	1.0-2.0	8-16
Very Stiff	2.0-4.0	16-32
Hard	Over 4.0	Over 32


* Number of blows of 140 lb. hammer falling 30 inches to drive a 2 inch O.D. (1 3/8 in. I.D.) split spoon (ASTM D1586).

** Unconfined compressive strength in tons/s.f. as determined by laboratory testing or approximated by the Standard Penetration Test (ASTM D1586), Pocket Penetrometer, Torvane, or visual observation.

Type of Samples:

Ring Sample
 Standard Penetration Test
 Shelby Tube
 Bulk (Bag) Sample

Drilling Notes:

1. Sampling and Blow Counts
 - Ring Sampler - Number of blows per foot of a 140 lb. hammer falling 30 inches.
 - Standard Penetration Test - Number of blows per foot.
 - Shelby Tube - Three (3) inch nominal diameter tube hydraulically pushed.
2. P. P. = Pocket Penetrometer (tons/s.f.).
3. NR = No recovery.
4. GWT  = Ground Water Table observed @ specified time.

LANDMARK

Geo-Engineers and Geologists

Project No. LE20130

Key to Logs

**Plate
B-11**

INFO ITEM ONLY

APPENDIX C

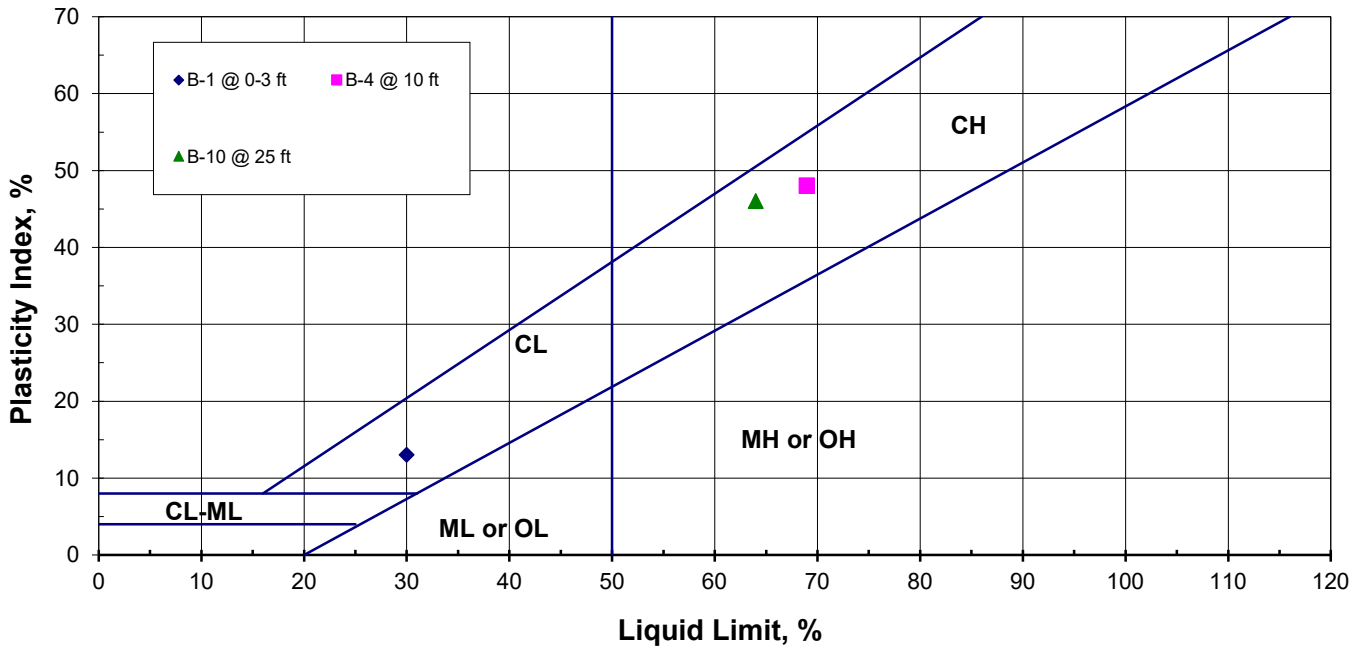
LANDMARK CONSULTANTS, INC.

CLIENT: Vega SES 4, LLC
PROJECT: Vega 4 Solar Site - Calexico, CA
JOB No.: LE20130
DATE: 12/22/20

ATTERBERG LIMITS (ASTM D4318)

Sample Location	Sample Depth (ft)	Liquid Limit (LL)	Plastic Limit (PL)	Plasticity Index (PI)	USCS Classification
B-1	0-3	30	17	13	CL
B-4	10	69	21	48	CH
B-10	25	64	18	46	CH

PLASTICITY CHART



Project No.: LE20130

**Atterberg Limits
Test Results**

**Plate
C-1**

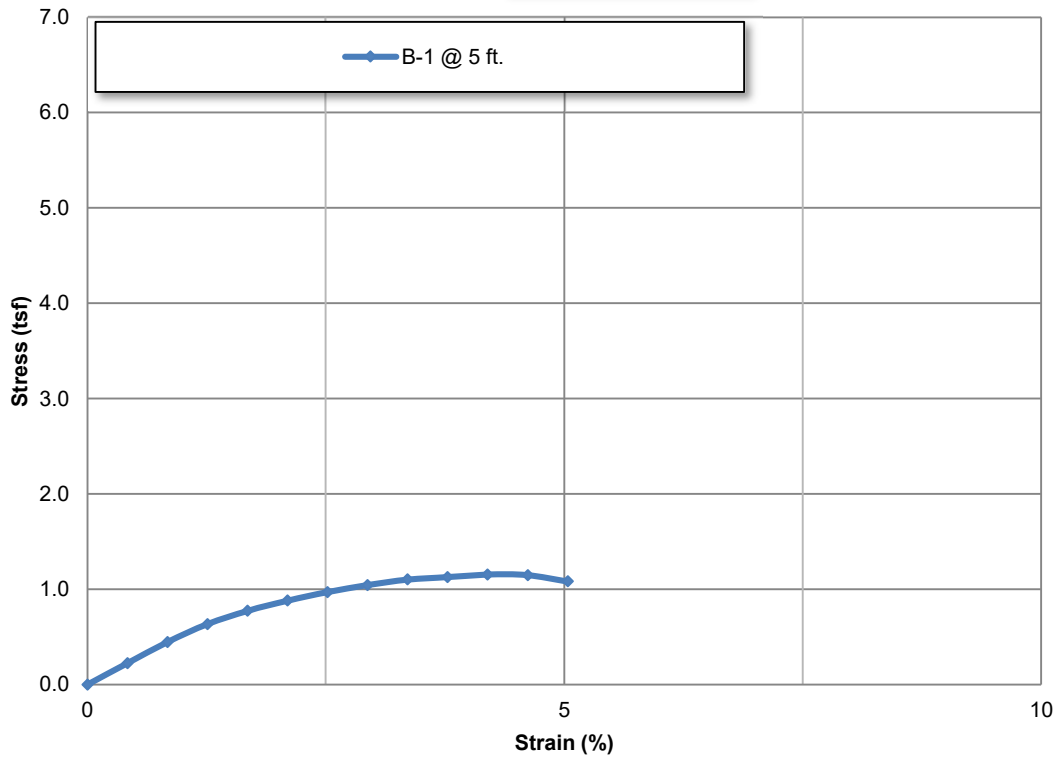
LANDMARK CONSULTANTS, INC.

CLIENT: Vega SES 4, LLC
PROJECT: Vega 4 Solar Project - Calexico, CA
JOB NO: LE20130
DATE: 12/14/2020

UNCONFINED COMPRESSION TEST (ASTM D2166)

Boring No.	Sample Depth (ft)	Natural Moisture Content (%)	Unit Dry Weight (pcf)	Maximum Compressive Strength (tsf)	Cohesion (tsf)	Failure Strain (%)
B-1	5	26.1	89.6	1.15	0.58	4.2

Stress - Strain Plot



Project No.: LE20130

**Unconfined Compression
Test Results**

**Plate
C-2**

LANDMARK CONSULTANTS, INC.

CLIENT: Vega SES 4, LLC
PROJECT: Vega 4 Solar
PROJECT No: LE20130

DATE: 12/14/2020

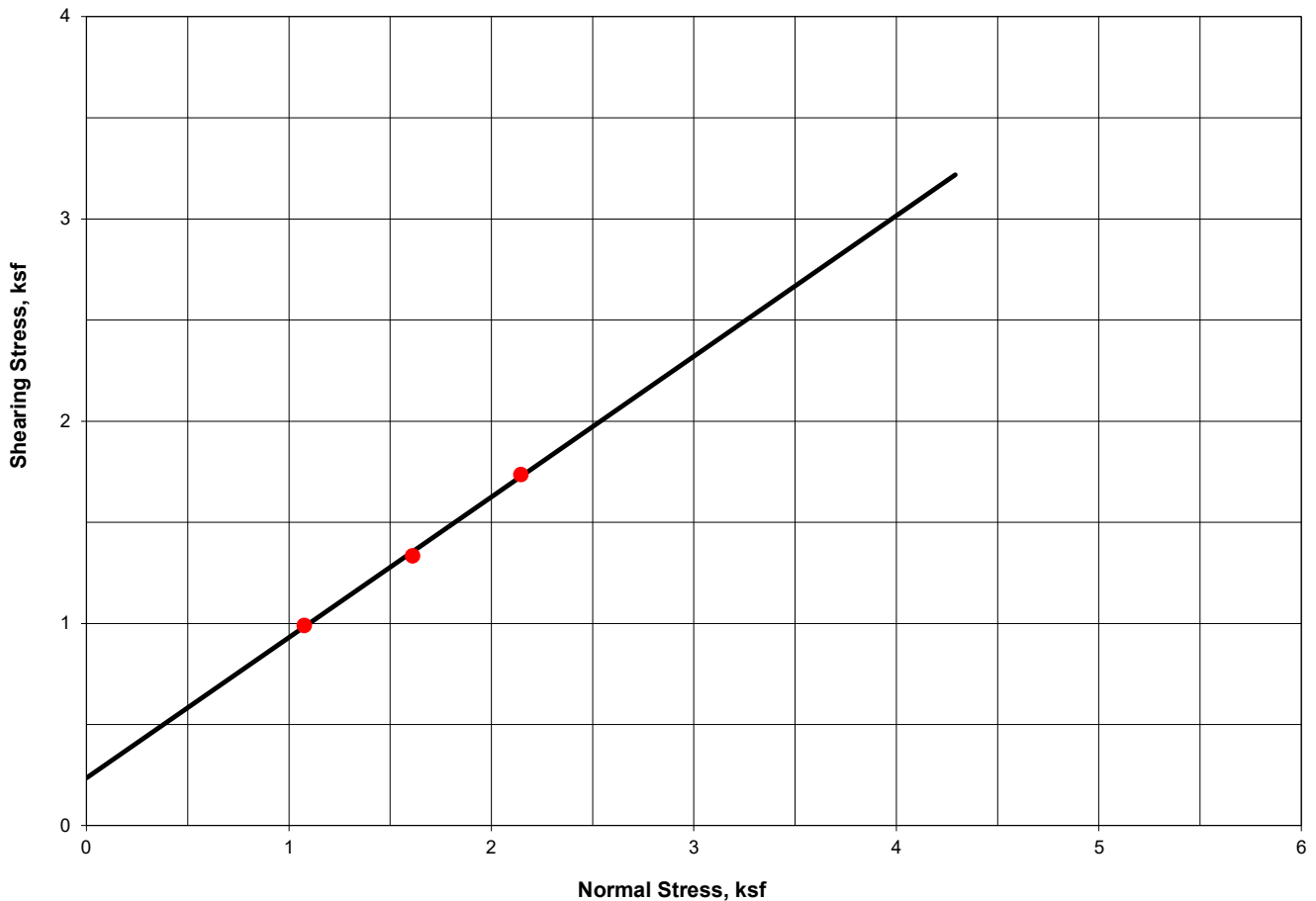
DIRECT SHEAR TEST - INSITU (ASTM D3080)

SAMPLE LOCATION: B-7 @ 7.5 ft
SAMPLE DESCRIPTION: Sand (SP)

Angle of Internal Friction: 35°
Cohesion: 0.23 ksf

Initial Dry Density: 106 pcf
Initial Moisture Content: 18.1%

DIRECT SHEAR TEST RESULTS



LANDMARK
Geo-Engineers and Geologists

PROJECT No: LE20130

Direct Shear Test Results

Plate
C-3

INFO ITEM ONLY

LANDMARK CONSULTANTS, INC.

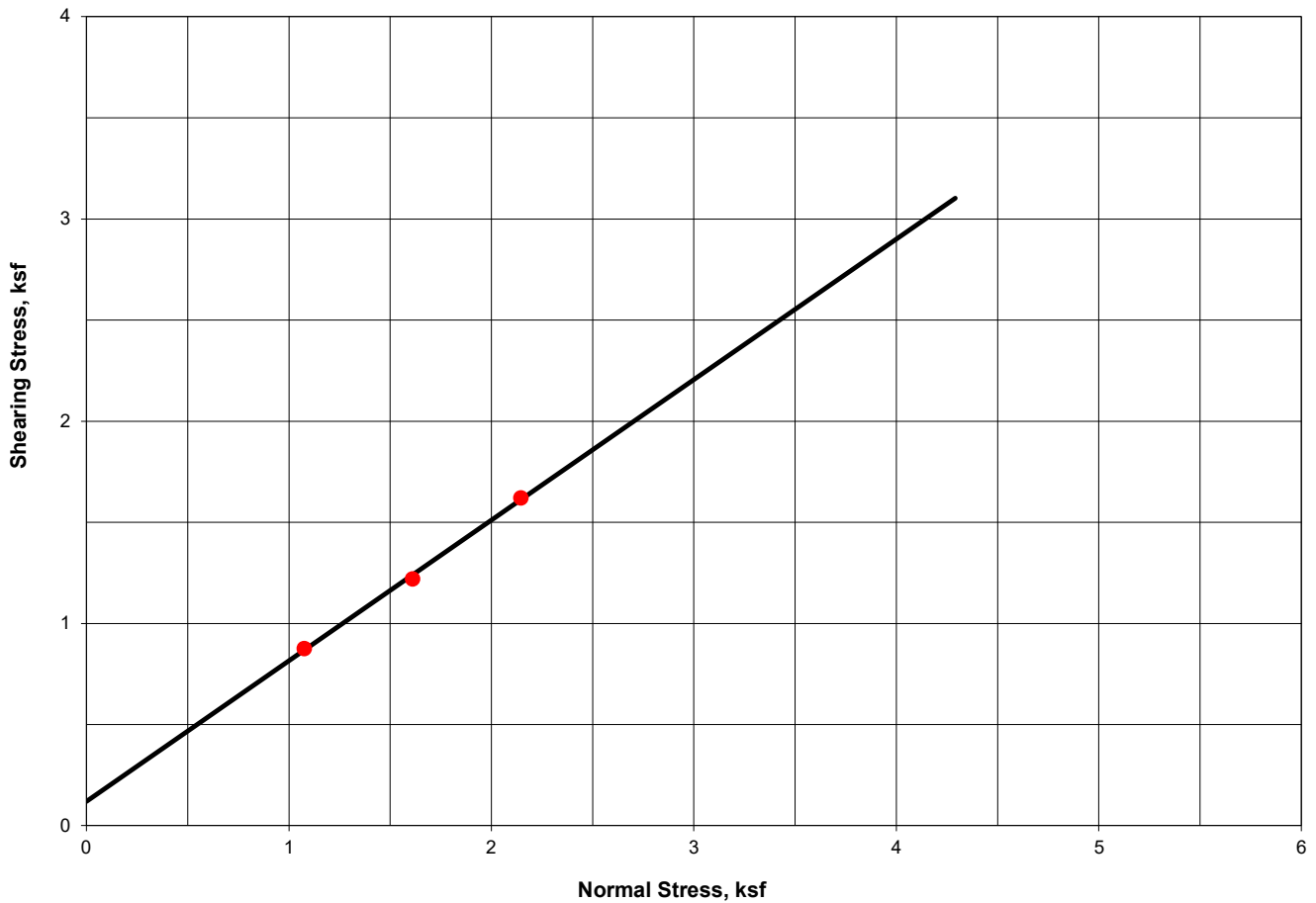
CLIENT: Vega SES 4, LLC
PROJECT: Vega 4 Solar
PROJECT No: LE20130
DATE: 12/14/2020

DIRECT SHEAR TEST - INSITU (ASTM D3080)

SAMPLE LOCATION: B-10 @ 5 ft
SAMPLE DESCRIPTION: Sand (SP)

Angle of Internal Friction: 35° **Initial Dry Density:** 104.1 pcf
Cohesion: 0.12 ksf **Initial Moisture Content:** 18%

DIRECT SHEAR TEST RESULTS



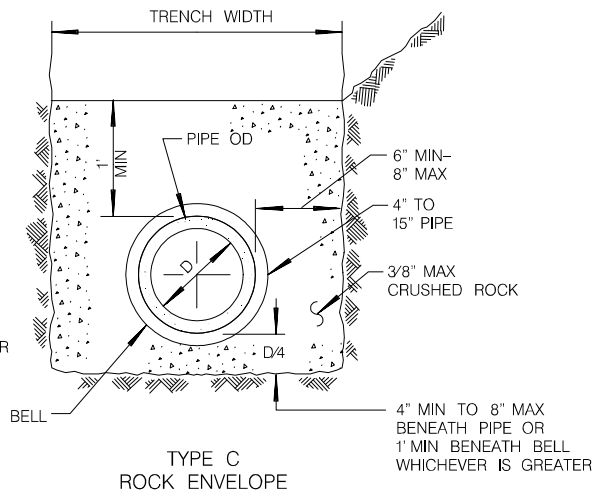
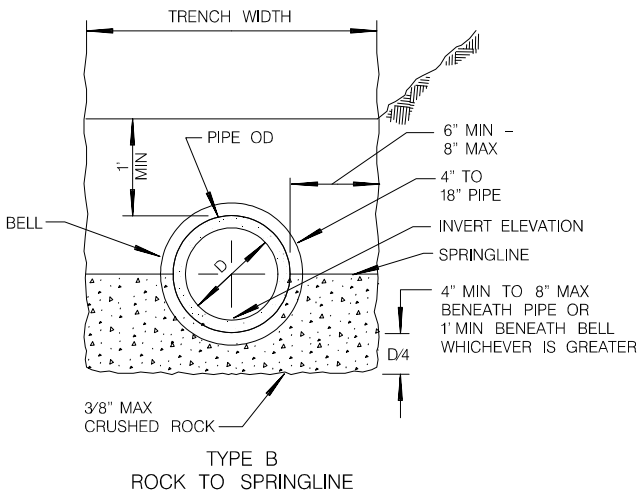
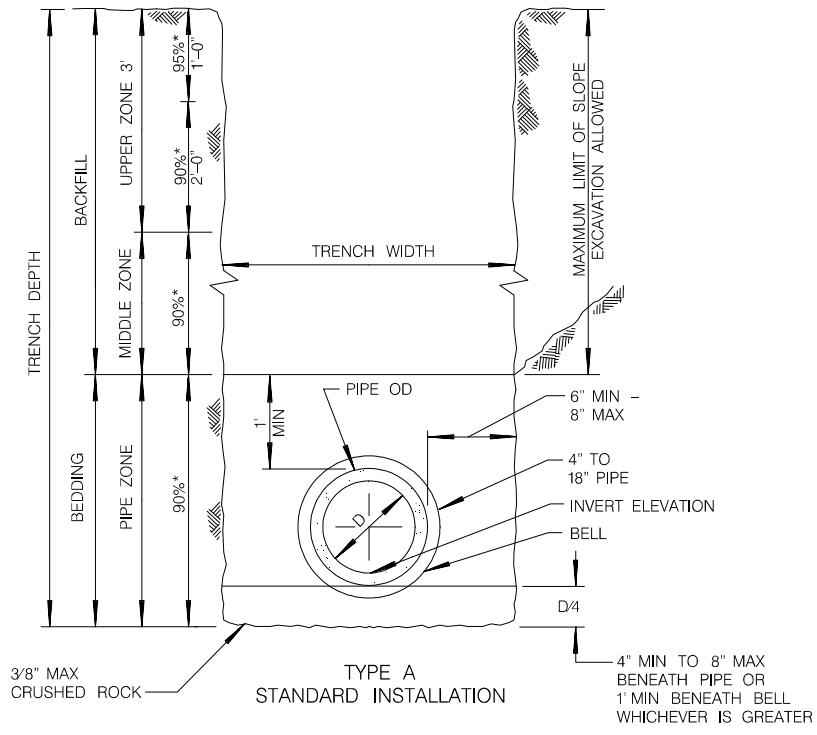
PROJECT No: LE20130

Direct Shear Test Results

Plate
C-4

INFO ITEM ONLY

APPENDIX D



NOTES

1. FOR TRENCH RESURFACING IN IMPROVED STREETS, SEE STANDARD DRAWINGS SDG-107 AND SDG-108.
2. (*) INDICATES MINIMUM RELATIVE COMPACTION.
3. MINIMUM DEPTH OF COVER FROM THE TOP OF PIPE TO FINISH GRADE FOR PVC SDR 35 SEWER MAIN SHALL BE 5'. FOR SHALLOWER DEPTH, SPECIAL DESIGN IS REQUIRED. SEE SDS-101.
4. SEE TYPE A INSTALLATION FOR DETAILS NOT SHOWN FOR TYPES B AND C.
5. FOR PIPE SIZE ENCASEMENT LARGER THAN 15", MAXIMUM SIDE WALL CLEARANCE SHALL BE 12" OR AS SHOWN ON THE PLANS.
6. 6" METAL TAPE SHALL BE INSTALLED ABOVE PIPE 4" BELOW TRENCH CAP AND 12" BELOW FINISH GRADE IN UNIMPROVED STREETS.
7. 1" SAND CUSHION OR A 6" MINIMUM SAND CUSHION WITH 1" NEOPRENE PAD SHALL BE PLACED FOR CROSSINGS UTILITIES WHEN VERTICAL CLEARANCE IS 1' OR LESS. THE NEOPRENE PAD SHALL BE PLACED ON THE MOST FRAGILE UTILITY.

From: City of San Diego Standard Drawing SDS-110 (2016)

LANDMARK
Geo-Engineers and Geologists
Project No.: LE20130

**Pipe Bedding and Trench Backfill
Recommendations**

**Plate
D-1**

INFO ITEM ONLY

APPENDIX E

**VEGA SOLAR – SITE NO. 4
SITE CORROSIVITY ASSESSMENT REPORT**

Presented To:

Landmark Consultants

Prepared by:

R. F. Yeager
E N G I N E E R I N G

JANUARY 6, 2021

INFO ITEM ONLY

INTRODUCTION

RFYeager Engineering has completed an electrical and thermal resistivity assessment at the proposed Site No. 4 of the Vega Solar Project located south of Holtville, California. The electrical resistivity assessment was conducted in the field. The thermal resistivity assessment was conducted at RFYeager Engineering's office on soil samples prepared by Landmark Consultants (Landmark). A chemical analysis of three (3) soil samples provided by Landmark was also conducted. The objective of this study is to determine the thermal and electrical resistivity, as well as to determine the corrosivity of the soil at the project site.

The location and numbering of the assessment sites is shown in Figure 1 at the end of this report. Figure 1 is based upon the site map provided by Landmark.

SCOPE

The electrical resistivity of the soil was determined by using the Wenner 4 pin method in accordance with ASTM G57 standards. Five readings were obtained and recorded for each assessment site based upon pin spacings of 20, 15, 10, 5, and 2.5 feet. Readings were recorded at three locations within the Site No. 4 boundaries. All resistivity readings were recorded utilizing a Soil Resistance Meter (Megger Model DET4T2).

The soil corrosivity was evaluated based on the results of the field soil electrical resistivity assessment and the chemical analyses of the three soil samples. The soil samples were obtained by RFYeager Engineering from a depth of approximately 3 feet. The samples were analyzed for pH, soluble salts (chlorides and sulfates) as well as resistivity (in the as-received and saturated condition).

The thermal resistivity was determined using a Decagon KD2 Pro Portable Thermal Properties Analyzer (KD2 Pro) outfitted with the 100 mm long, 2.4 mm diameter TR-1 sensor. The KD2 Pro works in accordance with ASTM D5334-08 using a transient heat method. Soil samples from three locations were tested. The samples, as prepared by Landmark per ASTM D1557, were tested in a 2.50 inch diameter by 6.75 inch deep holder.

CONCLUSIONS

The following are significant conclusions resulting from this assessment:

1. The results of the field electrical resistivity assessment are provided in Table 1 on the following page. Resistivity readings between each assessment location were varied. The

readings from assessment Site 2 (located on the south central region of Site No. 4) were relatively high, ranging between 22,100 ohm-cm and 34,100 ohm-cm. The readings from assessment Sites 1 and 3 (located near northeast and northwest corners of Site No. 4, adjacent to the canal) were much lower, ranging from 498 ohm-cm to 8,618 ohm-cm. It is noted that the dry, loose soil conditions at some locations made it challenging to obtain accurate field data. Large amounts of water had to be poured at each pin location in order to achieve good electrical contact with the earth.

Table 1 – Vega Solar Site No. 4 Electrical Resistivity Data Prepared by: RFYeager Engineering Test Date: 10.10.2020						
Test No.	Assessment Site ID	Soil Resistivity (Ohm-cm)				
		Ave. Soil Depth (feet)				
		20	15	10	5	2.5
1	1	4213	6032	8618	8713	8618
2	2	22980	28725	26810	28725	34949
3	3	498	575	613	1101	1087

1 - See Figure 1 for soil assessment location relative to project site

- The chemical analysis results were also varied (see Table 2 below). Sample B (located on the south central region of Site No. 4) had relatively low concentrations of chlorides (i.e. less than 300 ppm) and sulfates (i.e. less than 1,000 ppm). Samples A and C (located adjacent to the canal near northeast and northwest corners of Site No. 4) had very high concentrations of both chlorides and sulfates. The saturated soil resistivities of Samples A and C were very low at 400 ohm-cm and 57 ohm-cm, respectively. Sample B saturated soil resistivity was much higher at 7,000 ohm-cm. The pH readings for all soil samples are indicative of slightly alkaline soil conditions.

Table 2 – Vega Solar Site No. 4 Chemical Analysis Data Prepared by: RFYeager Engineering				
Sample ID ¹	Min. Soil Box Resistivity - CalTest 643 (ohm-cm)	Chloride Concentration - CalTest 422 (ppm)	Sulfate Concentration - CalTest 417 (ppm)	pH CalTest 643
A	400	3,520	2,250	7.7
B	7,000	20	30	9.3
C	57	9,720	2,850	7.9

1 - See Figure 1 for soil sample location. Soil sample taken from a depth of 3 feet

3. It is noted that the saturated soil box resistivities measured from the three soil samples are lower than the Wenner 4-pin resistivities taken in the field. This is likely due to the relatively dry soil conditions at the project site during the field assessment. The dryer the soil, the lesser the impact soluble soil salts have on resistivity. The saturated (minimum) soil box measurements represent the lowest, most corrosive conditions whereby the soils become fully saturated and have the lowest resistivity.

4. The results of the field electrical resistivity assessment and soil sample analysis at the Vega Project's Site No. 4 indicate varying levels of soil corrosivity. The soil along the northern edge of the site, adjacent to the canal, is considered highly corrosive to buried metallic structures. This conclusion is based on the low soil resistivities and high soluble salt concentrations at assessment Sites 1 & A and 3 & C. Accordingly, supplemental corrosion control measures on buried metallic utilities, such as cathodic protection, are recommended at these locations in order to prevent premature failures. The soil on the south central region of Site No. 4 is considered as relatively non-aggressive to buried metallic structures. This conclusion is based on the high soil resistivities and low soluble salt contents at assessment Sites 2 & B. Accordingly, supplemental corrosion control measures, such as cathodic protection, are not considered a requirement for the Project new buried metallic ferrous piping. However, standard corrosion control measures (such as proper coatings and elimination of electrical contact between dissimilar metals) are warranted for long-term, corrosion-free service and to preserve future corrosion control options.

5. The soil thermal resistivity is provided in Table 3 below. The corresponding Time vs. Temperature graphs for each assessment site is provided in Appendix A.

Table 3 – Vega Solar Site No. 4 Thermal Resistivity Data Prepared by: RFYeager Engineering	
Sample ID ¹	Thermal Resistivity ² (m °CW ⁻¹)
B-3	2.61
B-7	0.61
B-9	3.16

1 - See Figure 1 for sample location relative to project site
 2 – ASTM D5334-08.

DISCUSSION

Electrical Resistivity Assessment

Soil electrical resistivity (inverse of conductivity) measures the ability of an electrolyte (soil) to support electrical current flow. The most common method of measuring soil electrical resistivity is the Wenner 4-Pin Method which uses four pins (electrodes) that are driven into the earth and equally spaced apart in a straight line. The Wenner 4-pin Method provides an average resistivity of a hemisphere (essentially) of soil whose diameter is approximately equal to the pin spacing. For example, the electrical resistivity value obtained with the pins spaced at 5 feet apart is the average resistivity of a hemisphere of soil from the surface to a depth of 5 feet. By taking readings at different pin spacings (or depths), average soil electrical resistivity conditions can be obtained within areas at, above, and below trench zones.

Corrosion versus Resistivity

Corrosion is an electrochemical process, whereby the reaction rate is largely dependent upon the electrical conductivity of the surrounding electrolyte. Accordingly, the lower the electrical resistivity, then the greater the current flow and the greater the corrosion rate assuming all other factors are equal.

One common relationship between corrosivity and soil electrical resistivity used by corrosion engineers is provided on the following page.

<u>Corrosivity</u>	<u>Electrical Resistivity</u>
Very Corrosive	0-1000 ohm-cm
Corrosive	1001-2000 ohm-cm
Fairly Corrosive	2001-5000 ohm-cm
Moderately Corrosive	5001-12000 ohm-cm
Slightly Corrosive	12001-30000 ohm-cm
Relatively Non-Corrosive	Greater than 30001 ohm-cm

Thermal Resistivity Assessment

Thermal resistivity was measured on soil samples from three locations at Site No. 4. The samples were obtained by Landmark from an approximate depth of 5 feet. For each sample, the thermal resistivity was measured three times with the average provided in Table 3. The assessment was conducted in general accordance with the standard method ASTM D5334-08

which calculates thermal resistivity by monitoring the dissipation of heat from a line heat source. The assessment consists of inserting a thermal sensor into the soil with a known current and voltage applied. The corresponding temperature rise in the soil over a period of time is recorded. The thermal resistivity is obtained from an analysis of the time series temperature data during the heating and cooling cycle of the sensor. For purposes of this report, the thermal resistivity values are provided as “data only” in order to assist others in the project design.

Thank you for this opportunity to provide these corrosion engineering services. Please contact me if you have any questions.



Randy J. Geving, PE
Registered Professional Engineer – Corrosion No.1060
RGeving@RFYeager.com, 760.715.2358

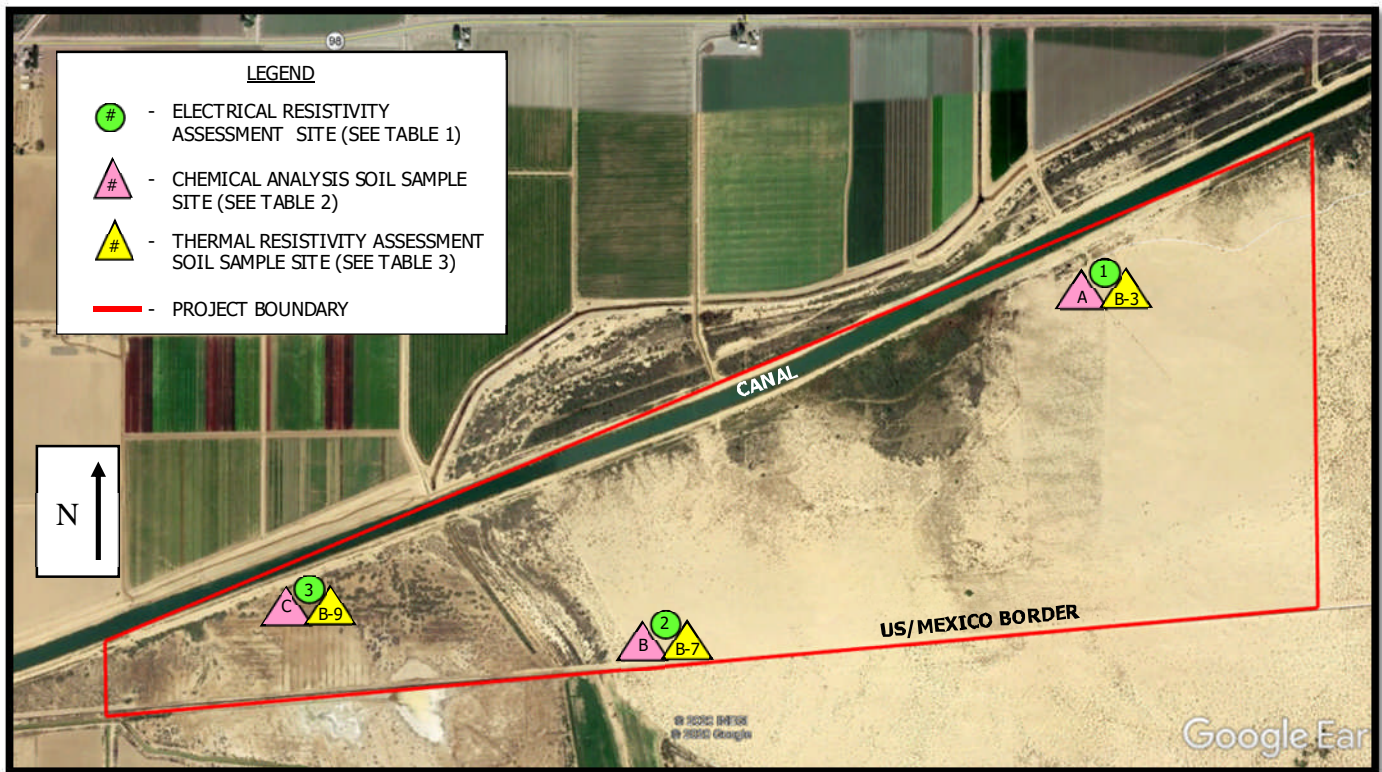
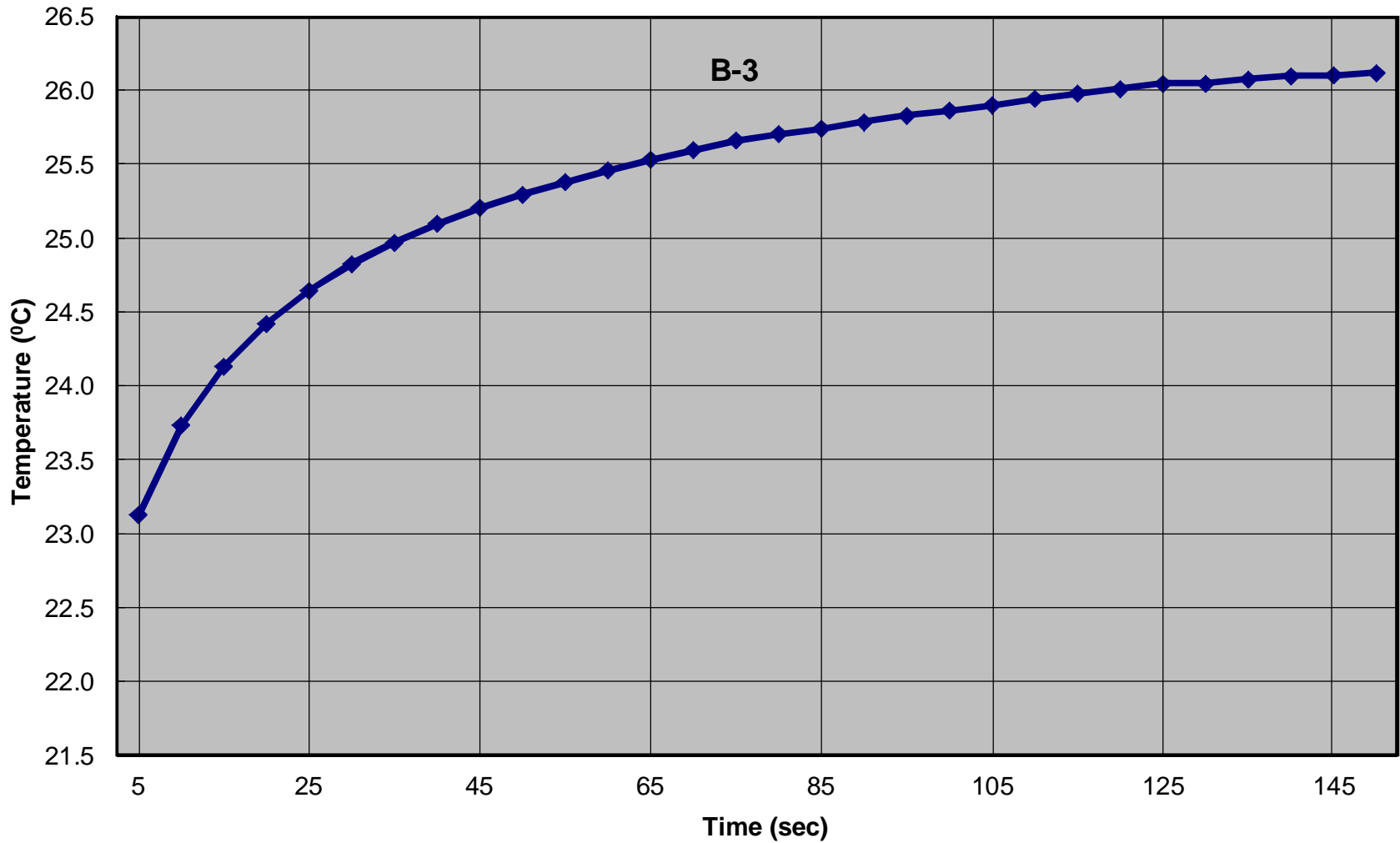


Figure 1 – Vega Solar Site No. 4 Assessment Locations

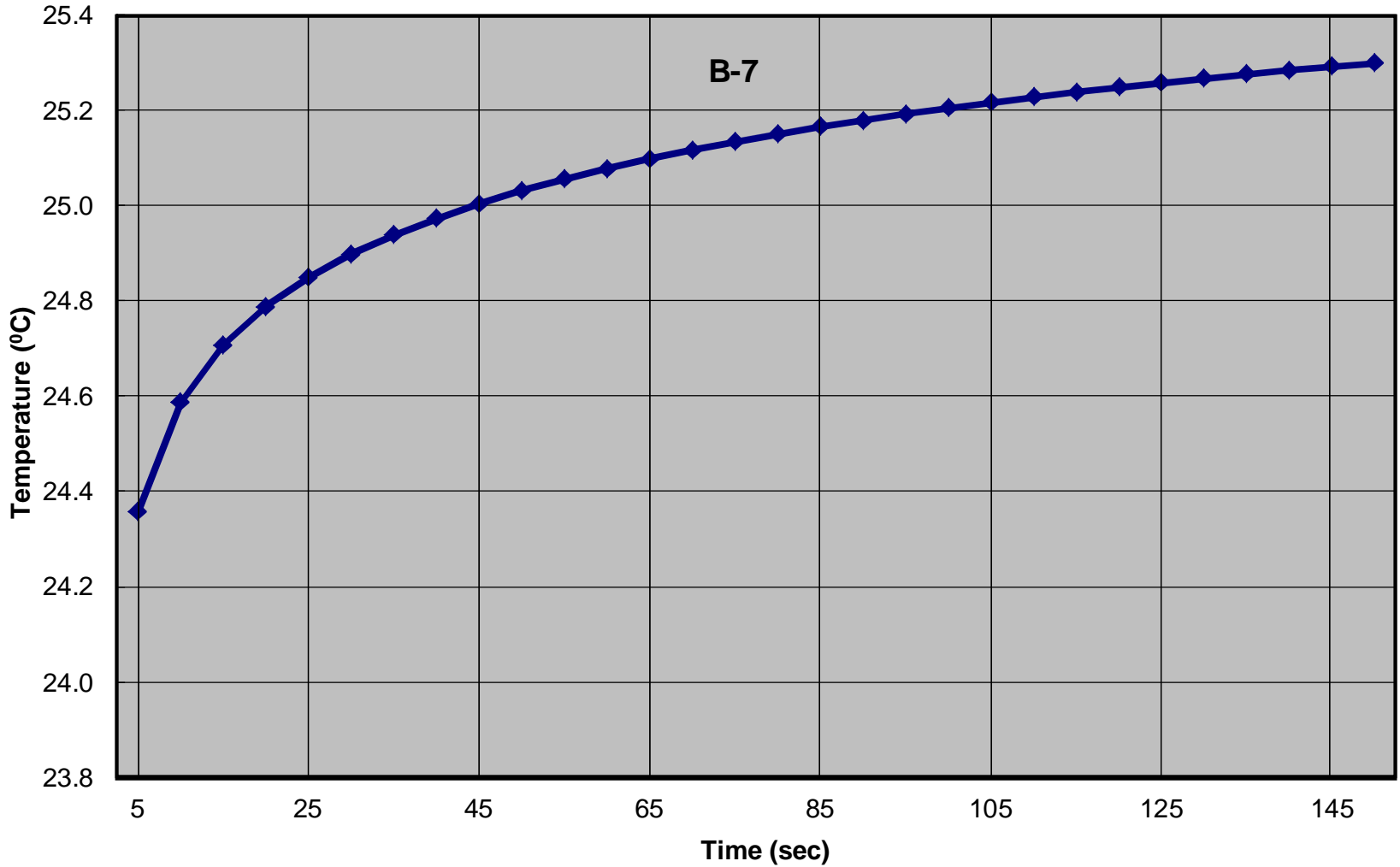
APPENDIX A
THERMAL RESISTIVITY
TEMPERATURE VS. TIME GRAPHS

Vega Solar - Site 4
Thermal Resistivity Temperature vs. Time Graph
Test Date: December 22, 2020



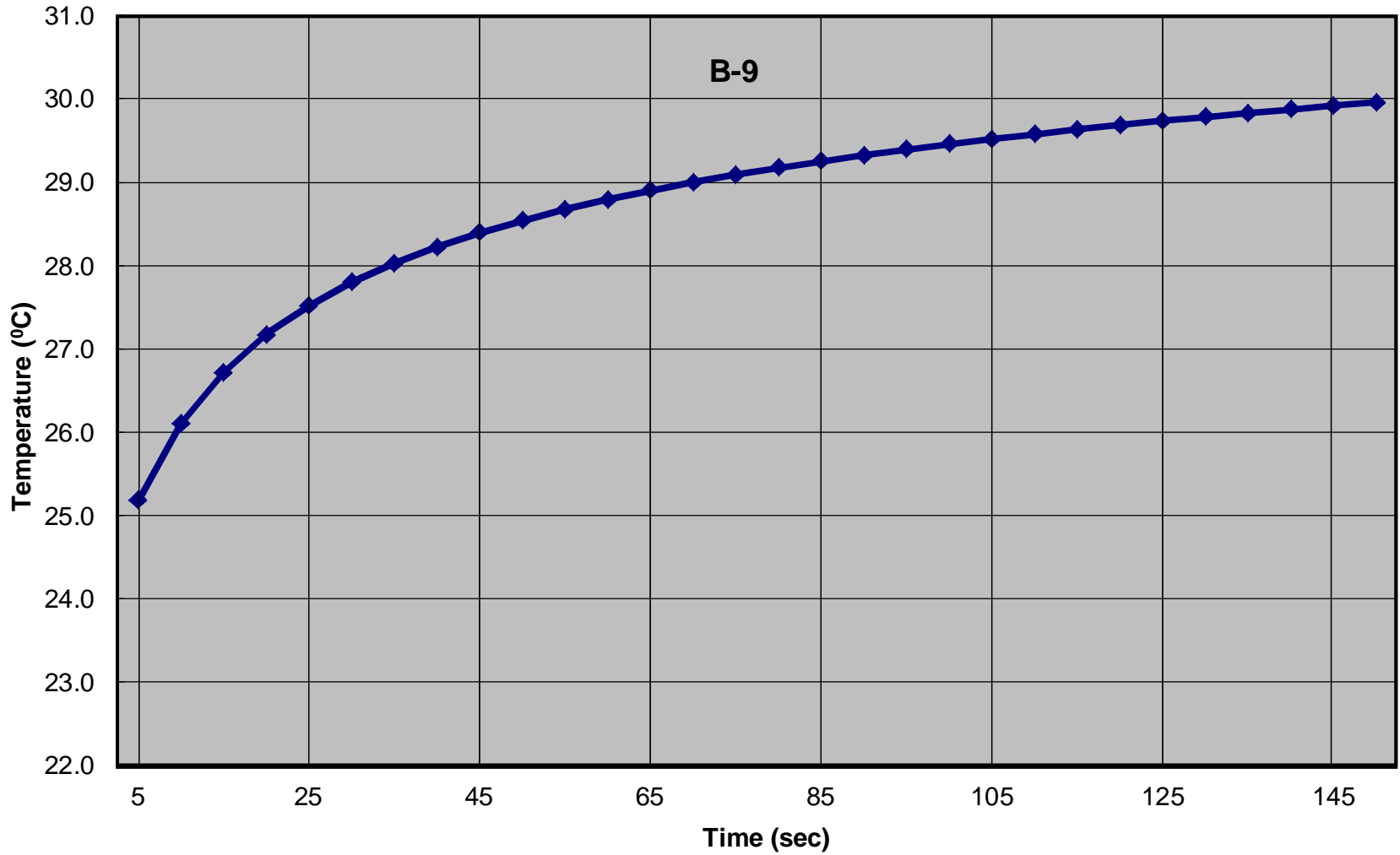
RFYeager Engineering

Vega Solar - Site 4
Thermal Resistivity Temperature vs. Time Graph
Test Date: December 22, 2020



RFYeager Engineering

Vega Solar - Site 4
Thermal Resistivity Temperature vs. Time Graph
Test Date: December 22, 2020



RFYeager Engineering

APPENDIX F

Liquefaction Evaluation and Settlement Calculation

Project Name: Vega 4 Solar Site - Imperial County, CA
 Project No.: LE20130
 Location: GT-10

Maximum Credible Earthquake 7
 Design Ground Motion 0.92 g
 Total Unit Weight, 110 pcf
 Water Unit Weight, 62.4 pcf
 Depth to Groundwater 8 ft
 Depth to Groundwater 2.44 m
 Hammer Efficiency 85
 Required Factor of Safety 1.3

Borehole Diameter 8 in.
 Rod Length 3 ft
 Rod Length 0.91 m
 Liners N
 K gaging 1
 Percentile of Liquefaction 84

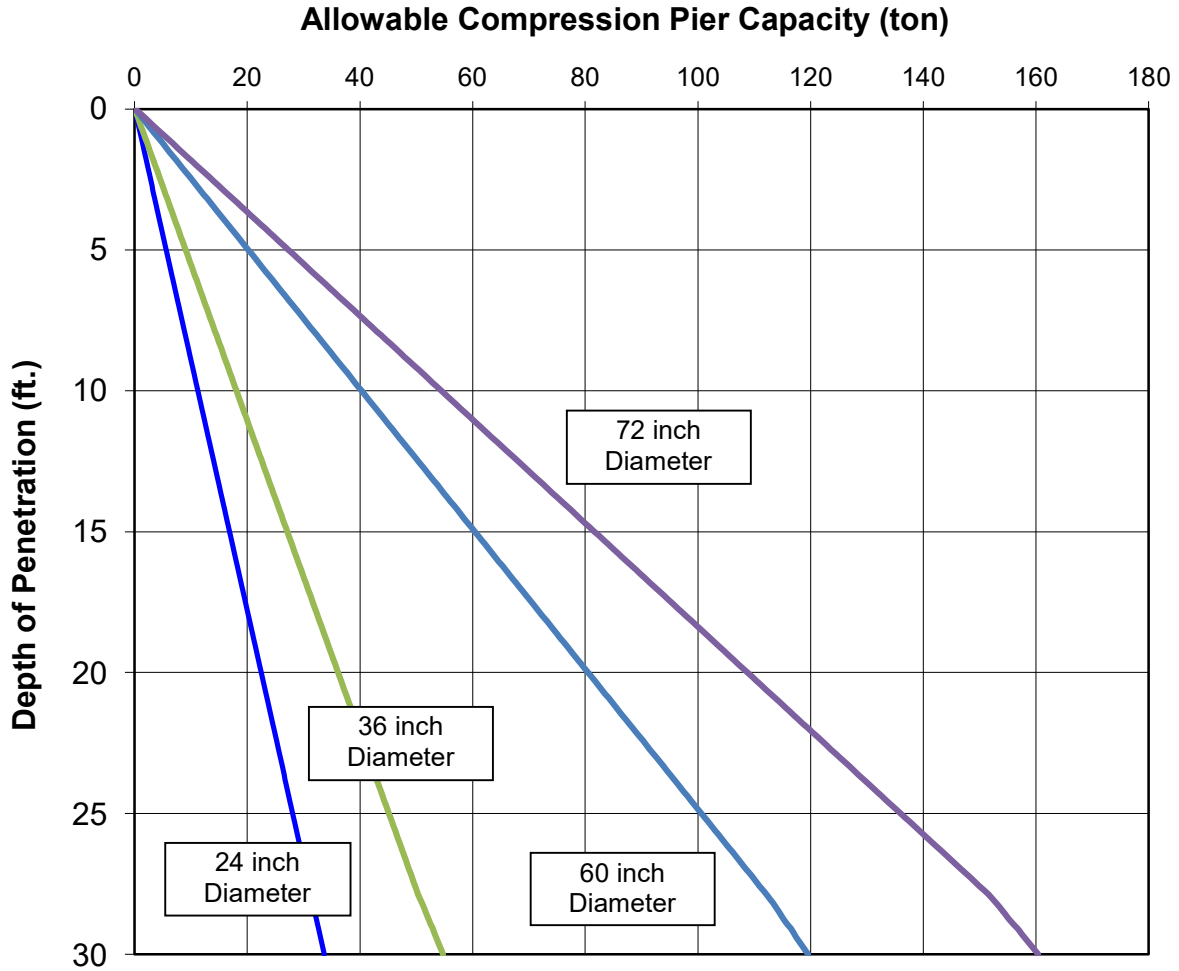
Depth (ft)	Depth (m)	Blow Counts		Liquefiable Soil (0 / 1)	σ'_v (kPa)	Sampling Corrections				Corrected SPT		Fines Content %	Compute Deterministic Vertical Strain			Individual Layer Subsidence (inches)			
		SPT	Mod. Cal.			Energy C_E	Borehole C_B	Sampler Diameter	SPT N_n	Rod C_R	Liner C_L		Overburden C_N	$(N_1)_{60,cs}^{site}$	$CRR(N^{site})$		CSR^{site}	$FS_{c,site}$	
5	1.52	49		1	26.33	1	49	1.42	1.15	0.75	1.0	1.20	72	10	72.84	10.00	10.00	0.00	
10	3.05	50		1	46.69	1	50	1.42	1.15	0.80	1.0	1.11	72	10	73.31	10.00	0.74	10.00	0.00
15	4.57	54		1	58.09	1	54	1.42	1.15	0.85	1.0	1.06	79	10	80.25	10.00	0.74	10.00	0.00
20	6.10	32		1	69.48	1	32	1.42	1.15	0.95	1.0	1.09	54	10	54.97	10.00	-0.01	10.00	0.00
25	7.62	33		0	80.88	1	33	1.42	1.15	0.95	1.0	1.05	54	95	59.19	10.00	1.06	10.00	0.00
30	9.14	55		1	92.27	1	55	1.42	1.15	1.00	1.0	1.01	90	10	91.22	10.00	0.75	10.00	0.00
35	10.67	50		1	103.67	1	50	1.42	1.15	1.00	1.0	1.00	81	10	82.44	10.00	0.74	10.00	0.00
40	12.19	50		1	115.07	1	50	1.42	1.15	1.00	1.0	0.99	80	10	81.63	10.00	0.72	10.00	0.00
45	13.72	19		0	126.46	1	19	1.42	1.15	1.00	1.0	0.92	28	95	33.99	0.78	1.01	10.00	0.00
50	15.24	40		1	137.86	1	40	1.42	1.15	1.00	1.0	0.95	62	60	67.24	10.00	0.63	10.00	0.00

Based on Proceeding of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils, Technical Report NCEER-97-0022, December 31, 1997.
 Sampling Corrections from Idriss and Boulanger (2010)

Total Settlement (in.)

0.00

APPENDIX G



Notes:

1. Compression load capacity are based on skin friction and end-bearing capacity. The structural capacity of the piers should be checked.
2. The indicated capacities are for sustained (dead plus live) vertical compression load, and include a factor of safety of at least 2.5
3. For temporary wind or seismic load, the above values may be increased by one-third.
4. Capacities of other pier sizes are in direct proportion to the pile diameter.
5. Pier capacity in tension should be taken as 50% of the compression capacity.

LANDMARK
Geo-Engineers and Geologists

Project No.: LE20130

Drilled Piers Compression Capacity Chart
Boring B-10
Vega 4 Solar Project
Imperial County, California

Plate
G-1

APPENDIX H

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Noise Impact Assessment

Vega SES 4 Solar Energy Storage Project

County of Imperial, California

Prepared For:

Vega SES 4, LLC
604 Sutter Street
Suite 250
Folsom, California 95630

February 2021



ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

INFO ITEM ONLY

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- Attachment C - SoundPLAN Outputs – Onsite Project Noise

LIST OF ACRONYMS AND ABBREVIATIONS

CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	Decibel is A-weighted
FHWA	Federal Highway Administration

FTA	Federal Transit Administration
L_{eq}	Measure of ambient noise
OPR	Office of Planning and Research
OSHA	Federal Occupational Safety and Health Administration
OSHPD	Office of State Health Planning and Development
PPV	Peak particle velocity
Project	Vega SES 4 Solar Energy Storage Project
A-3-RE	Heavy Agriculture with a Renewable Energy Overlay
RMS	Root mean square
SR	State Route
WEAL	Western Electro-Acoustic Laboratory, Inc.
Aqueduct	All-American Canal

1.0 INTRODUCTION

This report documents the results of a Noise Impact Assessment completed for the Vega SES 4 Solar Energy Storage Project (Project), which includes the construction of a nominal 100-megawatt alternating current (MWAC) solar photovoltaic (PV) energy generation system with an integrated 100 MW battery storage project on approximately 531.53 acres of land in the County of Imperial, California. This report was prepared as a comparison of predicted Project noise levels to noise standards promulgated by the County of Imperial General Plan Noise Element. The purpose of this report is to estimate Project-generated noise and to determine the level of impact the Project would have on the environment.

1.1 Project Overview

The Project proposes to construct a nominal 100 MWAC PV energy generation system, accompanied by a 100 MW battery storage, utilizing either thin film or crystalline solar PV technology modules mounted either on fixed frames or horizontal single-axis tracker (HSAT) systems. The fixed frame PV module arrays would be mounted on racks that would be supported by driven piles. The individual PV systems would be arranged in large arrays by placing them in columns spaced approximately ten feet apart to maximize operational performance and to allow access for panel cleaning and maintenance.

1.2 Project Location

The Project site is an approximately 531.53-acre site located between the California/Mexico border and the All-American Canal (Aqueduct), on the California side in southcentral Imperial County (see Figure 1). The Project site is located approximately 1.92 miles southeast of the Bonds Corner Rd/East Cedar Street/California State Route 98 intersection near the unincorporated community of Bonds Corner. The Project would be located on Imperial County Assessor's Parcel Numbers (APNs) 059-300-015-000 (approximately 301.73 acres), 059-300-017-000 (approximately 148.88 acres) and 059-290-010-000 (approximately 80.92 acres). The irregular shaped site is bound by undeveloped agricultural land to the south, west and east, and the Aqueduct running southwest on the northern border of the proposed Project site. The Project site is currently characterized by flat and undeveloped agricultural land.

1.3 Applicable Land Use Regulations

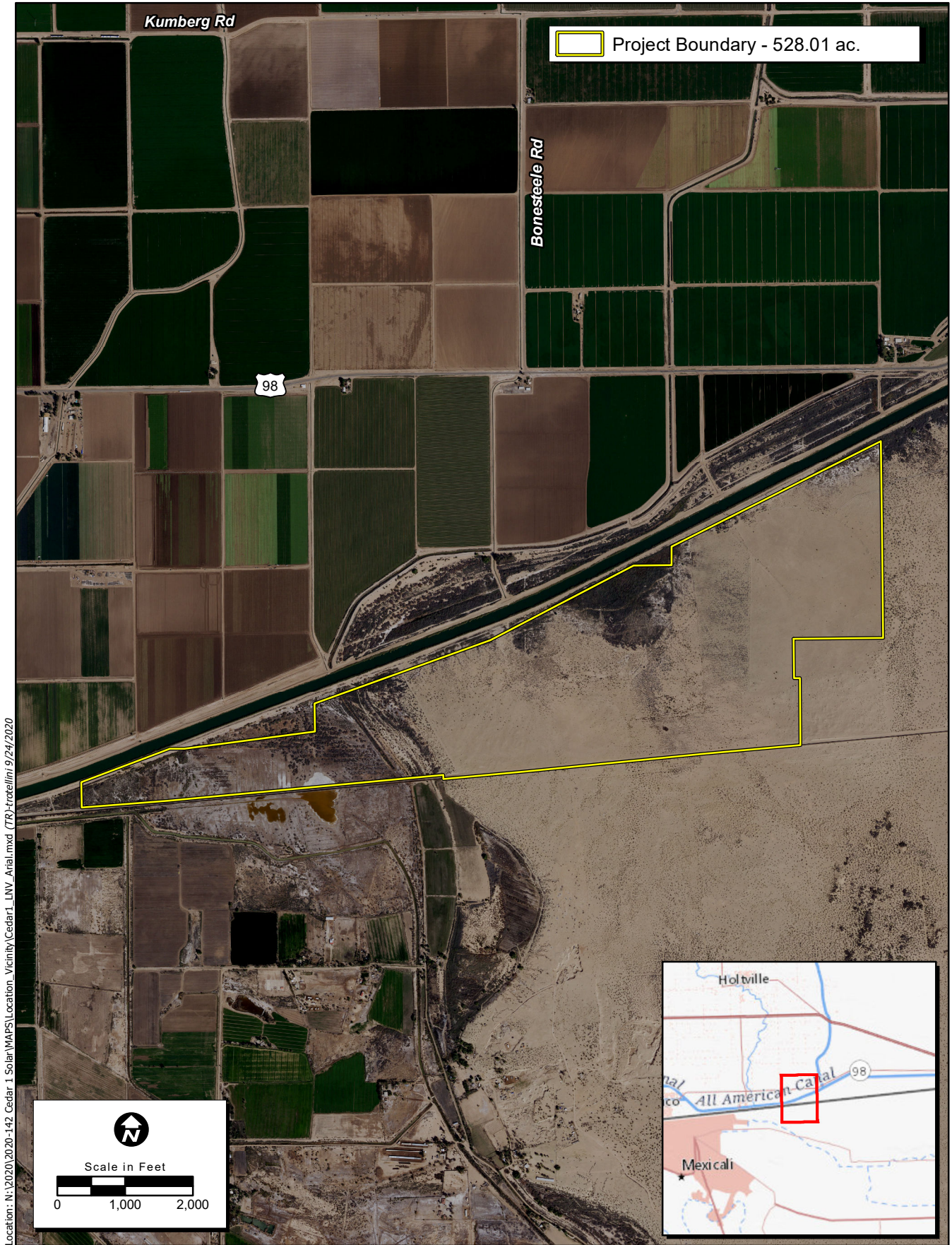
All three of the Project area parcels are designated as "Agriculture" in the Imperial County General Plan and are zoned A-3-RE (Heavy Agriculture with a Renewable Energy Overlay-areas that are suitable for agricultural land uses; to prevent the encroachment of incompatible uses onto and within agricultural lands; and to prohibit the premature conversion of such lands to non-agricultural uses). Pursuant to Section 91703.02 (CONDITIONAL USE PERMITS), Renewable Energy Projects must be located within the Renewable Energy Overlay Zone and may be permitted only through the issuance of a Conditional Use Permit (CUP) as approved by the Approving Authority unless otherwise allowed by applicable law. At present, the Project is located within the Renewable Energy Zone

1.4 Project Site Access

The Project site would include one primary access driveway, currently contemplated across the East Highline Check of the Aqueduct, in the far northeastern corner of the Project area and a secondary access driveway (if required) with a to-be-determined location . This driveway would be provided with a minimum of 30-foot double swing gates with “Knox Box” for keyed entry. Internal to the Project site up to 30-foot wide roads would be provided between the PV arrays, as well as around the perimeter of each Project site inside the perimeter security fence to provide access to all areas of each site for maintenance and emergency vehicles.

1.5 Project Construction

Construction activities would primarily involve demolition and grubbing; grading of the Project area to establish access roads and pads for electrical equipment (inverters and step-up transformers); trenching for underground electrical collection lines; and the installation of solar equipment and security fencing. The construction of the site is estimated to take 12-18 months and would begin in 2022. A temporary, portable construction supply container would be located at the Project site at the beginning of construction and removed at the end of construction. The number of on-site construction workers for the solar project facilities is not expected to exceed 150 workers at any one time. The number of on-site construction workers for the battery storage facility and the substation is not expected to exceed 100 workers at any one time. Onsite parking would be provided for all construction workers.



Location: N:\2020\2020-142_Cedar_1 Solar\WAPS\Location_Vicinity\Cedar1_LINV_Arial.mxd (TR)-trastellin_9/24/2020

Map Date: 9/24/2020
 Service Layer Credits:
 Photo Source: NAIP (2018)

Figure 1. Project Location and Vicinity

2020-142 Vega SES 4

2.0 ENVIRONMENTAL NOISE AND GROUNDBORNE VIBRATION ANALYSIS

2.1 Fundamentals of Noise and Environmental Sound

2.1.1 Addition of Decibels

The decibel (dB) scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted (dBA), an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be three dB higher than one source under the same conditions (Federal Transit Administration [FTA] 2018). For example, a 65-dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by three dB). Under the decibel scale, three sources of equal loudness together would produce an increase of five dB.

Typical noise levels associated with common noise sources are depicted in Figure 2. *Common Noise Levels*

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
<u>Jet Fly-over at 300m (1000 ft)</u>	110	<u>Rock Band</u>
<u>Gas Lawn Mower at 1 m (3 ft)</u>	100	
<u>Diesel Truck at 15 m (50 ft), at 80 km (50 mph)</u>	90	<u>Food Blender at 1 m (3 ft)</u>
<u>Noisy Urban Area, Daytime</u>	80	<u>Garbage Disposal at 1 m (3 ft)</u>
<u>Gas Lawn Mower, 30 m (100 ft)</u>	70	<u>Vacuum Cleaner at 3 m (10 ft)</u>
<u>Commercial Area</u>		<u>Normal Speech at 1 m (3 ft)</u>
<u>Heavy Traffic at 90 m (300 ft)</u>	60	<u>Large Business Office</u>
<u>Quiet Urban Daytime</u>	50	<u>Dishwasher Next Room</u>
<u>Quiet Urban Nighttime</u>	40	<u>Theater, Large Conference Room (Background)</u>
<u>Quiet Suburban Nighttime</u>		<u>Library</u>
<u>Quiet Rural Nighttime</u>	30	<u>Bedroom at Night,</u>
	20	<u>Concert Hall (Background)</u>
	10	<u>Broadcast/Recording Studio</u>
<u>Lowest Threshold of Human Hearing</u>	0	<u>Lowest Threshold of Human Hearing</u>

Source: California Department of Transportation (Caltrans) 2020a

2.1.2 Sound Propagation and Attenuation

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately six dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately three dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (Federal Highway Administration [FHWA] 2011). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. For line sources, an overall attenuation rate of three dB per doubling of distance is assumed (FHWA 2011).

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about five dBA (FHWA 2006), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise can provide a sound reduction 35 dBA or greater (Western Electro-Acoustic Laboratory, Inc. [WEAL] 2000). To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the "line of sight" between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend lengthwise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans 2002). The exterior-to-interior reduction of newer residential units is generally 30 dBA or more (Harris Miller, Miller & Hanson Inc. [HMMH] 2006). Generally, in exterior noise environments ranging from 60 dBA Community Noise Equivalent Level (CNEL) to 65 dBA CNEL, interior noise levels can typically be maintained below 45 dBA, a typically residential interior noise standard, with the incorporation of an adequate forced air mechanical ventilation system in each residential building, and standard thermal-pane residential windows/doors with a minimum rating of Sound Transmission Class (STC) 28. (STC is an integer rating of how well a building partition attenuates airborne sound. In the U.S., it is widely used to rate interior partitions, ceilings, floors, doors, windows, and exterior wall configurations.) In exterior noise environments of 65 dBA CNEL or greater, a combination of forced-air mechanical ventilation and sound-rated construction methods is often required to meet the interior noise level limit. Attaining the necessary noise reduction from exterior to interior spaces is readily achievable in noise environments less than 75 dBA CNEL with proper wall construction techniques following California Building Code methods, the selections of proper windows and doors, and the incorporation of forced-air mechanical ventilation systems.

2.1.3 Noise Descriptors

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL (Community Noise Equivalent Level) are measures of community noise. Each is applicable to this analysis and defined in Table 2-1.

Table 2-1. Common Acoustical Descriptors	
Descriptor	Definition
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micropascals (or 20 micronewtons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micropascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hertz (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
L_{max} , L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01} , L_{10} , L_{50} , L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	A 24-hour average L_{eq} with a 10 dBA “weighting” added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn} .
Community Noise Equivalent Level, CNEL	A 24-hour average L_{eq} with a 5 dBA “weighting” during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA “weighting” added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.

The A weighted decibel sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about ± 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source. Close to the noise source, the models are accurate to within about ± 1 to 2 dBA.

2.1.4 Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in A-weighted noise levels (dBA), the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

2.1.5 Effects of Noise on People

Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration (OSHA) has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. For ground vehicles, a noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance.

2.2 Fundamentals of Environmental Groundborne Vibration

2.2.1 Vibration Sources and Characteristics

Sources of earthborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or manmade causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

PPV is generally accepted as the most appropriate descriptor for evaluating the potential for building damage. For human response, however, an average vibration amplitude is more appropriate because it takes time for the human body to respond to the excitation (the human body responds to an average vibration amplitude, not a peak amplitude). Because the average particle velocity over time is zero, the RMS amplitude is typically used to assess human response. The RMS value is the average of the amplitude squared over time, typically a 1- sec. period (FTA 2018).

Table 2-2 displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high-noise environments,

which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. For instance, heavy-duty trucks generally generate groundborne vibration velocity levels of 0.006 PPV at 50 feet under typical circumstances, which as identified in Table 2-2 is considered very unlikely to cause damage to buildings of any type. Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment.

Peak Particle Velocity (inches/second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006–0.019	64–74	Range of threshold of perception	Vibrations unlikely to cause damage of any type
0.08	87	Vibrations readily perceptible	Recommended upper level to which ruins and ancient monuments should be subjected
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities	Virtually no risk of architectural damage to normal buildings
0.2	94	Vibrations may begin to annoy people in buildings	Threshold at which there is a risk of architectural damage to normal dwellings
0.4–0.6	98–104	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Architectural damage and possibly minor structural damage

Source: Caltrans 2020b

3.0 EXISTING ENVIRONMENTAL NOISE SETTING

3.1 Noise-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as hospitals, historic sites, cemeteries, and certain recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

The nearest existing noise-sensitive land use to the Project site is a single-family residence located 1,342 feet from the northeastern corner of Project site.

3.2 Existing Ambient Noise Environment

The Project site consists of flat undeveloped land and is bound by agricultural land to the north with State Route (SR) 98 beyond, agricultural land to the west, vacant undisturbed land to the east, and a mix of vacant undisturbed and agricultural land to the south. In order to quantify existing ambient noise levels in the Project area, ECORP Consulting, Inc. conducted three short-term noise measurements on January 12th, 2021. The noise measurement sites were representative of typical existing noise exposure within and adjacent to the Project site during the daytime (see Attachment A for a visual depiction of the Noise Measurement Locations). The 15-minute measurements were taken between 1:51 p.m. and 2:45 p.m. Short-term (L_{eq}) measurements are considered representative of the noise levels throughout the day. As shown in Table 3-1, the existing noise levels (Baseline) in the Project-vicinity ranges from 65.4 to 68.7 dBA.

Location Number	Location	L_{eq} dBA	L_{min} dBA	L_{max} dBA	Time
1	CA-98 East of Bonds Corner Rd	65.4	36.3	79.8	2:30 p.m.- 2:45 p.m.
2	CA-98 East of Bonesteel Rd	68.7	25.2	86.2	2:10 p.m. – 2:25 p.m.
3	CA-98 Southeastern Extent	66.1	40.8	81.5	1:51 p.m. – 2:06 p.m.

Source: Measurements were taken by ECORP with a Larson Davis LxT SE precision sound level meter, which satisfies the American National Standards Institute for general environmental noise measurement instrumentation. See Attachment A for noise measurement outputs.

The most common noise in the Project vicinity is produced by automotive vehicles (e.g., cars, trucks, buses, motorcycles) traversing SR 98. Traffic moving along streets produces a sound level that remains relatively constant and is part of the minimum ambient noise level in the project vicinity. Vehicular noise varies with the volume, speed and type of traffic. Slower traffic produces less noise than fast-moving traffic. Trucks typically generate more noise than cars. Infrequent or intermittent noise also is associated with vehicles, including sirens, vehicle alarms, slamming of doors, trains, garbage and construction vehicle activity and honking of horns. These noises add to urban noise and are regulated by a variety of agencies.

4.0 REGULATORY FRAMEWORK

4.1 Federal

4.1.1 Occupational Safety and Health Act of 1970

OSHA regulates onsite noise levels and protects workers from occupational noise exposure. To protect hearing, worker noise exposure is limited to 90 decibels with A-weighting (dBA) over an eight-hour work shift (29 Code of Regulations 1910.95). Employers are required to develop a hearing conservation

program when employees are exposed to noise levels exceeding 85 dBA. These programs include provision of hearing protection devices and testing employees for hearing loss on a periodic basis.

4.2 State

4.2.1 State of California General Plan Guidelines

The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land-use compatibility criteria. The State of California General Plan Guidelines (State of California 2003), published by the Governor's Office of Planning and Research (OPR), also provides guidance for the acceptability of projects within specific CNEL/L_{dn} contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

4.2.2 State Office of Planning and Research Noise Element Guidelines

The State OPR *Noise Element Guidelines* include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The Noise Element Guidelines contain a Land Use Compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL.

4.3 Local

4.3.1 Imperial County General Plan Noise Element

The County of Imperial General Plan Noise Element establishes maximum allowable average-hourly noise limits for various land use designations (refer to Table 4-1). These noise standards are to be applied at the property line of the noise-generating land use. In instances where the adjoining land use designations differ from that of the noise-generating land use, the more restrictive noise standard shall apply. Where the ambient noise level is equal to or exceeds the property line noise standard, the increase of the existing or proposed noise shall not exceed 3 dBA L_{eq}, which is a just-perceivable increase in noise. L_{eq} is defined as the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure.

Land Use Zone	Time Period	Average-Hourly Noise Level (dBA L_{eq})
Residential	7 a.m. - 10 p.m.	50
	10 p.m. - 7 a.m.	45
Multi-residential	7 a.m. - 10 p.m.	55
	10 p.m. - 7 a.m.	50
Commercial	7 a.m. - 10 p.m.	60
	10 p.m. - 7 a.m.	55
Light Industrial/Industrial Park	Any time	70
General Industrial	Any time	75

Source: Imperial County 2015.

Notes: When the noise-generating property and the receiving property have different uses, the more restrictive standard shall apply. When the ambient noise level is equal to or exceeds the Property Line noise standard, the increase of the existing or proposed noise shall not exceed 3 dBA L_{eq}.

Construction Noise Standards

Construction noise, from a single piece of equipment or a combination of equipment, shall not exceed 75 dB L_{eq}, when averaged over an eight (8) hour period, and measured at the nearest sensitive receptor. This standard assumes a construction period, relative to an individual sensitive receptor of days or weeks. In cases of extended length construction times, the standard may be tightened so as not to exceed 75 dB L_{eq} when averaged over a one (1) hour period.

Construction equipment operation are required to be limited to the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday, and 9:00 a.m. to 5:00 p.m. Saturday. No commercial construction operations are permitted on Sunday or holidays. In cases of a person constructing or modifying a residence for himself/herself, and if the work is not being performed as a business, construction equipment operations may be performed on Sundays and holidays between the hours of 9:00 a.m. and 5:00 p.m. Such non-commercial construction activities may be further restricted where disturbing, excessive, or offensive noise causes discomfort or annoyance to reasonable persons of normal sensitivity residing in an area.

Significant Increase of Ambient Noise Levels

The increase of noise levels generally results in an adverse impact to the noise environment. The Noise/Land Use Compatibility Guidelines are not intended to allow the increase of ambient noise levels up to the maximum without consideration of feasible noise reduction measures. The following guidelines are established by the County of Imperial for the evaluation of significant noise impact.

- If the future noise level after a project is completed will be within the "normally acceptable" noise levels shown in the Noise/Land Use Compatibility Guidelines, but will result in an increase of 5 dB CNEL or greater, the project will have a potentially significant noise impact and mitigation measures must be considered.
- If the future noise level after a project is completed will be greater than the "normally acceptable" noise levels shown in the Noise/Land Use Compatibility Guidelines, a noise increase of 3 dB CNEL

or greater shall be considered a potentially significant noise impact and mitigation measures must be considered.

Noise/Land Use Compatibility

The Imperial County General Plan Noise Element Noise/Land Use Compatibility Standards defines the acceptability of a land use in a specified noise environment. Table 4-2 provides the County of Imperial Noise/Land Use Compatibility Guidelines. When an acoustical analysis is performed, conformance of the proposed project with the Noise/Land Use Compatibility Guidelines will be used to evaluate potential noise impact and will provide criteria for environmental impact findings and conditions for project approval.

Table 4-2. County of Imperial Noise/Land Use Compatibility Guidelines		
Land Use Category	Community Noise Exposure L_{dn} or CNEL, dB	Acceptability
Residential	< 60	Normally Acceptable
	60 - 70	Conditionally Acceptable
	70 - 75	Normally Unacceptable
	> 75	Clearly Unacceptable
Transient Lodging-Motels, Hotels	< 60	Normally Acceptable
	60 - 75	Conditionally Acceptable
	75 - 80	Normally Unacceptable
	> 80	Clearly Unacceptable
Schools, Libraries, Churches, Hospitals, Nursing Homes	< 60	Normally Acceptable
	60 - 70	Conditionally Acceptable
	70 - 80	Normally Unacceptable
	> 80	Clearly Unacceptable
Auditoriums, Concert Halls, Amphitheaters	< 70	Conditionally Acceptable
	> 70	Clearly Unacceptable
Sports Arenas, Outdoor Spectator Sports	< 70	Conditionally Acceptable
	70 - 75	Normally Unacceptable
	> 75	Clearly Unacceptable
Playgrounds, Neighborhood Parks	< 70	Normally Acceptable
	70 - 75	Normally Unacceptable
	> 75	Clearly Unacceptable
Golf Courses, Riding Stables, Water Recreation, Cemeteries	< 70	Normally Acceptable
	70 - 80	Normally Unacceptable
	> 80	Clearly Unacceptable
Office Buildings, Business Commercial and Professional	< 65	Normally Acceptable
	65 - 75	Conditionally Acceptable
	75 - 80	Normally Unacceptable
	> 80	Clearly Unacceptable
Industrial, Manufacturing Utilities, Agriculture	< 70	Normally Acceptable
	70 - 75	Conditionally Acceptable
	75 - 80	Normally Unacceptable
	> 80	Clearly Unacceptable

Source: Imperial County 2015.

Notes: Interpretation (For Land Use Planning Purposes):

Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design

Normally Unacceptable: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable: New construction or development clearly should not be undertaken.

5.0 IMPACT ASSESSMENT

5.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act Guidelines Appendix G thresholds of significance. The project would result in a significant noise-related impact if it would produce:

- 1) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- 2) Generation of excessive groundborne vibration or groundborne noise levels.
- 3) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

For purposes of this analysis, Project construction noise is compared to the County's construction noise standard of 75 dBA, when averaged over an eight (8) hour period and measured at the nearest sensitive receptor. Noise generated onsite is compared against the County's property line standards identified in Table 4-1.

5.2 Methodology

This analysis of the existing and future noise environments is based on empirical observations. Predicted construction noise levels were calculated utilizing the FHWA's Roadway Construction Model (2006). Groundborne vibration levels associated with construction-related activities for the Project have been evaluated utilizing typical groundborne vibration levels associated with construction equipment. Potential groundborne vibration impacts related to structural damage and human annoyance were evaluated, taking into account the distance from construction activities to nearby structures and typically applied criteria for structural damage and human annoyance.

In order to estimate the worst-case operational noise levels that may occur at the nearest noise-sensitive receptor, onsite operational noise levels have been calculated with the SoundPLAN 3D noise model (which predicts noise propagation from a noise source based on the location, noise level, and frequency spectra of the noise sources as well as the geometry and reflective properties of the local terrain, buildings, and barriers), coupled with noise measurements that were taken by ECORP Consulting, Inc. (ECORP) at an existing solar energy generation facility. Specifically, ECORP conducted a 30-minute reference noise measurement within the IVC solar generation facility in Imperial County with a Larson Davis SoundExpert LxT precision sound-level meter, which satisfies the American National Standards Institute for general environmental noise measurement instrumentation. This reference measurement identified an ambient noise environment of 47.1 dBA at the existing solar energy generation facility (see Attachment C).

Therefore, a noise level of 47.1 dBA was employed as the reference noise level in the SoundPLAN 3D noise model to determine noise-level propagation associated with Project operations.

5.3 Impact Analysis

5.3.1 Project Construction Noise

Would the Project Result in Short-Term Construction-Generated Noise in Excess of Standards?

Onsite Construction Noise

Construction noise associated with the proposed Project would be temporary and would vary depending on the nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). During construction, exterior noise levels could negatively affect sensitive land uses in the vicinity of the construction site.

Nearby noise-sensitive land uses consist of a scattering of single-family residential units located within 1 mile of the proposed Project site boundary to the north across the Aqueduct. The closest sensitive receptor is located 1,342 feet from the northeastern corner of the Project site. As previously described, the County's General Plan Noise Element states construction equipment operation shall be limited to the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday, and 9:00 a.m. to 5:00 p.m. on Saturdays. No commercial construction operations are permitted on Sundays or holidays. Construction noise, from a single piece of equipment or a combination of equipment, shall not exceed 75 dB L_{eq} , when averaged over an eight (8) hour period, and measured at the nearest sensitive receptor. This standard assumes a construction period, relative to an individual sensitive receptor of days or weeks. In cases of extended length construction times, the standard may be tightened so as not to exceed 75 dB L_{eq} when averaged over a one (1) hour period.

The anticipated short-term construction noise levels generated for the necessary construction equipment are presented in Table 5-1.

Table 5-1. Construction Average (dBA) Noise Levels at Nearest Receptor			
Equipment	Estimated Exterior Construction Noise Level at Existing Residences	Construction Noise Standards (dBA L_{eq})	Exceeds Standards?
Site Preparation			
Rubber Tired Dozers (2)	46.6 (each)	75	No
Tractors/Loaders/Backhoes (2)	51.4 (each)	75	No
Combined Site Preparation Equipment	55.7	75	No
Grading			
Excavators (4)	48.2 (each)	75	No
Graders (3)	52.4 (each)	75	No
Rubber Tired Dozers (2)	49.1 (each)	75	No
Scrapers (2)	51 (each)	75	No
Tractors/Loaders/Backhoes (4)	51.4 (each)	75	No
Combined Grading Equipment	62.5	75	No
Facility Construction			
Crane	44	75	No
Paver	45.6	75	No
Paving Equipment (2)	53.9 (each)	75	No
Pile Drivers (4)	65.7 (each)	75	No
Rollers (2)	44.4 (each)	75	No
Rough Terrain Forklifts (4)	50.8 (each)	75	No
Tractors/Loaders/Backhoes (4)	51.4 (each)	75	No
Trenchers (2)	48.8 (each)	75	No
Combined Construction, Trenching, & Paving	72.2	75	No

Source: Construction noise levels were calculated by ECRP Consulting using the FHWA Roadway Noise Construction Model (FHWA 2006). Refer to Attachment B for Model Data Outputs.

Notes: The nearest residence is located approximately 1,342 feet from the Project boundary.

L_{eq} = The equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.

As shown in Table 5-1, no individual or cumulative pieces of construction equipment would exceed the 75 dBA County construction noise standard during any phase of construction at the nearby noise-sensitive receptors.

Offsite Construction Worker Traffic Noise

Project construction would result in additional traffic on adjacent roadways over the time period that construction occurs. As previously stated, the number of on-site construction workers for the solar project facilities is not expected to exceed 150 workers at any one time. The number of on-site construction workers for the battery storage facility and the substation is not expected to exceed 100 workers at any one time. Onsite parking would be provided for all construction workers. According to KOA Corporation (2020), a maximum of 510 daily automobile trips would be generated during Project construction, accounting for construction worker commutes and equipment deliveries. The majority of these trips are expected to be accommodated on SR 98, SR 7, and Interstate 8. According to the California Department of Transportation (Caltrans) *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013), doubling of traffic on a roadway is required to result in an increase of 3 dB (outside of the laboratory, a 3-dBA change is considered a just-perceivable difference). According to the Caltrans Traffic Census Program (2018), SR 98 currently accommodates 2,400 average daily traffic trips, while SR 7 and Interstate 8 accommodate 6,700 average daily trips and 14,000 average daily trips, respectively. Thus, the estimated 510 daily trips during Project construction would not result in a doubling of traffic on these facilities, and its contribution to existing traffic noise would not be perceptible. Bonds Corner Road and W. Heber Road are also projected to accommodate construction-related traffic with an estimated 69 daily trips on Bonds Corner Road and 5 daily trips on W. Heber Road over the course of construction. These two facilities are classified as "minor arterial" roads by the County General Plan Circulation and Scenic Highways Element (2008) which are expected to accommodate approximately 14,800 daily trips. While the Circulation and Scenic Highways Element does not identify specific traffic counts for Bonds Corner Road, it estimates between 2,020 and 16,700 average daily trips on W. Heber Road.

The Project construction would not result in a doubling of traffic, and therefore its contribution to existing traffic noise would not be perceptible.

5.3.2 Project Operational Noise

Would the Project Result in a Substantial Permanent Increase in Ambient Noise Levels in Excess of County or City Standards During Operations?

As previously described, noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise-sensitive and may warrant unique measures for protection from intruding noise. The nearest existing noise-sensitive land use to the Project site is a single-family residential unit located approximately 1,342 feet north of the proposed Project site boundary, across the Aqueduct.

Operational Offsite Traffic Noise

Project operations would result in minimal additional traffic on adjacent roadways. The only visitors to the site would be that of repair or maintenance workers, whose presence at the site would be necessary infrequently and inconsistently. According to the California Department of Transportation (Caltrans) *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (2013), doubling of traffic on a roadway

is required to result in an increase of 3 dB (outside of the laboratory, a 3-dBA change is considered a just-perceivable difference). The proposed Project would not result in a doubling of traffic, and therefore its contribution to existing traffic noise would not be perceptible.

Project Land Use Compatibility

The County uses the land use compatibility standards presented in the General Plan Noise Element that provides the County with a tool to gauge the compatibility of new land uses relative to existing noise levels. This table, presented as Table 4-2, identifies acceptable noise levels for various land uses. In the case that the noise levels identified at the proposed Project site fall within the “acceptable” levels presented in the General Plan, the Project is considered compatible with the existing noise environment.

As previously stated, the Project site is proposing to develop a 100 MWAC PV solar energy generation and storage facility. The proposed Project site is zoned A-3-RE (Heavy Agriculture with a Renewable Energy Overlay). As shown in Table 4-2, a normally acceptable noise standard for agricultural land uses is 69 dBA CNEL or under. In order to quantify existing ambient noise levels in the Project area, ECORP conducted three short-term noise measurements on January 12th, 2021. The noise measurement sites were representative of typical existing noise exposure in the Project vicinity and are considered representative of the noise levels throughout the day. As shown in Table 3-1, the ambient noise level recorded in the vicinity of the Project site ranges from 65.4 dBA to 68.7 dBA. However, it is noted that these short-term measurements were each conducted over 1,000 feet from the Project site and adjacent to SR 98, a substantial noise source. Thus, the ambient noise levels experienced on the actual Project site would most likely be less.

Additionally, according to Table 4 of the County General Plan Noise Element (2015), the segment of SR 98 traversing the Project site currently experiences noise levels of 60 dBA CNEL at 33 feet. Since the site is over 1,000 feet south of SR 98 and there are no consistent sources of noise in between the Project site and SR 98, it can be assumed that noise levels on the Project site are less than 60 dBA CNEL. SR 98 is the dominate source of noise in the Project vicinity. This General Plan Noise Element data is reported in the noise metric, CNEL, which is the same noise metric promulgated by County noise compatibility guidelines contained in Table 4-2. As these noise levels fall below the noise standard, the Project site is considered an appropriate noise environment to locate the proposed land use.

Project Operations-Onsite Noise Sources

As previously stated, noise sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise-sensitive and may warrant unique measures for protection from intruding noise. The nearest existing noise-sensitive land use to the Project site consists of a single-family residence located 1,342 feet from the proposed Project site boundary, to the north and across the Aqueduct.

The main stationary operational noise associated with the Project would be from the proposed transformers, inverters, substation, and transmission lines. Onsite Project operations have been calculated using the SoundPLAN 3D noise model. As previously stated, a noise level of 47.1 dBA was employed as

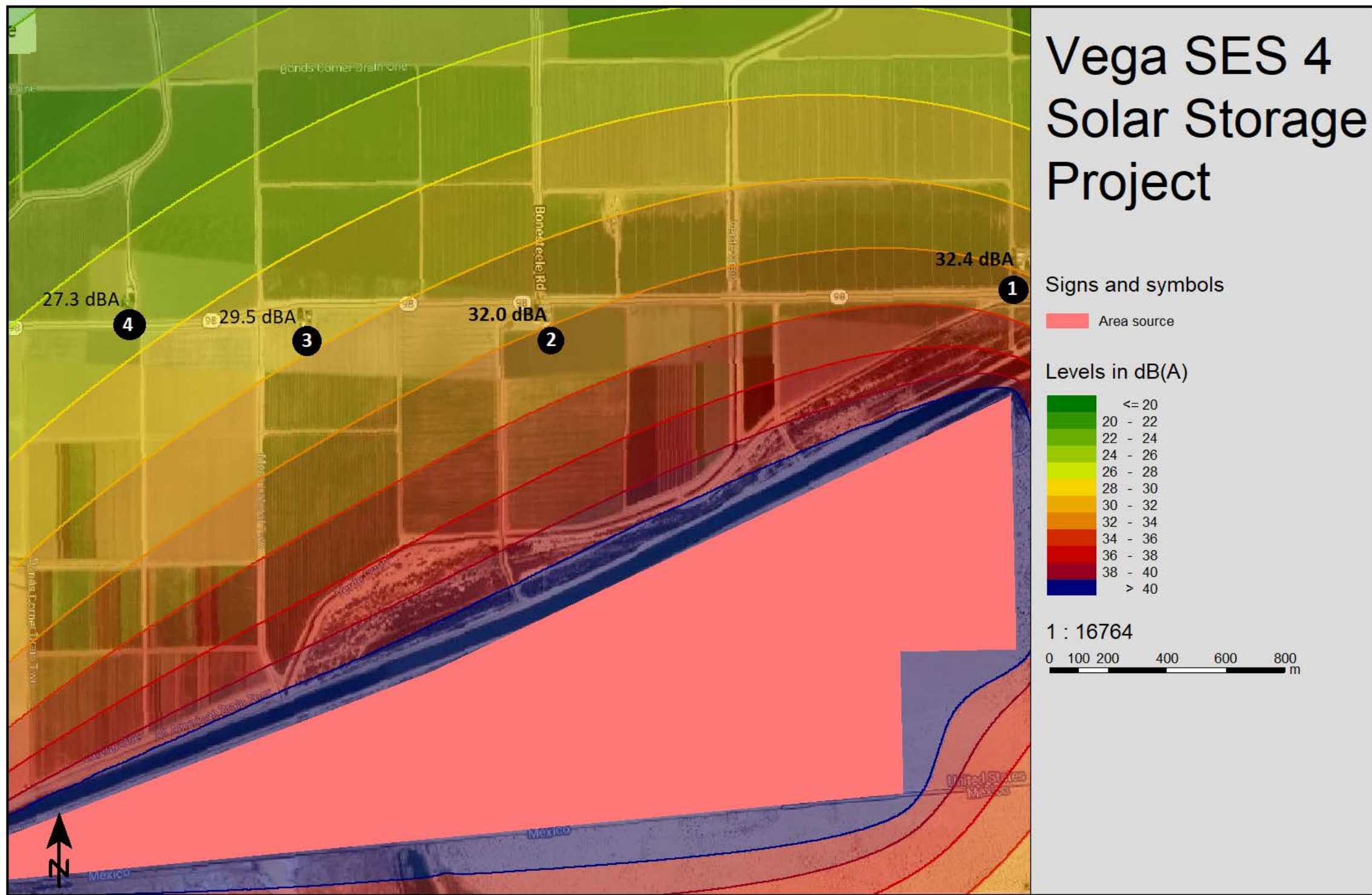
the reference noise level in the SoundPLAN 3D noise model to determine noise-level propagation associated with the Project operations. The results of this model can be found in Appendix C. Table 5-2 shows the predicted Project noise levels at the nearest noise-sensitive land use in the Project vicinity, as predicted by SoundPLAN. Also see Figure 3.

Location	Modeled Operational Noise Attributed to Project (L_{eq} dBA)	County Daytime Standard (L_{eq} dB)	County Nighttime Standard (L_{eq} dB)	Exceed Standard?
Property line of the nearest residence	32.4	50.0	45.0	No

Source: Stationary source noise levels were modeled by ECORP using SoundPLAN 3D noise model. Refer to Appendix C for noise modeling assumptions and results.

Note: Reference noise measurement used to calculate Project onsite noise propagation identified at 47.1 dBA, per 30-minute measurements taken at a VEGA SES 4 solar generation facility in Imperial County.

As shown in Table 5-2, Project operational noise would not exceed County daytime or nighttime standards.



Map Date: 1/27/2021
 Photo (or Base) Source: SoundPLAN 3D Noise Model, v. 5.1

Figure 3. Project Onsite Source Noise Generation

2020-142 Vega 4

INFO ITEM ONLY

5.3.3 Project Construction Groundborne Vibration

Would the Project Expose Structures to Substantial Groundborne Vibration During Construction?

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the Project would be primarily associated with short-term construction-related activities. Construction on the Project site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. It is noted that pile drivers would not be necessary during Project construction. Vibration decreases rapidly with distance and it is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with typical construction equipment at 25 feet distant are summarized in Table 5-3.

Table 5-3. Representative Vibration Source Levels for Construction Equipment	
Equipment Type	Peak Particle Velocity at 25 Feet (inches per second)
Large Bulldozer	0.089
Caisson Drilling	0.089
Loaded Trucks	0.076
Hoe Ram	0.089
Jackhammer	0.035
Small Bulldozer/Tractor	0.003
Vibratory Roller	0.210

Source: FTA 2018; Caltrans 2020b

The County of Imperial does not regulate vibrations associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans (2020b) recommended standard of 0.2 inch per second PPV with respect to the prevention of structural damage for older residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings. Consistent with FTA recommendations for calculating construction vibration, construction vibration was measured from the center of the Project site (FTA 2018). The nearest structure of concern to the construction site, with regard to groundborne vibrations, is the Aqueduct located 100 feet from the proposed Project site boundary.

Based on the representative vibration levels presented for various construction equipment types in Table 5-3 and the construction vibration assessment methodology published by the FTA (2018), it is possible to estimate the potential project construction vibration levels. The FTA provides the following equation:

$$[PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}]$$

Table 5-4 presents the expected Project related vibration levels at a distance of 100 feet.

Table 5-4. Construction Vibration Levels at 100 Feet							
Receiver PPV Levels (in/sec) ¹					Peak Vibration	Threshold	Exceed Threshold
Large Bulldozer, Caisson Drilling, & Hoe Ram	Loaded Trucks	Jackhammer	Small Bulldozer	Vibratory Roller			
0.011	0.009	0.004	0.000	0.026	0.026	0.2	No

Notes: ¹Based on the Vibration Source Levels of Construction Equipment included on Table 5-5 (FTA 2018). Distance to the nearest structure of concern is approximately 100 feet measured from project site boundary.

As shown in Table 5-4, vibration as a result of construction activities would not exceed 0.2 PPV at the nearest structure. Thus, project construction would not exceed the recommended threshold.

5.3.4 Project Operational Groundborne Vibration

Would the Project Expose Structures to Substantial Groundborne Vibration During Operations?

Project operations would not include the use of any large-scale stationary equipment that would result in excessive vibration levels. Therefore, the project would not result groundborne vibration impacts during operations.

5.3.5 Excess Airport Noise

Would the Project Expose People Residing or Working in the Project area to Excessive Airport Noise?

The Project site is located approximately 12 miles east from the Calexico International Airport in Unincorporated lands of Imperial County and 8.69 miles from Calexico city limits. The Imperial County Airport Land Use Commission has established a set of land use compatibility criteria for lands surrounding the airports in Imperial County in the Imperial County Airport Land Use Compatibility Plan (1996). As identified in Figure 3-B of the Imperial County Airport Land Use Compatibility Maps, the proposed Project site lays outside of the noise contours of the Calexico International Airport. Thus, the Project would not expose residents to excessive airport noise.

5.3.6 Cumulative Noise

Would the Project Contribute to Cumulatively Considerable Noise During Construction?

Construction activities associated with the proposed Project and other construction projects in the area may overlap, resulting in construction noise in the area. However, construction noise impacts primarily affect the areas adjacent to the construction site. Construction noise for the proposed Project was determined to be less than significant following compliance with County noise standards. Cumulative development in the vicinity of the Project site could result in elevated construction noise levels at sensitive receptors in the Project area. However, each project would be required to comply with the applicable noise limitations on construction. Therefore, the Project would not contribute to cumulative impacts during construction.

Would the Project Contribute to Cumulatively Considerable Noise from Offsite Traffic?

As described previously, Project operations would result in extremely minimal additional traffic on adjacent roadways. The only visitors to the site would be that of repair or maintenance work that would be done very infrequently. Thus, any cumulative noise impacts from project-related traffic would be minimal. Therefore, the Project's contribution to cumulative noise impacts from traffic would be less than significant.

Would the Project Contribute to Cumulatively Considerable Noise from Stationary Sources?

Cumulative noise impacts would primarily be associated with the transformers, inverters, substation, and transmission lines from the solar facility. Long-term noise sources associated with development at the Project, combined with other cumulative projects, could cause local noise-level increases. Noise levels associated with the proposed Project and related cumulative projects together could result in higher noise levels than considered separately. However, noise increase as a result of the Project would not be perceivable and would not exceed County standards.

6.0 REFERENCES

- Caltrans. 2020a. IS/EA Annotated Outline. <http://www.dot.ca.gov/ser/vol1/sec4/ch31ea/chap31ea.htm>.
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- FTA. 2018. Transit Noise and Vibration Impact Assessment.
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- Imperial, County of. 2015. General Plan Noise Element.
- _____. 2008. General Plan Circulation and Scenic Highways Element.
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- KOA Corporation. 2020. Scoping Memorandum for the Traffic Impact Study.
- OPR. 2003. State of California General Plan Guidelines.
- WEAL. 2000. Sound Transmission Sound Test Laboratory Report No. TL 96-186.

LIST OF ATTACHMENTS

Attachment A - Baseline (Existing) Noise Measurements – Project Site and Vicinity

Attachment B - Federal Highway Administration Highway Roadway Construction Noise Outputs
– Project Construction Noise

Attachment C - SoundPLAN 3-D Noise Model Outputs – Project Onsite Noise

Baseline (Existing) Noise Measurements – Project Site and Vicinity



Map Date: 12/14/2020
 Photo (or Base) Source: Google Earth Pro

Site Number: V4-1			
Recorded By: Jessie Beckman			
Job Number: 2020 - 142			
Date: 1/12/21			
Time: 14:30 – 14:45			
Location: CA-98, East of Bonds Corner Rd			
Source of Peak Noise: Vehicular traffic on CA-98			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
65.4	36.3	79.8	104.3

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0005120	9/14/2020	
	Microphone	Larson Davis	377B02	174464	9/14/2020	
	Preamp	Larson Davis	PRMLxT1L	042852	9/14/2020	
	Calibrator	Larson Davis	CAL200	14105	9/10/2020	
Weather Data						
Est.	Duration: 15 minutes			Sky: 50%cc		
	Note: Cal Offset = 0.26			Sensor Height (ft): 3.5		
	Wind Ave Speed (mph)		Temperature (degrees Fahrenheit)		Barometer Pressure (hPa)	
	0-2		70		30.25Hg	

Photo of Measurement Location



Measurement Report

Report Summary

Meter's File Name	LxT_Data.356	Computer's File Name	SLM_0005120_LxT_Data_356.00.lbin
Meter	LxT SE		
Firmware	2.404		
User	Lindsay Liegler	Location	
Description			
Note			
Start Time	2021-01-12 13:51:20	Duration	0:15:00.0
End Time	2021-01-12 14:06:20	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	65.4 dB		
LAE	95.0 dB	SEA	--- dB
EA	349.6 µPa²h		
LZ _{peak}	104.3 dB	2021-01-12 13:55:26	
LAS _{max}	79.8 dB	2021-01-12 13:55:26	
LAS _{min}	36.3 dB	2021-01-12 13:58:17	
LA _{eq}	65.4 dB		
LC _{eq}	72.8 dB	LC _{eq} - LA _{eq}	7.4 dB
LAI _{eq}	68.4 dB	LAI _{eq} - LA _{eq}	3.0 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZ _{peak} > 135.0 dB	0	0:00:00.0
LZ _{peak} > 137.0 dB	0	0:00:00.0
LZ _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
65.4 dB	65.4 dB	0.0 dB
LDEN	LDay	LEve
65.4 dB	65.4 dB	--- dB
		LNight
		--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	65.4 dB		72.8 dB		--- dB	
LS _(max)	79.8 dB	2021-01-12 13:55:26	--- dB		--- dB	
LS _(min)	36.3 dB	2021-01-12 13:58:17	--- dB		--- dB	
L _{Peak(max)}	--- dB		--- dB		104.3 dB	2021-01-12 13:55:26

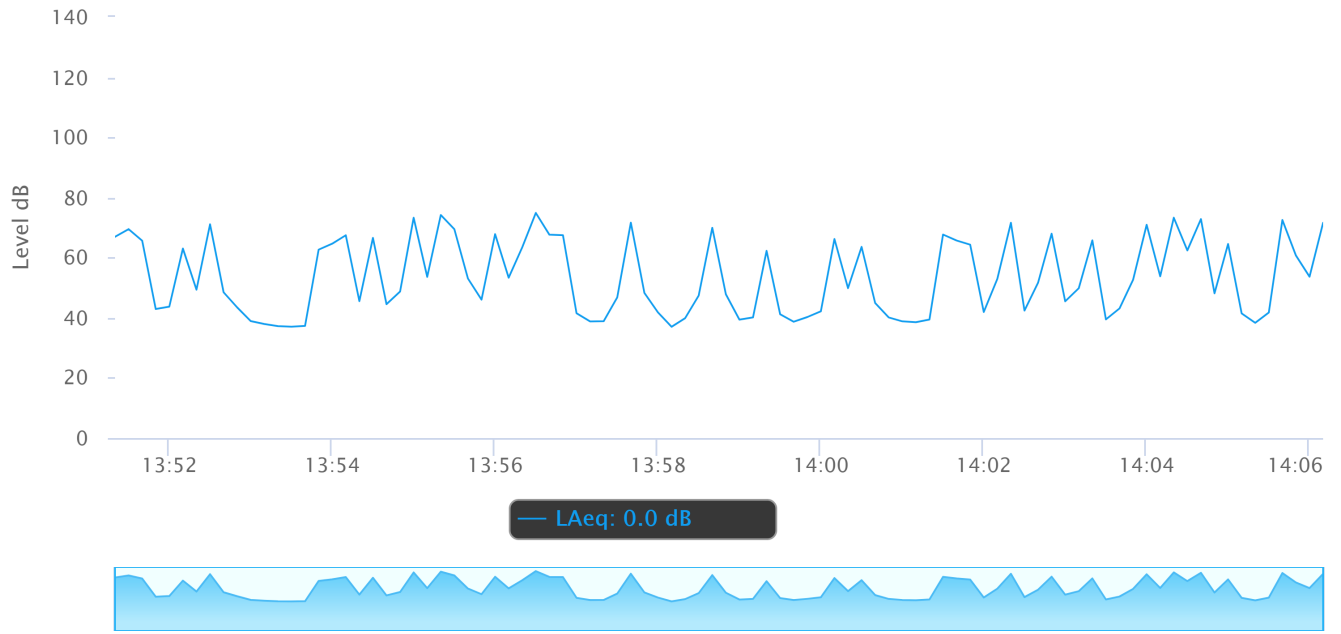
Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	20	0:01:04.10

Statistics

LAS 5.0	73.3 dB
LAS 10.0	70.1 dB
LAS 33.3	55.2 dB
LAS 50.0	48.2 dB
LAS 66.6	43.3 dB
LAS 90.0	38.6 dB

Time History



Site Number: V4-2			
Recorded By: Jessie Beckman			
Job Number: 2020 - 142			
Date: 1/12/21			
Time: 14:10 – 14:25			
Location: CA-98, East of Bonesteel Rd			
Source of Peak Noise: Vehicular traffic on CA-98			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
68.7	25.2	86.2	106.8

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0005120	9/14/2020	
	Microphone	Larson Davis	377B02	174464	9/14/2020	
	Preamp	Larson Davis	PRMLxT1L	042852	9/14/2020	
	Calibrator	Larson Davis	CAL200	14105	9/10/2020	
Weather Data						
Est.	Duration: 15 minutes			Sky: 50%cc		
	Note: Cal Offset = 0.26			Sensor Height (ft): 3.5		
	Wind Ave Speed (mph)		Temperature (degrees Fahrenheit)		Barometer Pressure (hPa)	
	0-2		70		30.25Hg	

Photo of Measurement Location



Measurement Report

Report Summary

Meter's File Name	LxT_Data.357	Computer's File Name	SLM_0005120_LxT_Data_357.00.ldbin
Meter	LxT SE		
Firmware	2.404		
User	Lindsay Liegler	Location	
Description			
Note			
Start Time	2021-01-12 14:10:16	Duration	0:15:00.0
End Time	2021-01-12 14:25:16	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	68.7 dB		
LAE	98.2 dB	SEA	--- dB
EA	742.4 µPa²h		
LZ _{peak}	106.8 dB	2021-01-12 14:23:46	
LAS _{max}	86.2 dB	2021-01-12 14:23:46	
LAS _{min}	25.2 dB	2021-01-12 14:21:16	
LA _{eq}	68.7 dB		
LC _{eq}	75.5 dB	LC _{eq} - LA _{eq}	6.8 dB
LAI _{eq}	72.4 dB	LAI _{eq} - LA _{eq}	3.7 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	1	0:00:01.5
LAS > 115.0 dB	0	0:00:00.0
LZ _{peak} > 135.0 dB	0	0:00:00.0
LZ _{peak} > 137.0 dB	0	0:00:00.0
LZ _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
68.7 dB	68.7 dB	0.0 dB	
LDEN	LDay	LEve	LNight
68.7 dB	68.7 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	68.7 dB		75.5 dB		--- dB	
LS _(max)	86.2 dB	2021-01-12 14:23:46	--- dB		--- dB	
LS _(min)	25.2 dB	2021-01-12 14:21:16	--- dB		--- dB	
L _{Peak(max)}	--- dB		--- dB		106.8 dB	2021-01-12 14:23:46

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	32	0:01:38.2

Statistics

LAS 5.0	76.8 dB
LAS 10.0	72.9 dB
LAS 33.3	53.2 dB
LAS 50.0	46.9 dB
LAS 66.6	42.5 dB
LAS 90.0	35.9 dB

Site Number: V4 - 3			
Recorded By: Jessie Beckman			
Job Number: 2020 - 142			
Date: 1/12/2021			
Time: 13:51 – 14:06			
Location: CA-98, Southeastern Extent			
Source of Peak Noise: Vehicular Traffic on CA-98			
Noise Data			
Leq (dB)	Lmin (dB)	Lmax (dB)	Peak (dB)
66.1	40.8	81.5	103.8

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Larson Davis	LxT SE	0005120	9/14/2020	
	Microphone	Larson Davis	377B02	174464	9/14/2020	
	Preamp	Larson Davis	PRMLxT1L	042852	9/14/2020	
	Calibrator	Larson Davis	CAL200	14105	9/10/2020	
Weather Data						
Est.	Duration: 15 minutes			Sky: 40% cc		
	Note: dBA Offset = 0.01 Cal Offset = 0.26			Sensor Height (ft): 3.5		
	Wind Ave Speed (mph)		Temperature (degrees Fahrenheit)		Barometer Pressure (hPa)	
	0-2		70		30.25 Hg	

Photo of Measurement Location



Measurement Report

Report Summary

Meter's File Name	LxT_Data.358	Computer's File Name	SLM_0005120_LxT_Data_358.00.lbin
Meter	LxT SE		
Firmware	2.404		
User	Lindsay Liegler	Location	
Description			
Note			
Start Time	2021-01-12 14:29:25	Duration	0:15:00.0
End Time	2021-01-12 14:44:25	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA _{eq}	66.1 dB		
LAE	95.7 dB	SEA	--- dB
EA	411.7 µPa²h		
LZ _{peak}	103.8 dB	2021-01-12 14:31:03	
LAS _{max}	81.5 dB	2021-01-12 14:29:25	
LAS _{min}	40.8 dB	2021-01-12 14:43:50	
LA _{eq}	66.1 dB		
LC _{eq}	73.5 dB	LC _{eq} - LA _{eq}	7.4 dB
LAI _{eq}	69.5 dB	LAI _{eq} - LA _{eq}	3.3 dB

Exceedances

	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZ _{peak} > 135.0 dB	0	0:00:00.0
LZ _{peak} > 137.0 dB	0	0:00:00.0
LZ _{peak} > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
66.1 dB	66.1 dB	0.0 dB	
LDEN	LDay	LEve	LNight
66.1 dB	66.1 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L _{eq}	66.1 dB		73.5 dB		--- dB	
LS _(max)	81.5 dB	2021-01-12 14:29:25	--- dB		--- dB	
LS _(min)	40.8 dB	2021-01-12 14:43:50	--- dB		--- dB	
L _{Peak(max)}	--- dB		--- dB		103.8 dB	2021-01-12 14:31:03

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	23	0:01:11.1

Statistics

LAS 5.0	74.0 dB
LAS 10.0	70.9 dB
LAS 33.3	56.4 dB
LAS 50.0	50.4 dB
LAS 66.6	46.6 dB
LAS 90.0	42.5 dB

Federal Highway Administration Highway Roadway Construction Noise Outputs – Project
Construction Noise

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/25/2021
 Case Description: Site Prep

Description Affected Land Use
 Site Prep Residential

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)
			Spec Lmax (dBA)	Actual Lmax (dBA)	
Rubber Tired Loader	No	40		79.1	1342
Rubber Tired Loader	No	40		79.1	1342
Tractor	No	40	84		1342
Tractor	No	40	84		1342

Calculated (dBA)

Equipment	*Lmax	Leq
Rubber Tired Loader	50.5	46.6
Rubber Tired Loader	50.5	46.6
Tractor	55.4	51.4
Tractor	55.4	51.4
Total	55.4	55.7

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/25/2021
 Case Description: Grading

Description Affected Land Use
 Grading Residential

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)
			Spec Lmax (dBA)	Actual Lmax (dBA)	
Excavator	No	40		80.7	1342
Excavator	No	40		80.7	1342
Excavator	No	40		80.7	1342
Excavator	No	40		80.7	1342
Grader	No	40	85		1342
Grader	No	40	85		1342
Grader	No	40	85		1342
Rubber Tired Dozer	No	40		81.7	1342
Rubber Tired Dozer	No	40		81.7	1342
Scraper	No	40		83.6	1342
Scraper	No	40		83.6	1342
Tractor/Loader/Backhoe	No	40	84		1342
Tractor/Loader/Backhoe	No	40	84		1342
Tractor/Loader/Backhoe	No	40	84		1342
Tractor/Loader/Backhoe	No	40	84		1342

Calculated (dBA)

Equipment	*Lmax	Leq
Excavator	52.1	48.2
Excavator	52.1	48.2
Excavator	52.1	48.2
Excavator	52.1	48.2
Grader	56.4	52.4
Grader	56.4	52.4
Grader	56.4	52.4
Rubber Tired Dozer	53.1	49.1
Rubber Tired Dozer	53.1	49.1
Scraper	55	51
Scraper	55	51
Tractor/Loader/Backhoe	55.4	51.4
Tractor/Loader/Backhoe	55.4	51.4
Tractor/Loader/Backhoe	55.4	51.4
Tractor/Loader/Backhoe	55.4	51.4
Total	56.4	62.5

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/25/2021
 Case Description: Construction

Description Affected Land Use
 Construction Residential

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)
			Spec Lmax (dBA)	Actual Lmax (dBA)	
Crane	No	16		80.6	1342
Paver	No	50		77.2	1342
Paveing Equipment	No	20		89.5	1342
Paveing Equipment	No	20		89.5	1342
Pile Driver	Yes	20		101.3	1342
Pile Driver	Yes	20		101.3	1342
Pile Driver	Yes	20		101.3	1342
Pile Driver	Yes	20		101.3	1342
Roller	No	20		80	1342
Roller	No	20		80	1342
Rough Terrain Forklift	No	40		83.4	1342
Rough Terrain Forklift	No	40		83.4	1342
Rough Terrain Forklift	No	40		83.4	1342
Rough Terrain Forklift	No	40		83.4	1342
Tractor/Loader/Backhoe	No	40	84		1342
Tractor/Loader/Backhoe	No	40	84		1342
Tractor/Loader/Backhoe	No	40	84		1342
Tractor/Loader/Backhoe	No	40	84		1342
Trencher	No	50		80.4	1342

Calculated (dBA)

Equipment	*Lmax	Leq
Crane	52	44
Paver	48.6	45.6
Paveing Equipment	60.9	53.9
Paveing Equipment	60.9	53.9
Pile Driver	72.7	65.7
Pile Driver	72.7	65.7
Pile Driver	72.7	65.7
Pile Driver	72.7	65.7
Roller	51.4	44.4
Roller	51.4	44.4
Rough Terrain Forklift	54.8	50.8
Rough Terrain Forklift	54.8	50.8
Rough Terrain Forklift	54.8	50.8
Rough Terrain Forklift	54.8	50.8
Tractor/Loader/Backhoe	55.4	51.4
Tractor/Loader/Backhoe	55.4	51.4
Tractor/Loader/Backhoe	55.4	51.4
Tractor/Loader/Backhoe	55.4	51.4
Trencher	51.8	48.8
Total	72.7	72.2

*Calculated Lmax is the Loudest value.

SoundPLAN 3-D Noise Model Outputs – Project Onsite Noise

SoundPLAN
Output Source Information

Number	Receiver Name	Floor	Level at Receiver
1	Residence to the north	Ground Floor	32.4 dBA
2	Residence to the north	Ground Floor	32.0 dBA
3	Residence to the north	Ground Floor	29.5 dBA
4	Residence to the north	Ground Floor	27.3 dBA

Number	Noise Source Information	Citation	Level at Source
1	Noise Activity at Solar Facility	ECORP Consulting	47.1 dBA

Phase I ESA Report

Vega 4 (Doyle Ranch) Solar Site South side of the AAC at Bonesteele Road Holtville, California

Prepared for:

Vega SES 4, LLC
750 Main Street
El Centro, CA 92243



Prepared by:



GS Lyon Consultants, Inc.
780 N. 4th Street
El Centro, CA 92243
(760) 337-1100

December 2020

INFO ITEM ONLY



Engineering And
Information Technology

December 17, 2020

Mr. Ziad Alaynon
Vega SES 4, LLC
750 Main Street
El Centro, CA 92243

**Phase I Environmental Site Assessment Report
Vega 4 (Doyle Ranch) Solar Site
Holtville, California
*GSL Report No. GS2015***

Dear Mr. Alaynon:

We have performed a Phase I Environmental Site Assessment in general conformance with the scope and limitations of ASTM E1527-13 of the approximately 530-acre property located on the south side of the All American Canal at Bonesteele Road approximately 10 miles south of Holtville, California. Any exceptions to, or deletions from, this practice are described in Section 1.4 of this report. **This assessment has revealed the following “de minimis” conditions in connection with the property:**

- Pesticide residues (low concentrations) typical to agricultural crop applications are present in the near surface soils.
- Pole-mounted sealed electrical transformers owned and maintained by the Imperial Irrigation District (IID) exist on this subject property. All IID transformers containing PCB's have been replaced. ***If the transformers begin to leak, the IID should be notified and the transformers replaced.***

This assessment has not revealed any recognized environmental conditions (REC's) in connection with the property.

We declare that, to the best of our professional knowledge and belief, we meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR §312 and we have the specific qualifications based on education, training and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

INFO ITEM ONLY

Attached is our report which describes the procedures used and results of the assessment. If you have any questions or require additional information, please do not hesitate to contact the undersigned at (760) 337-1100. We appreciate the opportunity to provide our professional review for this subject property.

Respectfully Submitted,
GS Lyon Consultants, Inc.



Jeffrey O. Lyon, PE
Principal Engineer



Steven K. Williams, PG, CEG
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1.0 INTRODUCTION

1.1 Purpose

GS Lyon Consultants, Inc. was retained by Vega SES 4, LLC to conduct a Phase I Environmental Site Assessment (ESA) for the Property (herein referred to as the subject property or subject site in this Phase I ESA Report) as a prerequisite to property transaction (purchase, sale, refinance, etc.). The approximately 530-acre subject property is located on the south side of the All American Canal at Bonesteele Road approximately 10 miles south of Holtville, California. See Plate 1 in Appendix B for a Vicinity Map of the subject property.

The purpose of this Phase I Environmental Site Assessment (ESA) is to identify, to the extent feasible, recognized environmental conditions (RECs) associated with past and present activities on the subject property or in the immediate subject property vicinity in general conformance to ASTM Standard E1527-13 “*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*” that may affect future uses of the subject property.

This report is intended to satisfy the Phase I ESA portion of “*all appropriate inquiry*” into the previous ownership and uses of the subject property as defined under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) at Title 42 of the United States Code (U.S.C.) §9601(35)(B) and in accordance with 40 Code of Federal Regulations (CFR) Part 312, Standards and Practices for All Appropriate Inquiries; Final Rule (AAI Rule).

1.2 Scope of Services

The scope of work for this ESA is in general accordance with the requirements of ASTM Standard E1527-13. This assessment included:

- Reconnaissance of the subject property and adjacent properties
- Review user-provided information
- Interviews with persons with significant knowledge of the subject property
- Review of a regulatory database report provided by a third-party vendor
- Review readily-available historical sources (including but not limited to: aerial photographs, fire insurance maps, property tax files, recorded land title records, and topographical maps)
- Prepare report of findings

1.3 Limitations

No Phase I ESA can completely eliminate uncertainty regarding the potential for RECs in connection with a property. Conformance of this assessment with ASTM Standard E1527-13 is intended to reduce, but not eliminate uncertainty regarding the potential for RECs in connection with the Subject Property. While GS Lyon has made reasonable effort to discover and interpret available historical and current information on the property within the time available, the possibility of undiscovered contamination remains. Our assessment of the subject property and surrounding areas was conducted in accordance with ASTM guidelines and the *generally accepted environmental engineering standard of practice* which existed in Imperial County, California at the time that the report was prepared. No warranty, express or implied, is made.

GS Lyon Consultants, Inc. derived the data in this report primarily from visual inspections, examination of public records and information in the public domain, informal interviews with individuals, and readily available information about the subject property. The passage of time, manifestation of latent conditions or occurrence of future events may require further exploration of the subject property, analysis of the data, and reevaluation of the findings, observations, and conclusions expressed in this report.

The findings, observations, and conclusions expressed by GS Lyon Consultants in this report are not, and should not be considered, an opinion concerning the compliance of any past or present owner or operator of the subject property with any federal, state or local law or regulation.

This report should not be relied upon after **180 days** from the date of issuance, unless additional services are performed as defined in ASTM E1527-13 - Section 4.7.

1.4 Deviations or Data Gaps

ASTM Standard E1527-13 requires any significant data gaps, deviations, and deletions from the ASTM Standard to be identified and addressed in the Phase I ESA. A significant data gap would be one that affected the ability to identify a REC on the subject property or adjacent properties.

Through the course of this assessment, *data failures* or *data gaps* may have been encountered. These failures or gaps, if any, are discussed below. The following provides the opinion of the Environmental Professional as to the significance of the data gaps in terms of defining *recognized environmental conditions* at the subject property. Data failures may or may not be significant data gaps, and the discussion also provides information pertaining to whether the data failures resulted in significant data gaps.

1.4.1 Data Failures

Data failure is a failure to achieve the historical (property use) research objectives specified in the ASTM Standard Practice even after reviewing the eight standard historical sources that are reasonably ascertainable and likely to be useful. Data failure is one type of data gap. No *data failures* were encountered during this investigation.

1.4.2 Data Gaps

A *data gap* is a lack of or inability to obtain information required by the ASTM Standard Practice, despite good faith efforts by the Environmental Professional to gather such information. This could include any component of the Practice, e.g., standard environmental records, interviews, or a complete reconnaissance. A data gap by itself is not inherently significant, but if other information and/or the EP's experience raises reasonable concerns about the gap, it may be judged to be significant.

Due to the location of the subject property, Sanborn Fire Insurance maps were not available for the subject property. Because there is no historical data or physical indications that the property has ever been developed or occupied by a business that would have produced hazardous materials, the lack of Sanborn Fire Insurance maps is not considered a significant data gap.

Aerial photographs and other historical records were not available at 5 year intervals as required under the ASTM E1527-13 standard. This resulted in a data gap for years that records were not available regarding the area of the subject property. However, based upon other historical information reviewed, the subject property has been vacant desert land up to about 1980 when a portion of the subject property was converted into agricultural use. Therefore, this data gap is not considered to be significant.

Interviews with past owners, operators and occupants were not reasonably ascertainable and thus constitute a data gap. Based on information obtained from other historical sources (as discussed in Section 3.0), this data gap is not expected to alter the findings of this assessment.

1.5 Significant Assumptions

In preparing this report, GS Lyon Consultants, Inc. has relied upon and presumed accurate certain information (or the absence thereof) about the subject property and adjacent properties by governmental officials and agencies, the Client, and others identified herein. Except as otherwise stated in the report, GS Lyon Consultants has not attempted to verify the accuracy or completeness of any such information.

1.6 User Reliance

This report has been prepared on behalf of and for the exclusive use of Vega SES 4, LLC for the particular subject property identified in this report, and is subject to and issued in connection with the referenced Agreement and the provisions thereof. This report should not be relied upon by any party other than the client, its legal counsel, and financial institution without the express permission of GS Lyon Consultants, Inc. Any reliance on this report by other parties shall be at such party's sole risk. Any future consultation or provision of services to third parties related to the subject property requires written authorization from Vega SES 4, LLC or their representatives. Any such services may be provided at GS Lyon Consultants sole discretion and under terms and conditions acceptable to GS Lyon Consultants, including potential additional compensation.

2.0 SITE DESCRIPTION

2.1 Site Location and Legal Description

The approximately 530-acre subject property (APNs 059-299-010, 059-300-017, and 059-300-015) is located on the south side of the All American Canal at Bonesteele Road approximately 10 miles south of Holtville, California. The subject property location is depicted on Plate 1, Site Map.

2.2 Current Property Use and Description

The subject property currently consists of approximately 530 acres comprised of three parcels (APNs 059-299-010, 059-300-017, and 059-300-015). The subject property is roughly triangular in plan view with the All American Canal forming the northern boundary, the International Border with the Republic of Mexico forming the southern boundary and vacant desert land forming the eastern boundary. The majority of the subject site has been cleared of desert vegetation for agricultural use. The western wedge and a small area in the north-central portion of the site are heavily vegetated where shallow groundwater has accumulated due to seepage from the earthen All American Canal.

A farm yard is located in the north-central portion of the subject site. A small masonry building housing water pumps, an above ground fuel storage tank (AST) and a storage building, all located within a chain-link fenced area comprise the farm yard. A bank of pole mounted transformers is located on the embankment of the All American Canal adjacent to the farm yard. A small equipment storage area with a disc, a trap wagon, and other miscellaneous farm implements is located northeast of the farm yard area. There are two central-pivot sprinklers that are located in the central portion of the site.

2.3 Adjoining Property Use

The subject property is located within a mixed agricultural and undeveloped desert area south of Holtville, California. Adjacent properties consist of the International Border with the Republic of Mexico along the southern boundary of the subject site and the All American Canal along the northern margin of the subject site.

2.4 Physical Site Characteristics

Topography: Topographic maps (USGS 7.5 minute Bonds Corner, CA Quadrangle) indicate that the subject property elevation is approximately 35 to 60 feet above mean sea level (MSL) or Elevation 1035 to 1060 (local datum). The Imperial Irrigation District, which supplies power and raw (irrigation) water to the area, established local datum by equating mean sea level to El. 1000.00 feet. The shoreline for the ancient Lake Cahuilla crosses the site at El. +43 ft. MSL.

Geologic Setting: The subject property is located in the Colorado Desert Physiographic province of southern California. The dominant feature of the Colorado Desert province is the Salton Trough, a geologic structural depression resulting from large-scale regional faulting. The trough is bounded on the northeast by the San Andreas Fault and the southwest by faults of the San Jacinto Fault Zone. The Salton Trough represents northward extension of the Gulf of California, which has experienced continual in-filling with both marine and non-marine sediments since the Miocene Epoch (25 million years before present). The tectonic activity that formed the trough continues at a high rate as evidenced by deformed young sedimentary deposits and high levels of historic seismicity.

The subject property is directly underlain by Holocene (0-11,000 years before present) Cahuilla Lake sediments, which consist of interbedded lenticular and tabular sand, silt, and clay. The predominant surface soil is silty clay. The Holocene lake deposits are considered to be less than 100 feet thick and are characterized by surficial clay and silt deposits with varying amounts of fine sand. The topography of the Imperial Valley is relatively flat, with few significant land features. The valley floor slopes gently to the north (less than 0.5 percent) from an elevation of sea level at Calexico to approximately 225 feet below sea level at the Salton Sea.

Soil Conditions: The U. S. Soil Conservation Service compiled a map of surface soil conditions and published a soil survey report including maps in 1980. The soil survey maps indicate that surficial deposits at the subject property and surrounding area consist predominantly of silt and silty sand loams of the Indio-Vint, Niland, Rositas and Vint soil groups (see Appendix B). These loams are formed in sediment and alluvium of mixed origin (Colorado River overflows and fresh-water lake-bed sediments). Based on Unified Soil Classification System presented in the Soils Survey Report, the permeability of these soils is expected to be low to moderate.

Groundwater Conditions: The groundwater in the vicinity of the subject property is brackish and is encountered at a depth of near surface to greater than 50 feet below the ground surface. Depth to groundwater may fluctuate due to localized geologic conditions, water level and seepage from the All American Canal, precipitation, irrigation, drainage and construction practices in the region. Based on the regional topography, groundwater flow is assumed to be generally towards the northwest within the subject property area. Flow directions may also vary locally across and in the vicinity of the subject property.

3.0 USER PROVIDED INFORMATION

In order to qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the *Brownfields Amendments*), the *User* must provide the following information (if available) to the *environmental professional*. Failure to provide this information could result in a determination that *all appropriate inquiry* is not complete. The user was asked to provide information or knowledge of the following:

- Environmental cleanup liens that are filed or recorded against the subject property.
- Activity and land use limitations that are in place on the subject property or that have been filed or recorded in a registry.
- Specialized knowledge or experience of the person seeking to qualify for the LLPs.
- Relationship of the purchase price to the fair market value of the *property* if it were not contaminated.
- Commonly known or *reasonably ascertainable* information about the *property*.
- The degree of obviousness of the presence or likely presence of contamination at the *property*, and the ability to detect the contamination by appropriate investigation.
- The reason for preparation of this Phase I ESA.

A user questionnaire was provided to the user to aid in gathering information that may be pertinent to the evaluation of the subject property for environmental conditions. The completed user questionnaire is provided in Appendix G.

3.1 Title Records

GS Lyon reviewed preliminary title reports as part of this assessment and did not find past ownership or easements that would indicate environmentally hazardous uses on the parcels.

3.2 Environmental Liens or Activity and Use Limitations

An environmental lien is a charge, security, or encumbrance upon the title to a property to secure the payment of a cost, damage, debt, obligation, or duty arising out of response actions, cleanup, or other remediation of hazardous substances or petroleum products upon the property. According to the User Questionnaire, Ms. Jamie Nagel of Apex Energy Solutions, LLP is not aware of any Environmental Liens or Activity and Use Limitations associated with the subject property that have been filed or recorded under federal, tribal, state or local law (Appendix G). No environmental liens associated with the subject property were noted in the preliminary title report.

3.3 Specialized Knowledge

According to the User Questionnaire, Ms. Nagel is not aware of any specialized knowledge or experience associated with the subject property or nearby properties. GS Lyon does not have any personal knowledge of the subject property.

3.4 Commonly Known or Reasonable Ascertainable Information

No information was provided by the Client regarding any commonly known or reasonably ascertainable information within the local community that is material to RECs in connection with the subject property.

3.5 Valuation Reduction for Environmental Issues

The client indicated that the purchase price of this property reasonably reflects the fair market value of the property with no discounts for environmental issues.

3.6 Owner, Property Manager, and Occupant Information

The current owner of the subject property is the Doyle Family 2010 Trust. The subject property is currently undeveloped desert land. No property manager or occupant information is available.

3.7 Previous Reports and Other Provided Documentation

No previous reports or other pertinent documentation was provided to GS Lyon for review during the course of this assessment.

4.0 RECORDS REVIEW

A review of historic aerial photographs (Appendix C), historic topographic maps (Appendix D), governmental regulatory databases (Appendix E), other regulatory and agency databases (Appendix F), and historic telephone and city directories was performed to evaluate potentially adverse environmental conditions resulting from previous ownership and uses of the subject property. The details of the review are presented in Sections 4.1 through 4.5 of this report.

4.1 Regulatory Database Review

4.1.1 Standard Environmental Record Sources

GS Lyon Consultants contracted Environmental Data Resources, Inc. (EDR) of Shelton, Connecticut which queries and maintains comprehensive environmental databases and historical information, including proprietary databases, aerial photography, topographic maps, Sanborn Maps, and city directories to generate a compilation of Federal, State and Tribal regulatory lists containing information regarding hazardous materials occurrences on or within the prescribed radii of ASTM E1527-13. The search of each database was conducted using the approximate minimum search distances from the subject property defined by the ASTM E1527-13 Standard. The purpose of the records review is to obtain and review *reasonably ascertainable* records that will help identify *recognized environmental conditions* or *historical recognized environmental conditions* in connection with the subject property.

EDR's Phase I ESA search package was ordered and performed on August 27, 2020. The search package included: Radius Map with Geocheck, aerial photographs, and historic topographic maps. The results of EDR's search were used to evaluate if the subject property and/or properties within prescribed search distances are listed as having a past or present record of actual or potential environmental impact. Inclusion of a property in a government database list does not necessarily indicate that the property has an environmental problem.

The following is a brief synopsis of sites identified in the EDR Radius Map with Geocheck report. The government record search report is included in its entirety in Appendix E.

Federal NPL List

The Environmental Protection Agency's (EPA) National Priorities List (NPL) of uncontrolled or abandoned hazardous waste sites was reviewed for risk sites within a 1 mile radius of the subject property. The NPL identifies sites for priority cleanup and long-term care of properties under the Superfund Program that are contaminated with hazardous substances.

The database search did not identify any NPL sites within 1 mile of the subject property.

Federal CERCLIS List

The EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) listings were reviewed to determine if risks sites within ½ mile are listed for investigation. The CERCLIS database identifies hazardous waste sites that are on or proposed to be included in the NPL and sites that require investigation and possible remedial action to mitigate potential negative impacts on human health or the environment.

The CERCLIS database search did not identify any risk sites within 0.5 mile of the subject property.

Federal CERCLIS – No Further Remedial Action Planned

The EPA's CERCLIS – No Further Remedial Action Planned (NFRAP) database was reviewed to determine if risks sites within ½ mile are listed. CERCLIS NFRAP site are risk sites that have been removed from and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at the subject property has been completed and the EPA has determined that no further steps will be taken to list this subject property on the NPL, unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time.

This designation is for sites where no contamination was found, contamination was quickly removed without the need for the subject property to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.

The CERCLIS – NFRAP database search did not identify any risk sites within ½mile of the subject property.

Federal RCRA List

The Federal Resource Conservation Recovery Act (RCRA) Notifiers List was reviewed to determine if RCRA treatment, storage or disposal sites (TSD) are located within 1 mile of the subject property. The RCRA Correction Action Sites List (CORRACTS) is maintained for risk sites which are undergoing "a corrective action". A corrective action order is issued when there has been a release of hazardous waste constituents into the environment from a RCRA facility.

The RCRA and RCRA CORRACTS database searches did not identify any RCRA TSD or RCRA CORRACTS risk sites within ½ mile of the subject property.

The RCRA regulated hazardous waste generator notifiers list was reviewed to determine if RCRA generator facilities are located on or adjoining the subject property. No RCRA generator facilities within ¼ mile of the subject property were identified in the database.

Federal ERNS List

The Federal Emergency Response Notification System (ERNS) List was reviewed to determine if reported release of oil and/or hazardous substances occurred on the subject property.

The ERNS database searches did not identify any reported releases for the subject property.

State and Tribal NPL List

The Environmental Protection Agency's (EPA) National Priorities List (NPL) of uncontrolled or abandoned hazardous waste sites was reviewed for risk sites within a 1 mile radius of the subject property. The NPL identifies sites for priority cleanup and long-term care of properties under the Superfund Program that are contaminated with hazardous substances.

The database search did not identify any NPL sites within 1 mile of the subject property.

State and Tribal equivalent CERCLIS

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

The EnviroStor database search did not identify any reported releases for the subject property.

State and Tribal Leaking Underground Storage Tank Sites

The California State Water Resources Control Board (SWRCB) maintains a list of information concerning reported leaking underground storage tanks (LUST). The LUST inventory list was reviewed to determine if any LUSTs are located within ½ mile the subject property.

The SWRCB LUST database did not identify any risk sites within ½ mile of the subject property.

State and Tribal Underground and Aboveground Storage Tank Sites

The California State Water Resource Control Board (SWRCB) underground storage tank (UST) and above ground storage tank (AST) inventory list was reviewed to determine if any UAST's are located on or adjacent to the subject property.

The SWRCB UST and AST databases did not identify any risk sites within ¼ mile of the subject property.

Solid Waste Disposal/Landfill Facilities

The Solid Waste Disposal/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data comes from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list database did not identify any risk sites within ½ mile of the subject property.

Unmapped (Orphan) Sites

Not all sites or facilities identified in the database records can be accurately located in relation to the Subject Property due to incomplete information being supplied to the regulatory agencies and are referred to as "orphan sites" by EDR.

The "Orphan Summary" section of the EDR Radius Map Report identified several orphan sites. Based on a drive-by reconnaissance of the Subject Property vicinity and review of location and status information provided in the database report, none of the identified orphan sites are located within the search radii for databases specified by the Standard.

No unmapped (orphan) listings were reported.

4.1.2 Additional Environmental Record Sources

California Department of Toxic Substances Control (DTSC) Records – Envirostor Database: EnviroStor is an online search and Geographic Information System tool for identifying sites that have known contamination or sites for which there may be reasons to investigate further. Public Access to EnviroStor is accessible via the DTSC Web Page located at: <http://www.envirostor.dtsc.ca.gov/public/>. The EnviroStor database includes the following site types: Federal Superfund sites (National Priority List); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. The information includes site name, site type, status, address, any restricted use (recorded deed restrictions), past use(s) that caused contamination, potential contaminants of concern, potential environmental media affected, site history, planned and completed activities. The EnviroStor database also contains current and historical information relating to Permitted and Corrective Action facilities. The EnviroStor database includes current and historical information on the following permit-related documents: facility permits; permit renewal applications; permit modifications to an existing permit; closure of hazardous waste management units (HWMUs) or entire facilities; facility corrective action (investigation and/or cleanup); and/or post-closure permits or other required post-closure activities.

The EnviroStor database was queried on September 9, 2020. A map showing the results of the query is provided in Appendix F. No reported cases were found on the subject property. No risk sites were located within 1 mile of the subject property.

California State Water Resources Control Board Records – GeoTracker Database: GeoTracker is a geographic information system (GIS) maintained by the California State Water Resources Control Board (SWRCB) that provides online access to environmental data at <http://www.geotracker.swrcb.ca.gov>. GeoTracker tracks regulatory data about underground fuel tanks, fuel pipelines, and public drinking water supplies. Site information from the Spills, Leaks, Investigations, and Cleanups (SLIC) Program is also included in GeoTracker.

The GeoTracker database was queried for environmental data pertaining to the Subject property on September 9, 2020. A map showing the results of the query is provided in Appendix F. No reported cases were found on the subject property. No risk sites were located within 1 mile of the subject property.

CUPA Records Search: The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of six environmental and emergency response programs. Cal/EPA and other state agencies set the standards for their programs while local governments implement the standards—these local implementing agencies are called Certified Unified Program Agencies (CUPA).

The DTSC Imperial CUPA office was contacted (Veronica Lopez) by email on September 9, 2020. CUPA records were searched for environmental issues related to the subject property. The DTSC indicated that records are filed per address, and with no known address associated with the subject property, no records were found associated with the subject property.

4.2 Historical Use Records

ASTM E1527-13 requires the environmental professional to identify all obvious uses of the property from the present back to the property's first developed use or 1940, whichever is earliest. This information is collected to identify the likelihood that past uses have led to RECs in connection with the property. This task is accomplished by reviewing standard historical sources to the extent that they are necessary, reasonably ascertainable, and likely to be useful. These standard records include aerial photographs, fire insurance maps, property tax files, land title records, topographic maps, city directories, telephone directories, building department records, and zoning/land use records.

The general type of historical use (i.e., commercial, retail, residential, industrial, undeveloped, office) should be identified at 5-year intervals, unless the specific use of the property appears to be unchanged over a period longer than 5 years. The historical research is complete when the use is defined or when data failure occurs. Data failure occurs when all of the standard historical sources have been reviewed, yet the property use cannot be identified back to its first developed use or to 1940. Data failure is not uncommon in trying to identify the use of the property at 5-year intervals back to first use or 1940, whichever is earlier.

GS Lyon reviewed the following historical records to identify obvious uses of the subject property from the present back to the property's first developed use, or to 1940, whichever is earlier. The results of this research and data failure, if encountered, are presented in the following sections.

4.2.1 Title Records

GS Lyon was provided with preliminary title records for review as part of this assessment.

4.2.2 Sanborn Fire Insurance Maps

Sanborn Fire Insurance Maps are large scale maps depicting the commercial, industrial, and residential sections of various cities across the United States. Since the primary use of the fire insurance maps was to assess the buildings that were being insured, the existence and location of fuel storage tanks, flammable or other potentially toxic substances, and the nature of businesses are often shown on these maps. Due to the rural undeveloped nature of the subject property and vicinity for the years the Sanborn Fire Insurance Maps were available for this subject property, no maps are available for the subject property.

4.2.3 Aerial Photographs

Aerial photographs obtained from Environmental Data Resources (EDR) dating back to 1937 and Google Earth aerial photographs dating back to 1996 were reviewed for historical development of the subject property. Reproductions of the historical aerial photographs reviewed are included in Appendix C.

The 1937 aerial shows the western portion of the subject site as appearing to be a fallow agricultural field. The eastern portion is vacant desert land. The recently constructed All American Canal (Bureau of Reclamation – Boulder Canyon Project – 1933) is located north of the subject site. Two canals cross the All American Canal and the western portion of the subject site from Mexico.

The 1953 aerial photograph shows the western portion of the subject site as being a fallow agricultural field. The canals that crossed the All American Canal have been removed leaving a heavily brushed area in the western portion of the subject site. The eastern portion is still vacant desert land.

The 1976 aerial photograph is similar to the 1953 aerial photograph.

The 1985 aerial photograph shows a circular agricultural area occupying the eastern portion of the subject site. This is the location of the center-pivot sprinkler. The eastern portion of the subject site is vacant with overgrown brush.

The 1996, 2002, 2006 and 2010 aerial photographs are similar to the 1985 aerial photograph. Several small structures are noted in the area of the farm yard in the north-central portion of the subject site.

The 2014 aerial photograph shows that additional desert land to the west of the circular field has been cleared for agricultural use. Standing water (All American Canal seepage) and surficial salts are noted in the western portion of the subject site.

The 2018 aerial photograph shows the subject site as being similar to the present time. The agricultural fields have been fallowed.

4.2.4 Street Directories

GS Lyon Consultants conducted a search of historic city directories for the subject property. City directories are used for locating individuals and businesses in a particular urban or suburban area. City directories are generally divided into three sections: a business index, a list of resident names and addresses, the name and type of businesses (if unclear from the name). While city directory coverage is comprehensive for major cities, it may be spotty for rural and small towns.

Polk City Directories: The Polk City Directories for the years 1965 and 1983 were reviewed. No listings were found for the subject property.

4.2.5 Historic Topographic Maps

Historic topographic maps (1907, 1940, 1947, 1957, 1976, and 2012), USGS 7.5 Min. Bonds Corner, CA Quadrangle, showed the subject property as being undeveloped (Appendix D). The All American Canal was not present in the 1907 topographic map, but appears in the 1940 map. The canal was constructed in the 1930s as part of the US Bureau of Reclamation – Boulder Canyon Project.

4.2.6 Historical Telephone Directories

Telephone Directories: Telephone directories for the Imperial County, which included the City of Calexico businesses published in 1941, 1955, 1965, 1974, 1994, and 2004 were reviewed. No service stations, chemical or petroleum manufacturers, distributors, or automotive repair facilities were noted at or in the immediate vicinity of the subject site.

4.3 Historical Use Summary

4.3.1 Summary of the Historical Use of Property

Based on a review of the historical information, the western portion of the subject property was first developed prior to 1937 for agricultural use, but has been fallow since at least 1937. The eastern portion of the subject site has been vacant desert land until about 1980 when a center-pivot irrigation system was installed and a circular agricultural field was developed.

4.3.2 Summary of the Historical Use of Adjacent Properties

Historically, the properties located immediately adjacent to the subject property have been comprised of vacant desert land to the east, the Republic of Mexico to the south, and the All American Canal and agricultural fields to the north.

5.0 SITE RECONNAISSANCE

5.1 Methodology and Limiting Conditions

A site reconnaissance was performed by Mr. Steven Williams, a consulting geologist to GS Lyon Consultants, on September 22, 2020. The site visit consisted of a driving the perimeter of the subject property and randomly crossing the subject property. The reconnaissance included visual observations of surficial conditions at the subject property and observation of adjoining properties to the extent that they were visible from public areas. Mr. Williams was accompanied during the site reconnaissance by Ramon Gonzalez, a representative for Apex Energy Solutions, LLC.

The site reconnaissance was limited to visual and/or physical observation of the exterior and interior of the subject property and its improvements, the current uses of the property and adjoining properties, and the current condition of the property. The site visit evaluated the subject property and adjoining properties for potential hazardous materials/waste and petroleum product use, storage, disposal, or accidental release, including the following: presence of tank and drum storage; mechanical or electrical equipment likely to contain liquids; evidence of soil or pavement staining or stressed vegetation; ponds, pits, lagoons, or sumps; suspicious odors; fill and depressions; or any other condition indicative of potential contamination. The site visit did not evaluate the presence of asbestos-containing materials, radon, lead-based paint, mold, indoor air quality, or structural defects, or other non-scope items.

A site reconnaissance can be limited by weather conditions, bodies of water, adjacent buildings, or other obstacles. The weather was warm and sunny and no access limitations were placed on the site visit.

5.2 General Site Setting

The subject property currently consists of approximately 530 acres comprised of three parcels (APNs 059-299-010, 059-300-017, and 059-300-015). The subject property is roughly triangular in plan view with the All American Canal forming the northern boundary, the International Border with the Republic of Mexico forming the southern boundary and vacant desert land forming the eastern boundary. The majority of the subject site has been cleared of desert vegetation for agricultural use. The western wedge and a small area in the north-central portion of the site are heavily vegetated.

A farm yard is located in the north-central portion of the subject site. A small masonry building housing water pumps, an above ground fuel storage tank (AST) and a storage building, all located within a chain-link fenced area comprise the farm yard. A bank of pole mounted transformers is located on the embankment of the All American Canal adjacent to the farm yard. A small equipment storage area with a disk, a trap wagon, and other miscellaneous farm implements is located northeast of the farm yard area. There are two central-pivot sprinklers that are located in the central portion of the site.

Photographs of the subject property taken on September 22, 2020 during our site reconnaissance are included in Appendix A.

5.3 Adjacent Properties

The subject property is located within a mixed agricultural and undeveloped desert area south of Holtville, California. Adjacent properties consist of the International Border with the Republic of Mexico along the southern boundary of the subject site and the All American Canal along the northern margin of the subject site.

5.4 Exterior and Interior Observations

The following conditions were specifically assessed for their potential to indicate RECs and may include conditions inside or outside structures on the subject property.

5.4.1 Hazardous Substances and Petroleum Products

GS Lyon did not observe operations that use, treat, store, dispose of, or generate hazardous materials or petroleum products on the subject property.

5.4.2 Storage Tanks

Underground Storage Tanks (USTs) – No obvious visual evidence indicating the current presence of USTs (i.e. vent pipes, fill ports, etc.) was noted.

Aboveground Storage Tanks (ASTs) – One (1) above ground fuel tank (AST) was observed within the fenced farm yard. Access to the tank was not available to determine if it contained fuel.

5.4.3 Odors

No obvious strong, pungent, or noxious odors were noted during the site reconnaissance.

5.4.4 Pools of Liquid

Pools of liquid were not observed during the site reconnaissance.

5.4.5 Drums and Containers

GS Lyon observed several steel 55-gallon drums on the subject property. No fluids were observed in the drums that were accessible.

5.4.6 Unidentified Substance Containers

GS Lyon did not observe open or damaged containers containing unidentified substances at the subject property.

5.4.7 Suspect Polychlorinated Biphenyl (PCB) Containing Equipment

Pole-mounted sealed electrical transformers owned and maintained by the Imperial Irrigation District (IID) are located on the embankment of the All American Canal adjacent to the farm yard on the subject property. In recent years, the IID has replaced all transformers that contained PCBs. Stickers were observed on the transformers that indicated that they had been tested for PCBs. No leaks were noted during our site visit.

5.5 Interior Observations

Access to the pump building within the fenced farm yard was not obtainable; therefore, interior observations were not made of the structure.

5.6 Exterior Observations

5.6.1 Pits, Ponds, and Lagoons

No pits, ponds, or lagoons were noted on the subject property.

5.6.2 Stained Soils or Pavement

No evidence of significantly stained soil or pavement was noted on the subject property.

5.6.3 Stressed Vegetation

No evidence of stressed vegetation attributed to potential contamination was noted on the subject property.

5.6.4 Solid Waste

No dumpsters or solid waste containers exist on the subject property.

5.6.5 Wastewater

No wastewater is generated at the subject property.

5.6.6 Wells

No evidence of wells (dry wells, drinking water, observation wells, groundwater monitoring wells, irrigation wells, injection wells or abandoned wells) was noted on the subject property. Water for the center-pivot sprinkler system was supplied from the All American Canal.

5.6.7 Septic Systems

No septic systems are present on the subject property.

5.7 Non-Scope Issues

ASTM guidelines identify non-scope issues, which are beyond the scope of a Phase I ESA as defined by ASTM. These issues may affect environmental risk at the subject property and may warrant discussion and/or assessment. Some of these non-scope issues include; asbestos-containing building materials, radon, lead-based paint, and wetlands which are discussed below.

5.7.1 Asbestos-Containing Building Materials

The potential for asbestos containing materials (ACM) existing at the subject property is low due to the lack of structures other than the small masonry structure at the farm yard.

5.7.2 Lead-Based Paint

The potential or lead based paint residues existing at the subject property is very low due to the lack of development other than the small masonry structure at the farm yard.

5.7.3 Radon

The subject property is located in Zone 3 as shown on the EPA Map of Radon Zones indicating a predicted average indoor radon screening level of less than 2 pCi/L. Radon gas is not believed to be a potential hazard at the subject property.

5.7.4 Agricultural Use

Based on our review of environmental records, historical documents, and subject property conditions, the property has been in agricultural use and/or vacant since the 1930's. Residues of currently available pesticides and currently banned pesticides such as DDT/DDE may be present in near surface soils in limited concentrations. The concentrations of these pesticides found on other Imperial Valley agricultural sites are typically less than 25% of the current regulatory threshold limits and, at those levels, are not considered a significant environmental hazard. The presence and concentration of near surface pesticides at this subject property can be accurately characterized only by site-specific sampling and testing.

6.0 INTERVIEWS

GS Lyon interviewed various individuals familiar with the subject property, as identified to us, and/or government officials in order to evaluate historical uses and identify potential RECs existing on the subject property. The individuals interviewed were asked to provide responses in good faith and to the best of their knowledge. The following sections identify the individuals interviewed and summarize the information each provided; however, additional information provided by these individuals may be presented in other sections of this report.

Interviews with past owners, operators and occupants were not reasonably ascertainable and thus constitute a data gap.

6.1 Interview with Owner

GS Lyon we not able to contact the current property owner; therefore, no interview was conducted.

6.2 Interview with the Site Manager

The subject property is vacant, undeveloped land; therefore, there is no site manager.

6.3 Interview with Occupants

The subject property is vacant, undeveloped land; therefore, there are no occupants.

6.4 Interview with Local Government Officials

The DTSC Imperial CUPA office was contacted (Veronica Lopez) by email on September 9, 2020. CUPA records were searched for environmental issues related to the subject property. The DTSC indicated that records are filed per address, and with no known address associated with the subject property, no records were found associated with the subject property.

7.0 EVALUATION

7.1 Summary of Findings

The subject property is located in an area generally developed for agricultural use east of Calexico, California. The western portion of the subject property has been developed as agricultural use since at least the 1930s according to the historical information obtained and reviewed during this site assessment. The eastern portion of the site was vacant desert land until about 1980 when a portion was developed for agricultural use.

7.2 Conclusions

GS Lyon has performed a Phase I Environmental Site Assessment in general conformance with the scope and limitations of ASTM E1527-13 of the approximately 530-acre property located on the south side of the All American Canal at Bonesteele Road approximately 10 miles south of Holtville, California. Any exceptions to, or deviations from, this practice are described in Section 1.4 of this Phase I ESA report. This assessment has revealed the following recognized environmental conditions (RECs) in connection with the subject property:

7.2.1 Recognized Environmental Conditions

A *recognized environmental condition (REC)* refers to the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term REC includes hazardous substances and petroleum products even under conditions that might be in compliance with laws. The term is not intended to include "de minimis" conditions as defined in Section 7.2.3 of this report.

This Phase I ESA has revealed no evidence of *recognized environmental conditions* in connection with the subject property.

7.2.2 Historical Recognized Environmental Conditions

A *historical recognized environmental condition (HREC)* refers to a past *release* of any *hazardous substances* or *petroleum products* that has occurred in connection with the *property* and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the *property* to any required controls (for example, *property* use restrictions, *activity and use limitations*, *institutional controls*, or *engineering controls*).

This Phase I ESA has revealed no evidence of *historical recognized environmental conditions* in connection with the subject property.

7.2.3 Environmental Concerns and De Minimis Conditions

A *de minimis condition* is a condition that generally does not present a threat to human health or the *environment* and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis conditions* are not *recognized environmental conditions* nor *controlled recognized environmental conditions*.

This Phase I ESA has revealed the following *de minimis* conditions or environmental concerns in connection with the subject property:

1. Pole-mounted sealed electrical transformers owned and maintained by the Imperial Irrigation District (IID) exist on the margin of this subject property. All IID transformers containing PCB's have been replaced. ***If the transformers begin to leak, the IID should be notified and the transformers replaced.***
2. An aboveground fuel tank is located within the fenced farm yard area. If it is shown that spills or leaks had occurred, the affected soil should be cleaned up and properly disposed.

7.3 Recommendations

Based on the scope of work performed for this assessment, it is our professional opinion that no RECs have been identified in connection with the subject property that would warrant further environmental study (Phase II) at this time.

8.0 REFERENCES

40 CFR 312, Standards and Practices for All Appropriate Inquiries; Final Rule, November 2005 (AAI Rule).

American Society for Testing and Materials. 2013. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. Designation E 1527-13. West Conshohocken, Pennsylvania. 35 pp.

Department of Toxic Substances Control. 2020. EnviroStor Database Website, <http://www.envirostor.dtsc.ca.gov/public/> .

Environmental Data Resources, Inc., *The EDR Radius Map with Geocheck*. Inquiry number 6171645, dated August 28, 2020

Environmental Data Resources, Inc., *EDR Historical Topographic Map Report*. Inquiry number 6171645, dated August 28, 2020

Environmental Data Resources, Inc., *The EDR Aerial Photo Decade Package*. Inquiry number 6171645, dated August 28, 2020

State Water Resources Control Board. 2020. GeoTracker Database Website, <http://geotracker.swrcb.ca.gov/>

United States Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey, accessed via the Internet, September 2020

United States Environmental Protection Agency, EPA Map of Radon Zones (Document EPA-402-R-93-071), accessed via the Internet, September 2020

United States Geological Survey Topographic Map 1997, 7.5 minute series

APPENDIX A



Photo 1: Looking northeast along the northern boundary of the subject site.



Photo 2: View of center-pivot sprinkler near the north-central portion of the site.



Photo 3: Masonry block pump house located at the north-central portion of the subject site.



Photo 4: Clos-up view of pump house and transformer bank.



Photo 5: Above ground fuel tank (AST) within farm yard.



Photo 6: Miscellaneous building near farm yard.



Photo 7: Farm equipment storage area east of farm yard.



Photo 8: Close-up view of farm equipment.



Photo 9: Close-up view of transformer bank. IID stickers show the transformers have been tested for PCBs.



Photo 10: Looking east across the site from the west margin of the subject site.



Photo 11: Looking south along the west margin of the subject site.



Photo 12: Looking east along the southern boundary of the subject site.



Photo 13: Looking west from the east-central portion of the subject site.



Photo 14: Looking north across the subject property.

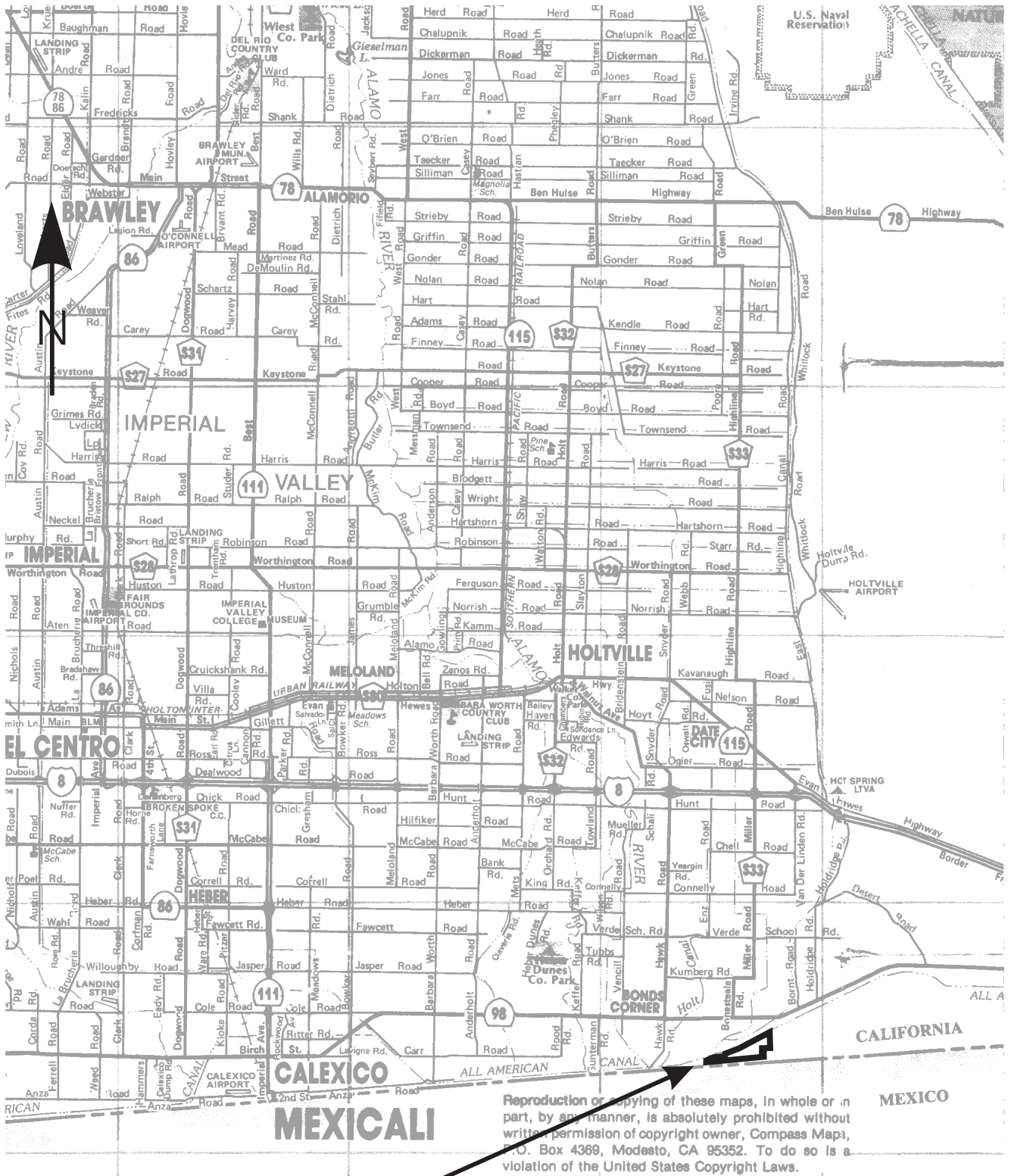


Photo 15: Looking north from the southeast corner of the subject site.



Photo 16: Looking west along the southern margin of the subject property. The United States border fence and Border Patrol road on left side of the photo.

APPENDIX B



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Subject Site



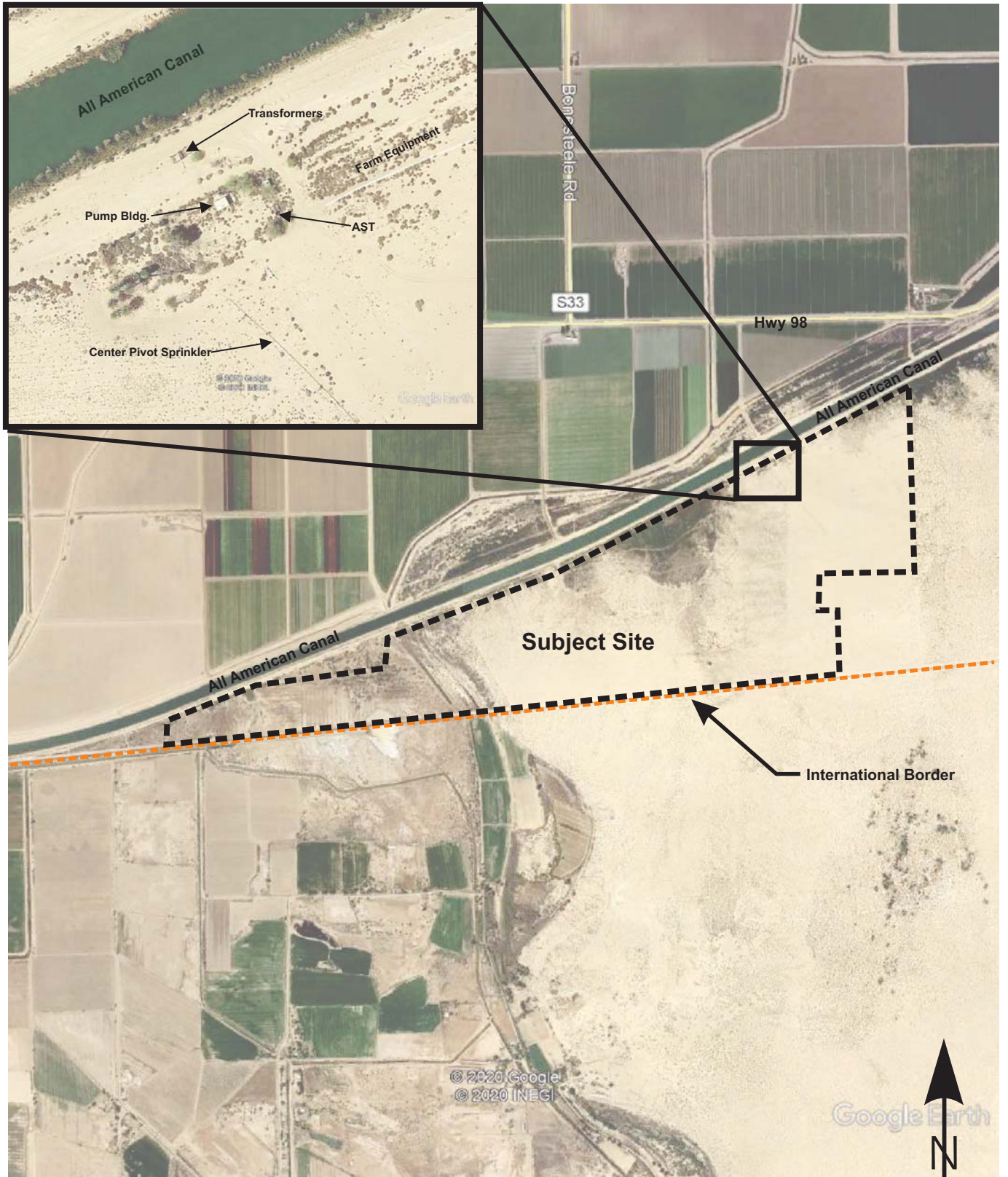
Project No.: GS2015

Vicinity Map

Plate

1

INFO ITEM ONLY



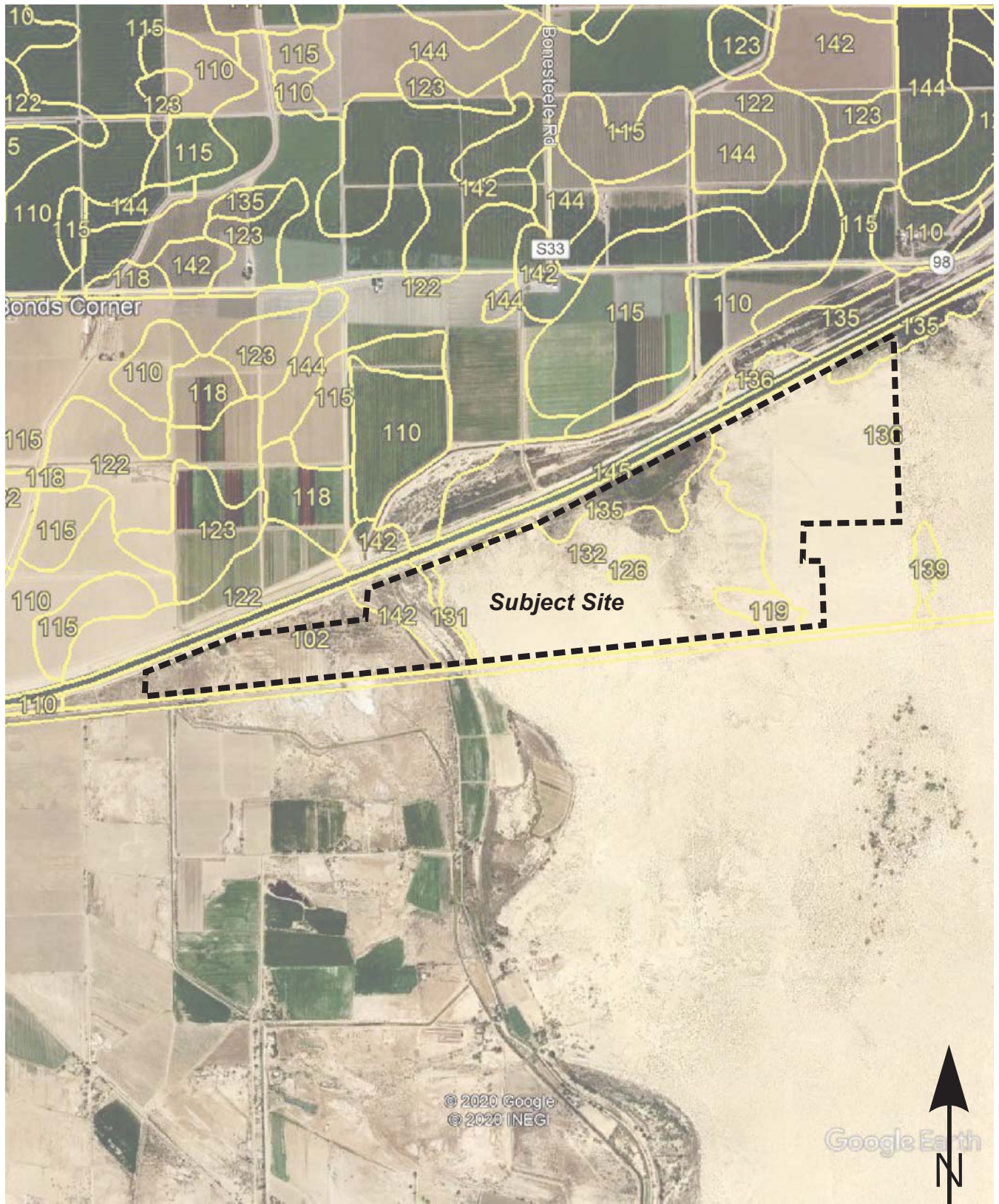
GS Lyon

Project No.: GS2015

Site Map

Plate
2

INFO ITEM ONLY



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GS Lyon

Project No.: GS2015

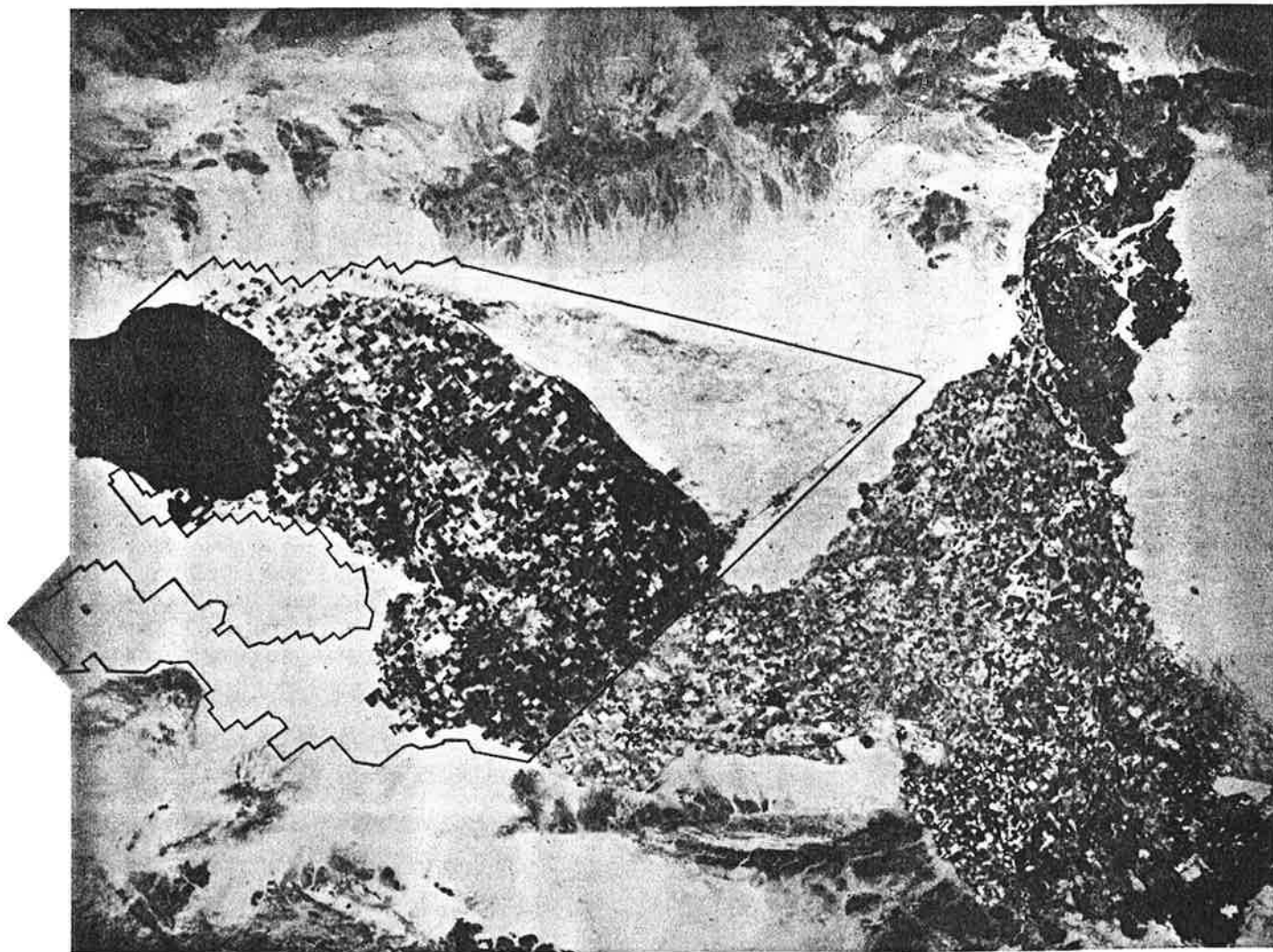
Soil Survey Map

Plate
3

INFO ITEM ONLY

Soil Survey of

**IMPERIAL COUNTY
CALIFORNIA
IMPERIAL VALLEY AREA**



United States Department of Agriculture Soil Conservation Service
in cooperation with
University of California Agricultural Experiment Station
and
Imperial Irrigation District

INFO ITEM ONLY

TABLE 11.--ENGINEERING INDEX PROPERTIES

[The symbol > means more than. Absence of an entry indicates that data were not estimated]

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
100----- Antho	0-13 13-60	Loamy fine sand Sandy loam, fine sandy loam.	SM SM	A-2 A-2, A-4	0 0	100 90-100	100 75-95	75-85 50-60	10-30 15-40	--- ---	NP NP
101*: Antho-----	0-8 8-60	Loamy fine sand Sandy loam, fine sandy loam.	SM SM	A-2 A-2, A-4	0 0	100 90-100	100 75-95	75-85 50-60	10-30 15-40	--- ---	NP NP
Superstition-----	0-6 6-60	Fine sand----- Loamy fine sand, fine sand, sand.	SM SM	A-2 A-2	0 0	100 100	95-100 95-100	70-85 70-85	15-25 15-25	--- ---	NP NP
102*. Badland											
103----- Carsitas	0-10 10-60	Gravelly sand--- Gravelly sand, gravelly coarse sand, sand.	SP, SP-SM SP, SP-SM	A-1, A-2 A-1	0-5 0-5	60-90 60-90	50-85 50-85	30-55 25-50	0-10 0-10	--- ---	NP NP
104* Fluvaquents											
105----- Glenbar	0-13 13-60	Clay loam----- Clay loam, silty clay loam.	CL CL	A-6 A-6	0 0	100 100	100 100	90-100 90-100	70-95 70-95	35-45 35-45	15-30 15-30
106----- Glenbar	0-13 13-60	Clay loam----- Clay loam, silty clay loam.	CL CL	A-6, A-7 A-6, A-7	0 0	100 100	100 100	90-100 90-100	70-95 70-95	35-45 35-45	15-25 15-25
107*----- Glenbar	0-13 13-60	Loam----- Clay loam, silty clay loam.	ML, CL-ML, CL	A-4 A-6, A-7	0 0	100 100	100 100	100 95-100	70-80 75-95	20-30 35-45	NP-10 15-30
108----- Holtville	0-14 14-22 22-60	Loam----- Clay, silty clay Silt loam, very fine sandy loam.	ML CL, CH ML	A-4 A-7 A-4	0 0 0	100 100 100	100 100 100	85-100 95-100 95-100	55-95 85-95 65-85	25-35 40-65 25-35	NP-10 20-35 NP-10
109----- Holtville	0-17 17-24 24-35 35-60	Silty clay----- Clay, silty clay Silt loam, very fine sandy loam. Loamy very fine sand, loamy fine sand.	CL, CH CL, CH ML SM, ML	A-7 A-7 A-4 A-2, A-4	0 0 0 0	100 100 100 100	100 100 100 100	95-100 95-100 95-100 75-100	85-95 85-95 65-85 20-55	40-65 40-65 25-35 ---	20-35 20-35 NP-10 NP
110----- Holtville	0-17 17-24 24-35 35-60	Silty clay----- Clay, silty clay Silt loam, very fine sandy loam. Loamy very fine sand, loamy fine sand.	CH, CL CH, CL ML SM, ML	A-7 A-7 A-4 A-2, A-4	0 0 0 0	100 100 100 100	100 100 100 100	95-100 95-100 95-100 75-100	85-95 85-95 55-85 20-55	40-65 40-65 25-35 ---	20-35 20-35 NP-10 NP

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
111*: Holtville-----	0-10	Silty clay loam	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-35
	10-22	Clay, silty clay	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-35
	22-60	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	65-85	25-35	NP-10
Imperial-----	0-12	Silty clay loam	CL	A-7	0	100	100	100	85-95	40-50	10-20
	12-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
112-----	0-12	Silty clay-----	CH	A-7	0	100	100	100	85-95	50-70	25-45
Imperial	12-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
113-----	0-12	Silty clay-----	CH	A-7	0	100	100	100	85-95	50-70	25-45
Imperial	12-60	Silty clay, clay, silty clay loam.	CH	A-7	0	100	100	100	85-95	50-70	25-45
114-----	0-12	Silty clay-----	CH	A-7	0	100	100	100	85-95	50-70	25-45
Imperial	12-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
115*: Imperial-----	0-12	Silty clay loam	CL	A-7	0	100	100	100	85-95	40-50	10-20
	12-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
Glenbar-----	0-13	Silty clay loam	CL	A-6, A-7	0	100	100	90-100	70-95	35-45	15-25
	13-60	Clay loam, silty clay loam.	CL	A-6, A-7	0	100	100	90-100	70-95	35-45	15-25
116*: Imperial-----	0-13	Silty clay loam	CL	A-7	0	100	100	100	85-95	40-50	10-20
	13-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
Glenbar-----	0-13	Silty clay loam	CL	A-6, A-7	0	100	100	90-100	70-95	35-45	15-25
	13-60	Clay loam, silty clay loam.	CL	A-6	0	100	100	90-100	70-95	35-45	15-30
117, 118-----	0-12	Loam-----	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
Indio	12-72	Stratified loamy very fine sand to silt loam.	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
119*: Indio-----	0-12	Loam-----	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
	12-72	Stratified loamy very fine sand to silt loam.	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
Vint-----	0-10	Loamy fine sand	SM	A-2	0	95-100	95-100	70-80	25-35	---	NP
	10-60	Loamy sand, loamy fine sand.	SM	A-2	0	95-100	95-100	70-80	20-30	---	NP
120*: Laveen	0-12	Loam-----	ML, CL-ML	A-4	0	100	95-100	75-85	55-65	20-30	NP-10
	12-60	Loam, very fine sandy loam.	ML, CL-ML	A-4	0	95-100	85-95	70-80	55-65	15-25	NP-10

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

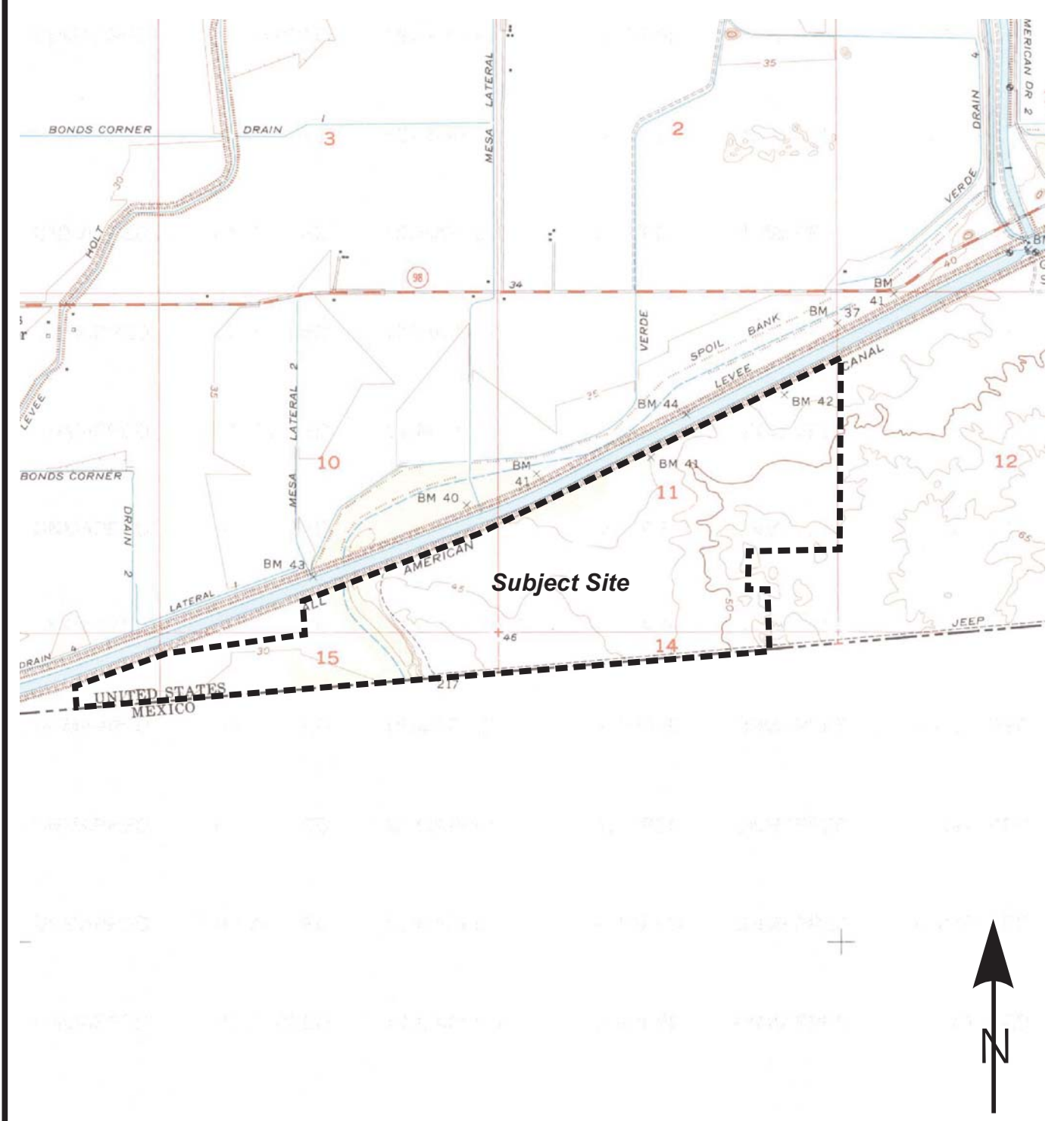
Soil name and map symbol	Depth In	USDA texture	Classification		Frag- ments > 3 inches Pct	Percentage passing sieve number--				Liquid limit Pet	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
121----- Meloland	0-12	Fine sand-----	SM, SP-SM	A-2, A-3	0	95-100	90-100	75-100	5-30	---	NP
	12-26	Stratified loamy fine sand to silt loam.	ML	A-4	0	100	100	90-100	50-65	25-35	NP-10
	26-71	Clay, silty clay, silty clay loam.	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-40
122----- Meloland	0-12	Very fine sandy loam.	ML	A-4	0	95-100	95-100	95-100	55-85	25-35	NP-10
	12-26	Stratified loamy fine sand to silt loam.	ML	A-4	0	100	100	90-100	50-70	25-35	NP-10
	26-71	Clay, silty clay, silty clay loam.	CH, CL	A-7	0	100	100	95-100	85-95	40-65	20-40
123*: Meloland-----	0-12	Loam-----	ML	A-4	0	95-100	95-100	95-100	55-85	25-35	NP-10
	12-26	Stratified loamy fine sand to silt loam.	ML	A-4	0	100	100	90-100	50-70	25-35	NP-10
	26-38	Clay, silty clay, silty clay loam.	CH, CL	A-7	0	100	100	95-100	85-95	40-65	20-40
	38-60	Stratified silt loam to loamy fine sand.	SM, ML	A-4	0	100	100	75-100	35-55	25-35	NP-10
Holtville-----	0-12	Loam-----	ML	A-4	0	100	100	85-100	55-95	25-35	NP-10
	12-24	Clay, silty clay	CH, CL	A-7	0	100	100	95-100	85-95	40-65	20-35
	24-36	Silt loam, very fine sandy loam.	ML	A-4	0	100	100	95-100	55-85	25-35	NP-10
	36-60	Loamy very fine sand, loamy fine sand.	SM, ML	A-2, A-4	0	100	100	75-100	20-55	---	NP
124, 125----- Niland	0-23	Gravelly sand---	SM, SP-SM	A-2, A-3	0	90-100	70-95	50-65	5-25	---	NP
	23-60	Silty clay, clay, clay loam.	CL, CH	A-7	0	100	100	85-100	80-95	40-65	20-40
126----- Niland	0-23	Fine sand-----	SM, SP-SM	A-2, A-3	0	90-100	90-100	50-65	5-25	---	NP
	23-60	Silty clay-----	CL, CH	A-7	0	100	100	85-100	80-95	40-65	20-40
127----- Niland	0-23	Loamy fine sand	SM	A-2	0	90-100	90-100	50-65	15-30	---	NP
	23-60	Silty clay-----	CL, CH	A-7	0	100	100	85-100	80-95	40-65	20-40
128*: Niland-----	0-23	Gravelly sand---	SM, SP-SM	A-2, A-3	0	90-100	70-95	50-65	5-25	---	NP
	23-60	Silty clay, clay, clay loam.	CL, CH	A-7	0	100	100	85-100	80-100	40-65	20-40
Imperial-----	0-12	Silty clay-----	CH	A-7	0	100	100	100	85-95	50-70	25-45
	12-60	Silty clay loam, silty clay, clay.	CH	A-7	0	100	100	100	85-95	50-70	25-45
129*: Pits											
130, 131----- Rositas	0-27	Sand-----	SP-SM	A-3, A-1, A-2	0	100	80-100	40-70	5-15	---	NP
	27-60	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2, A-1	0	100	80-100	40-85	5-30	---	NP

See footnote at end of table.

TABLE 11.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
132, 133, 134, 135-Rositas	0-9	Fine sand-----	SM	A-3, A-2	0	100	80-100	50-80	10-25	---	NP
	9-60	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2, A-1	0	100	80-100	40-85	5-30	---	NP
136-----Rositas	0-4	Loamy fine sand	SM	A-1, A-2	0	100	80-100	40-85	10-35	---	NP
	4-60	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2, A-1	0	100	80-100	40-85	5-30	---	NP
137-----Rositas	0-12	Silt loam-----	ML	A-4	0	100	100	90-100	70-90	20-30	NP-5
	12-60	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2, A-1	0	100	80-100	40-85	5-30	---	NP
138*: Rositas-----	0-4	Loamy fine sand	SM	A-1, A-2	0	100	80-100	40-85	10-35	---	NP
	4-60	Sand, fine sand, loamy sand.	SM, SP-SM	A-3, A-2, A-1	0	100	80-100	40-85	5-30	---	NP
Superstition-----	0-6	Loamy fine sand	SM	A-2	0	100	95-100	70-85	15-25	---	NP
	6-60	Loamy fine sand, fine sand, sand.	SM	A-2	0	100	95-100	70-85	15-25	---	NP
139-----Superstition	0-6	Loamy fine sand	SM	A-2	0	100	95-100	70-85	15-25	---	NP
	6-60	Loamy fine sand, fine sand, sand.	SM	A-2	0	100	95-100	70-85	15-25	---	NP
140*: Torriorthents											
Rock outcrop											
141*: Torriorthents											
Orthids											
142-----Vint	0-10	Loamy very fine sand.	SM, ML	A-4	0	100	100	85-95	40-65	15-25	NP-5
	10-60	Loamy fine sand	SM	A-2	0	95-100	95-100	70-80	20-30	---	NP
143-----Vint	0-12	Fine sandy loam	ML, CL-ML, SM, SM-SC	A-4	0	100	100	75-85	45-55	15-25	NP-5
	12-60	Loamy sand, loamy fine sand.	SM	A-2	0	95-100	95-100	70-80	20-30	---	NP
144*: Vint-----	0-10	Very fine sandy loam.	SM, ML	A-4	0	100	100	85-95	40-65	15-25	NP-5
	10-40	Loamy fine sand	SM	A-2	0	95-100	95-100	70-80	20-30	---	NP
	40-60	Silty clay-----	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-35
Indio-----	0-12	Very fine sandy loam.	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
	12-40	Stratified loamy very fine sand to silt loam.	ML	A-4	0	95-100	95-100	85-100	75-90	20-30	NP-5
	40-72	Silty clay-----	CL, CH	A-7	0	100	100	95-100	85-95	40-65	20-35

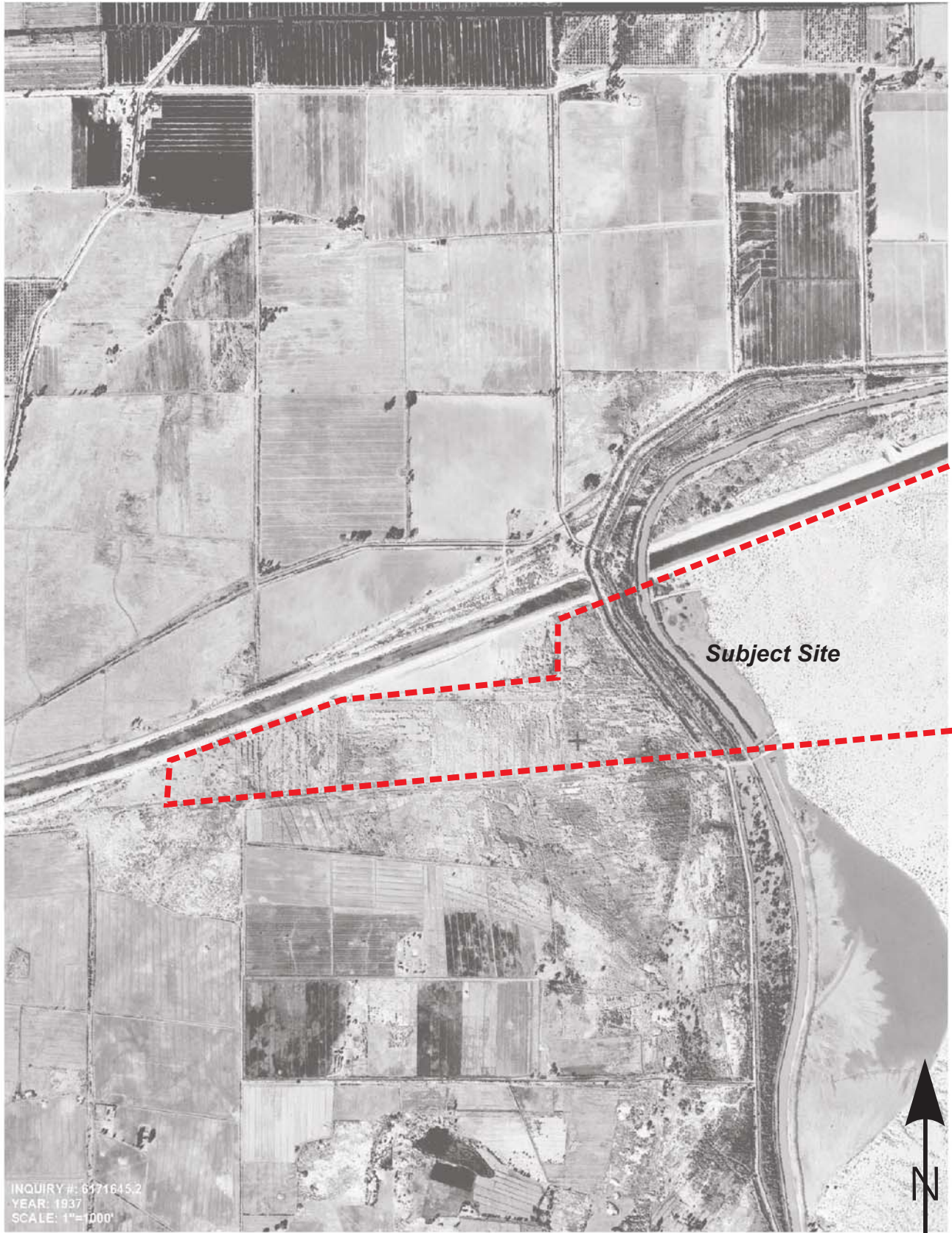
* See description of the map unit for composition and behavior characteristics of the map unit.



 <p>Project No.: GS2011</p>	<p>Topographic Map</p>	<p>Plate 4</p>
--	------------------------	--------------------

INFO ITEM ONLY

APPENDIX C



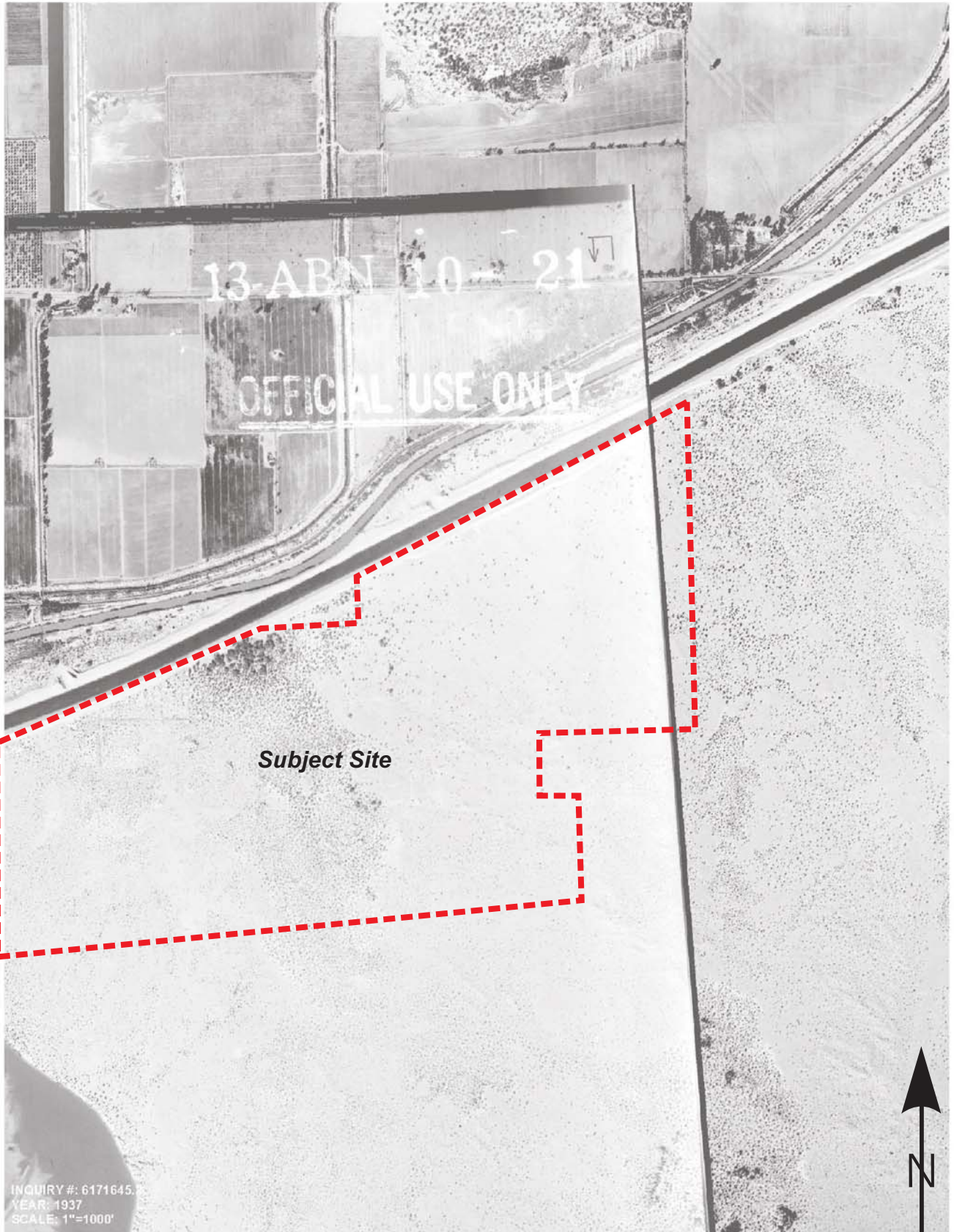
GS Lyon

Project No.: GS2015

1937 Aerial Photograph

Plate
5a

INFO ITEM ONLY



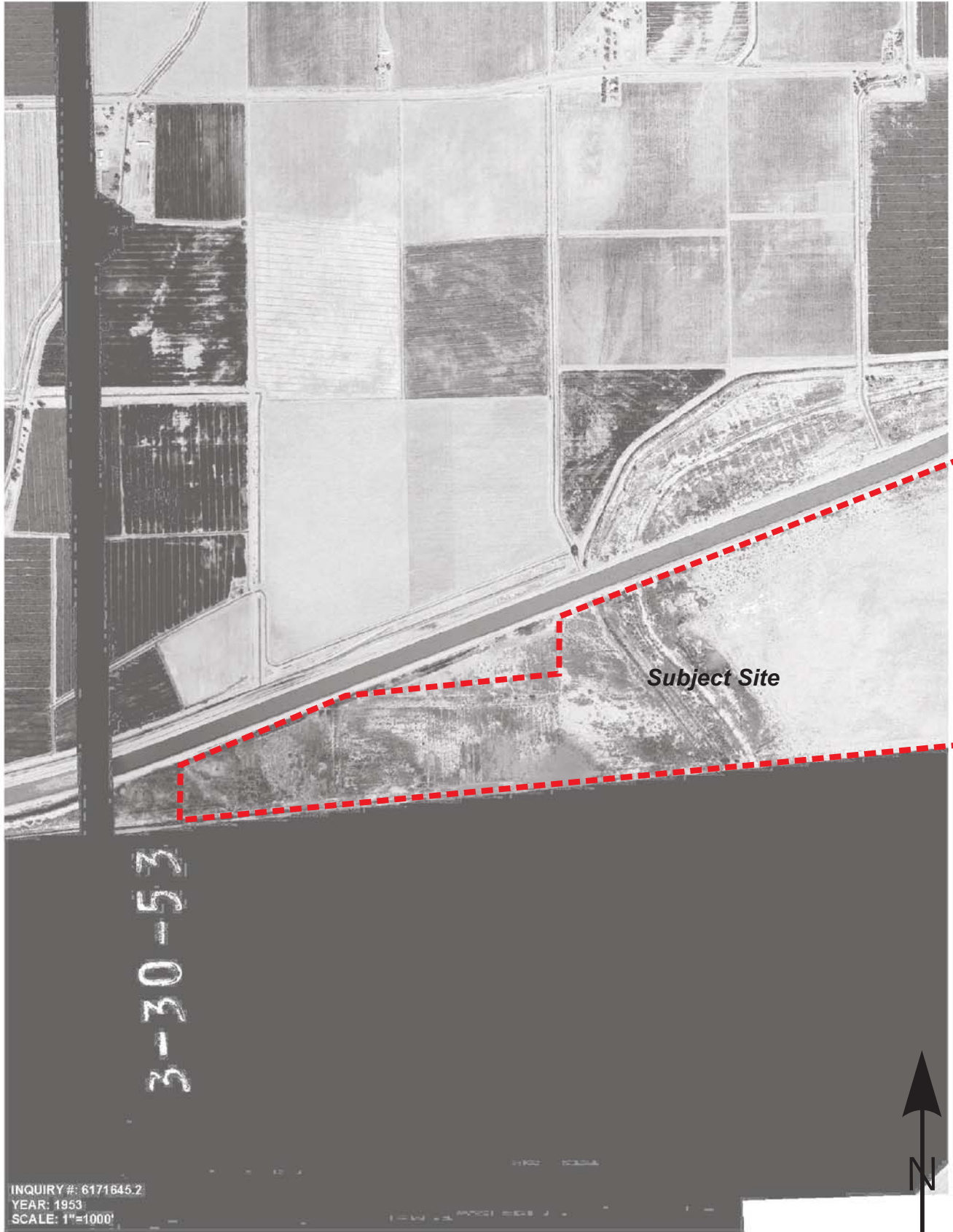
GS Lyon

Project No.: GS2015

1937 Aerial Photograph

Plate
5b

INFO ITEM ONLY



3-30-53

Subject Site

INQUIRY #: 6171645.2
YEAR: 1953
SCALE: 1"=1000'



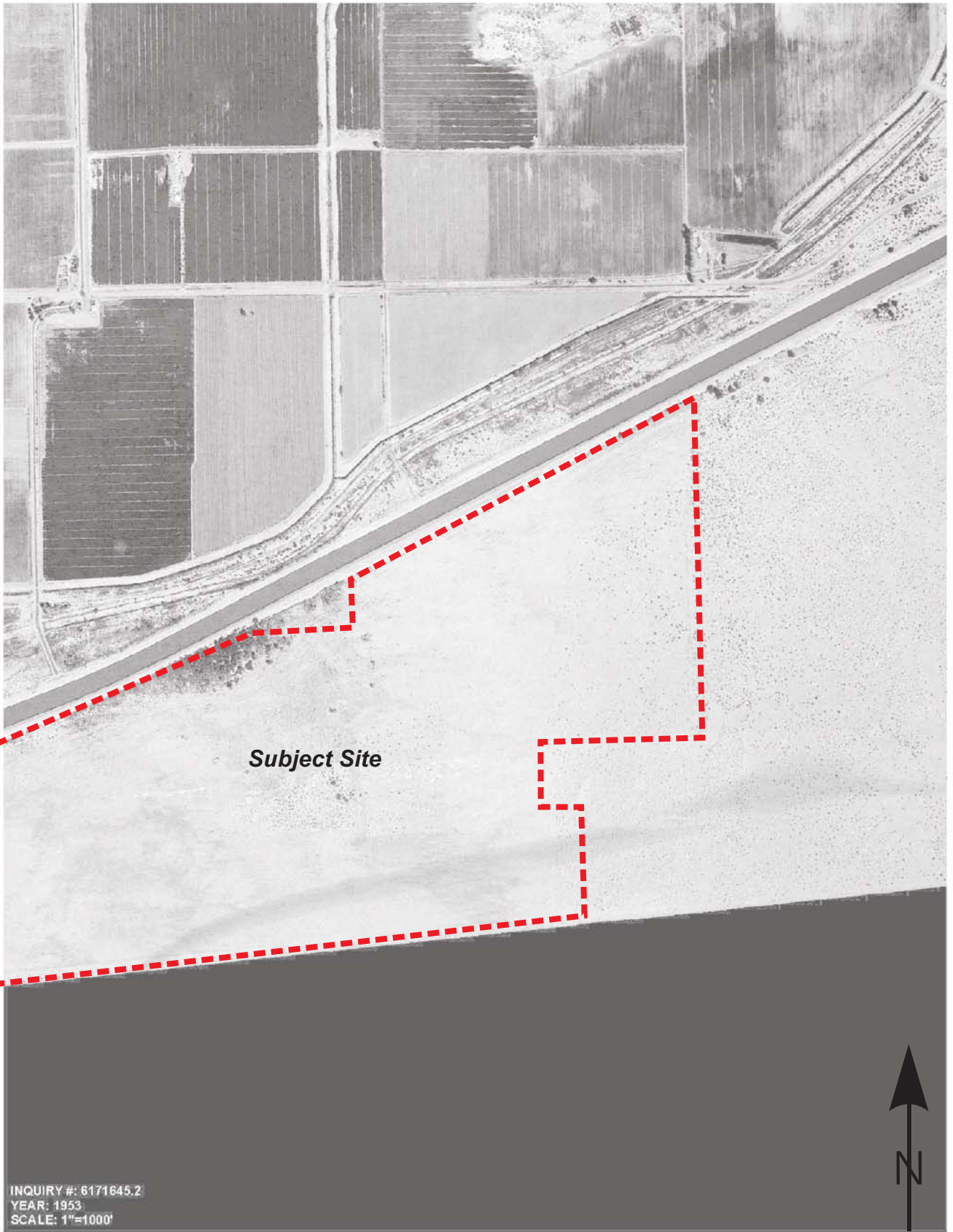
GS Lyon

Project No.: GS2015

1953 Aerial Photograph

Plate
6a

INFO ITEM ONLY



Subject Site

INQUIRY #: 6171645.2
YEAR: 1953
SCALE: 1"=1000'



GS Lyon

Project No.: GS2015

1953 Aerial Photograph

Plate
6b

INFO ITEM ONLY



INQUIRY #: 6171645.2
YEAR: 1976
SCALE: 1"=1000'

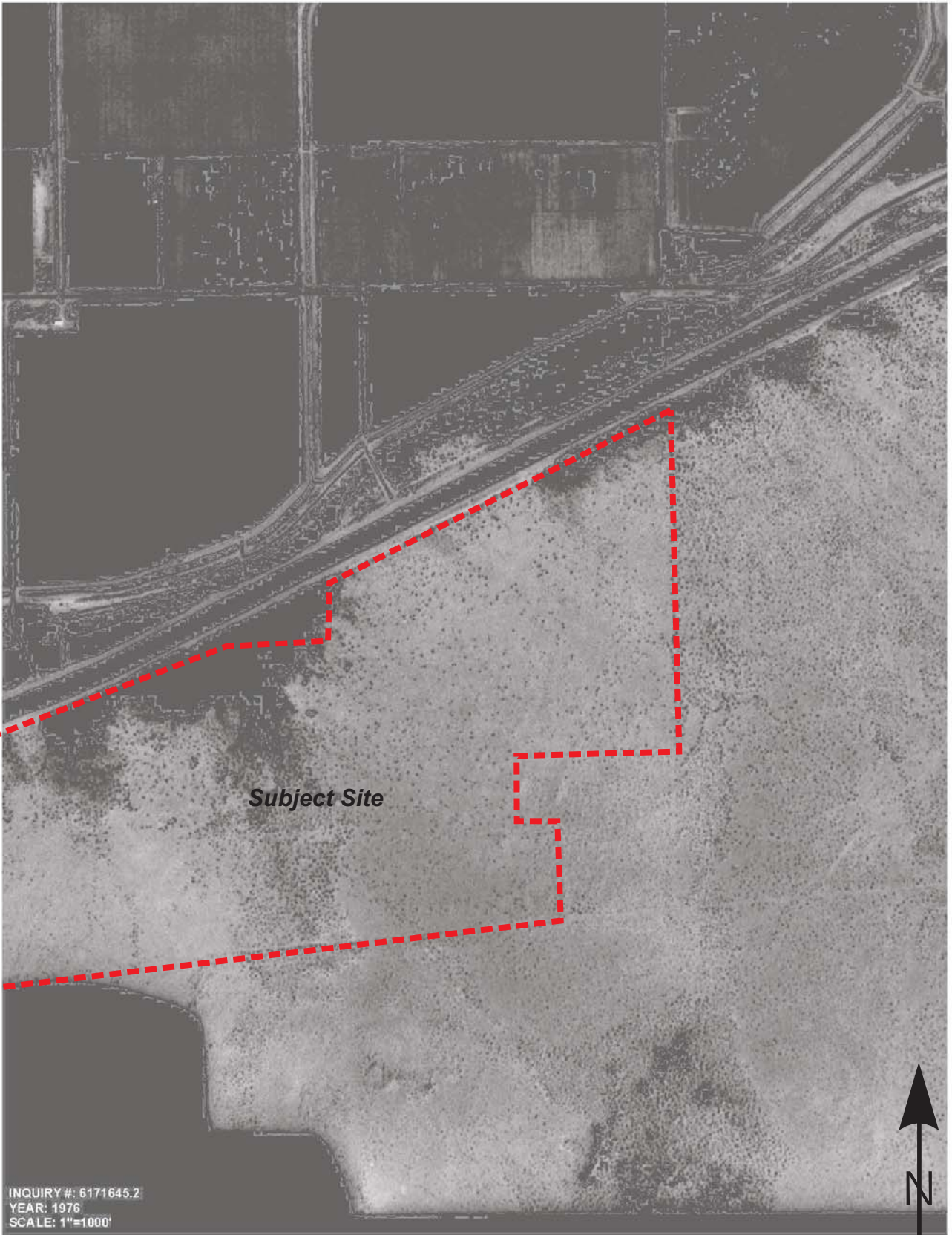
GS Lyon

Project No.: GS2015

1976 Aerial Photograph

Plate
7a

INFO ITEM ONLY



INQUIRY #: 6171645.2
YEAR: 1976
SCALE: 1"=1000'



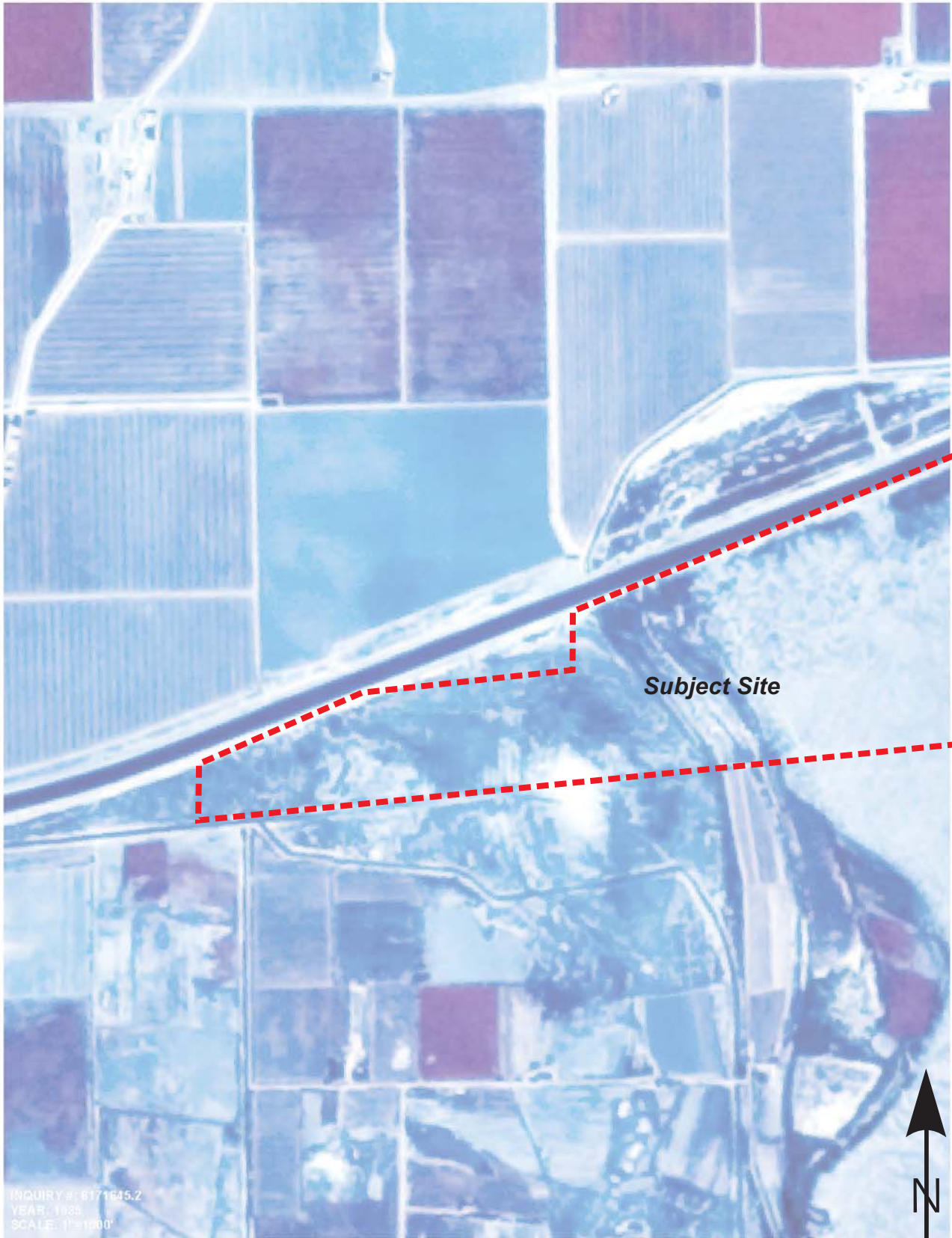
GS Lyon

Project No.: GS2015

1976 Aerial Photograph

Plate
7b

INFO ITEM ONLY



INQUIRY #: 6171645.2
YEAR: 1985
SCALE: 1"=1000'



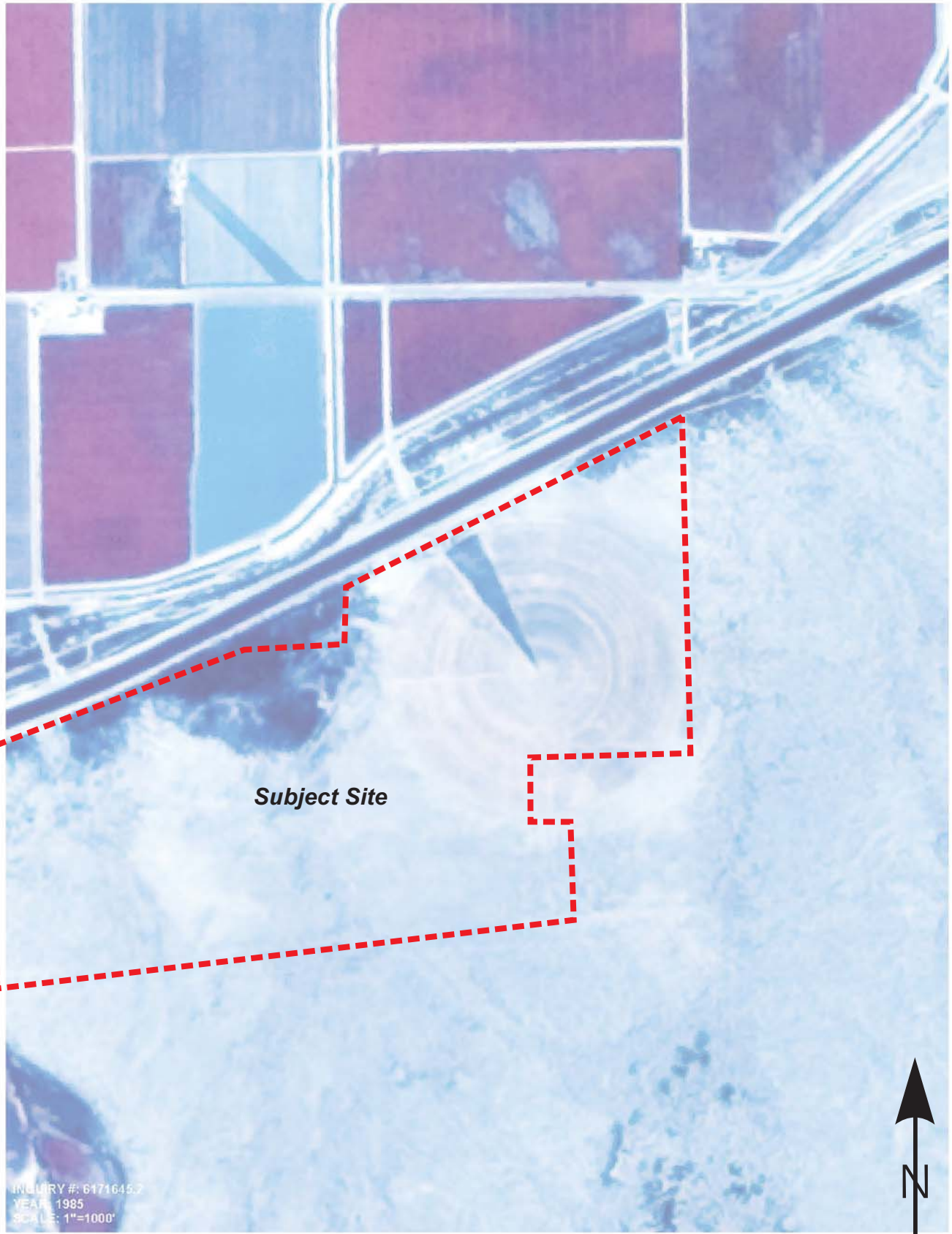
GS Lyon

Project No.: GS2015

1985 Aerial Photograph

Plate
8a

INFO ITEM ONLY



INQUIRY #: 6171645.7
YEAR: 1985
SCALE: 1"=1000'

Subject Site



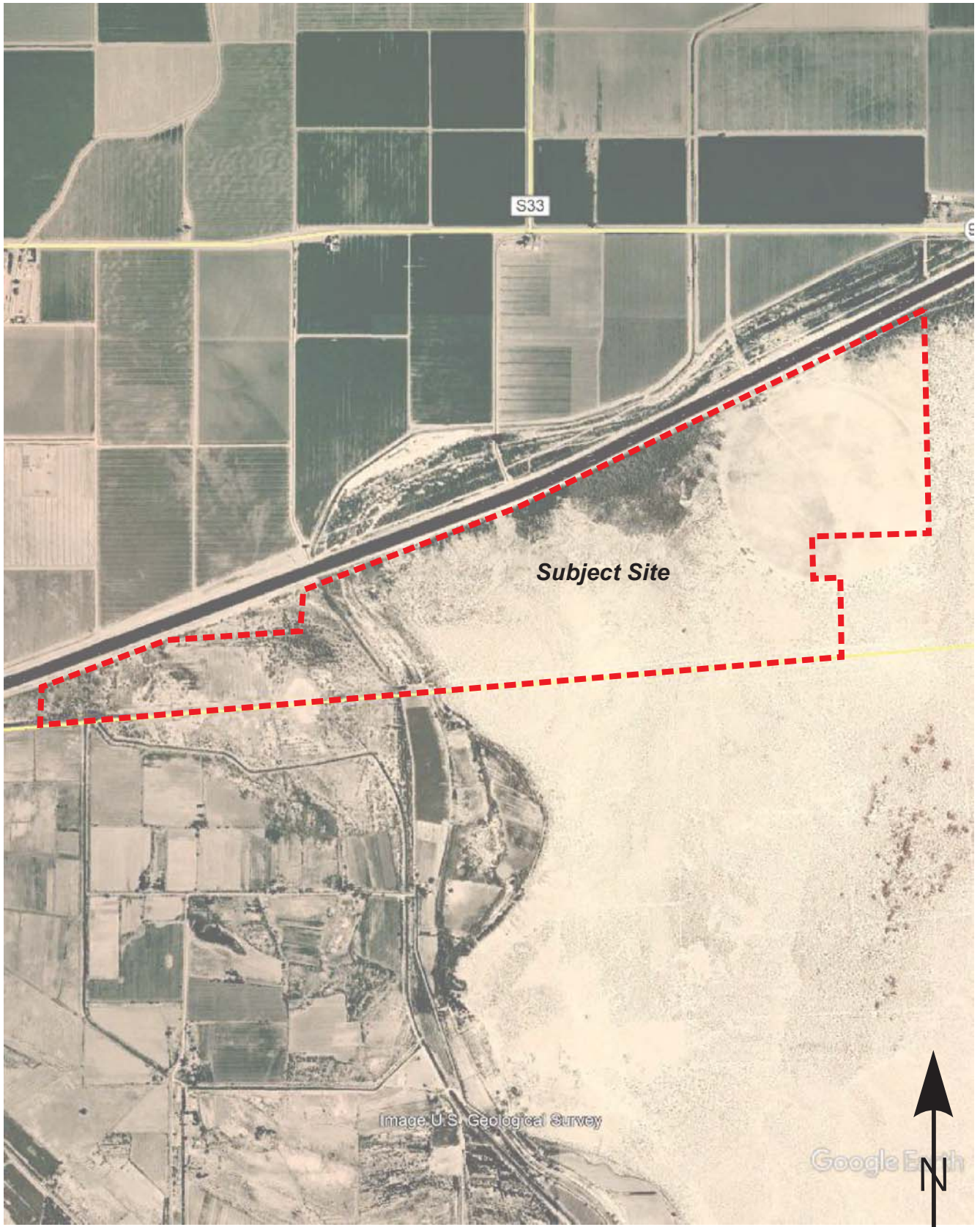
GS Lyon

Project No.: GS2015

1985 Aerial Photograph

Plate
8b

INFO ITEM ONLY



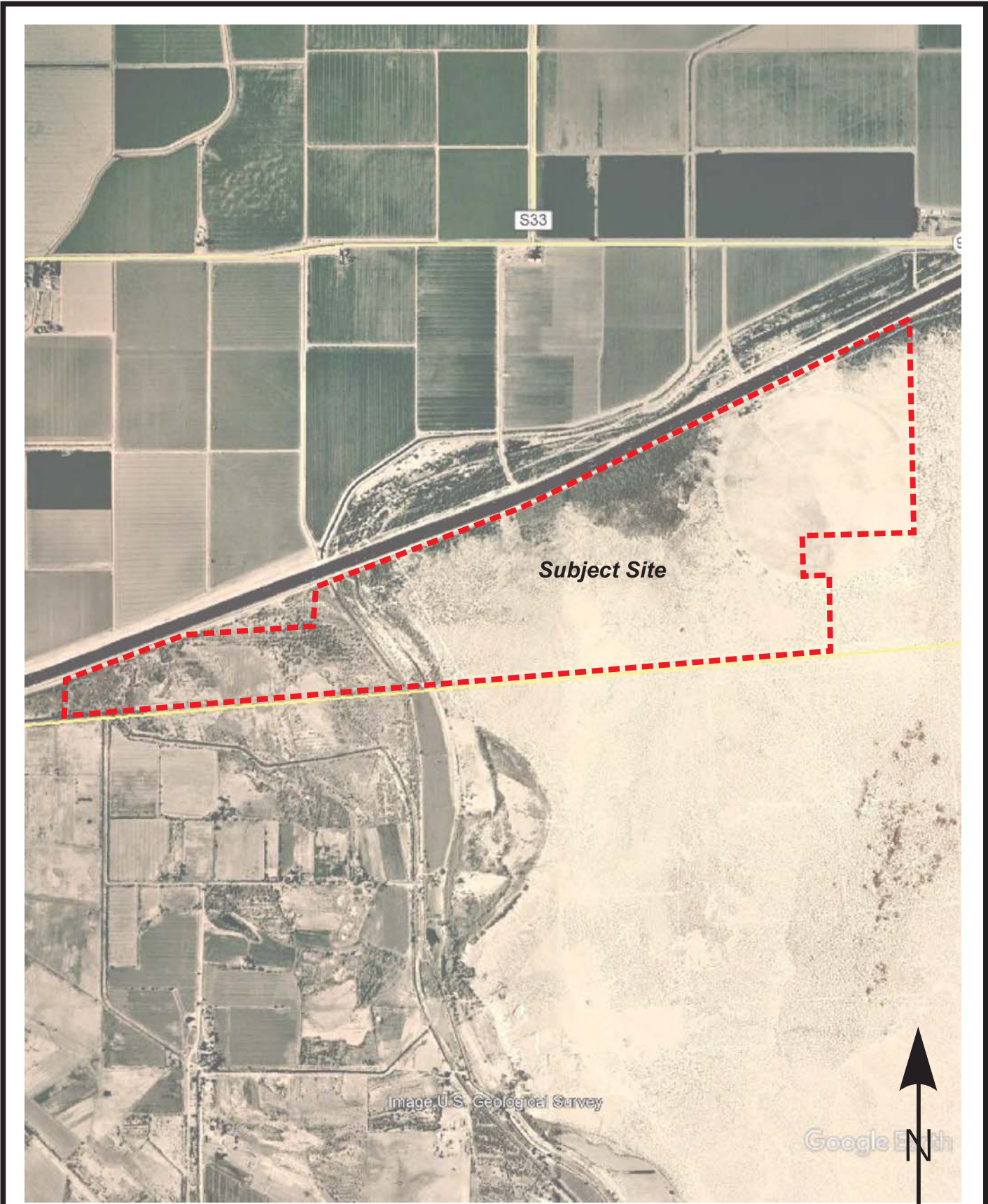
GS Lyon

Project No.: GS2015

1996 Aerial Photograph

Plate
9

INFO ITEM ONLY



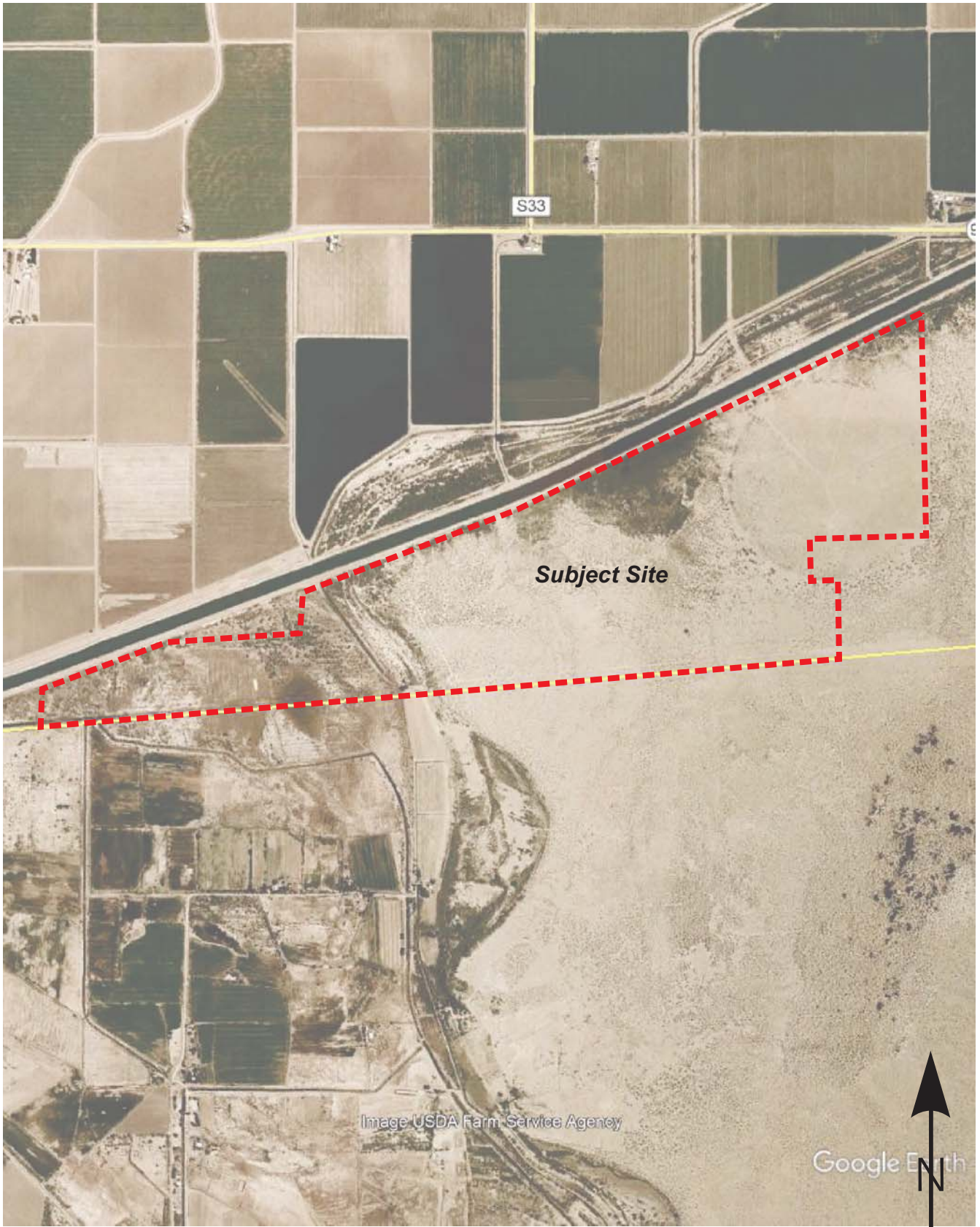
GS Lyon

Project No.: GS2015

2002 Aerial Photograph

Plate
10

INFO ITEM ONLY



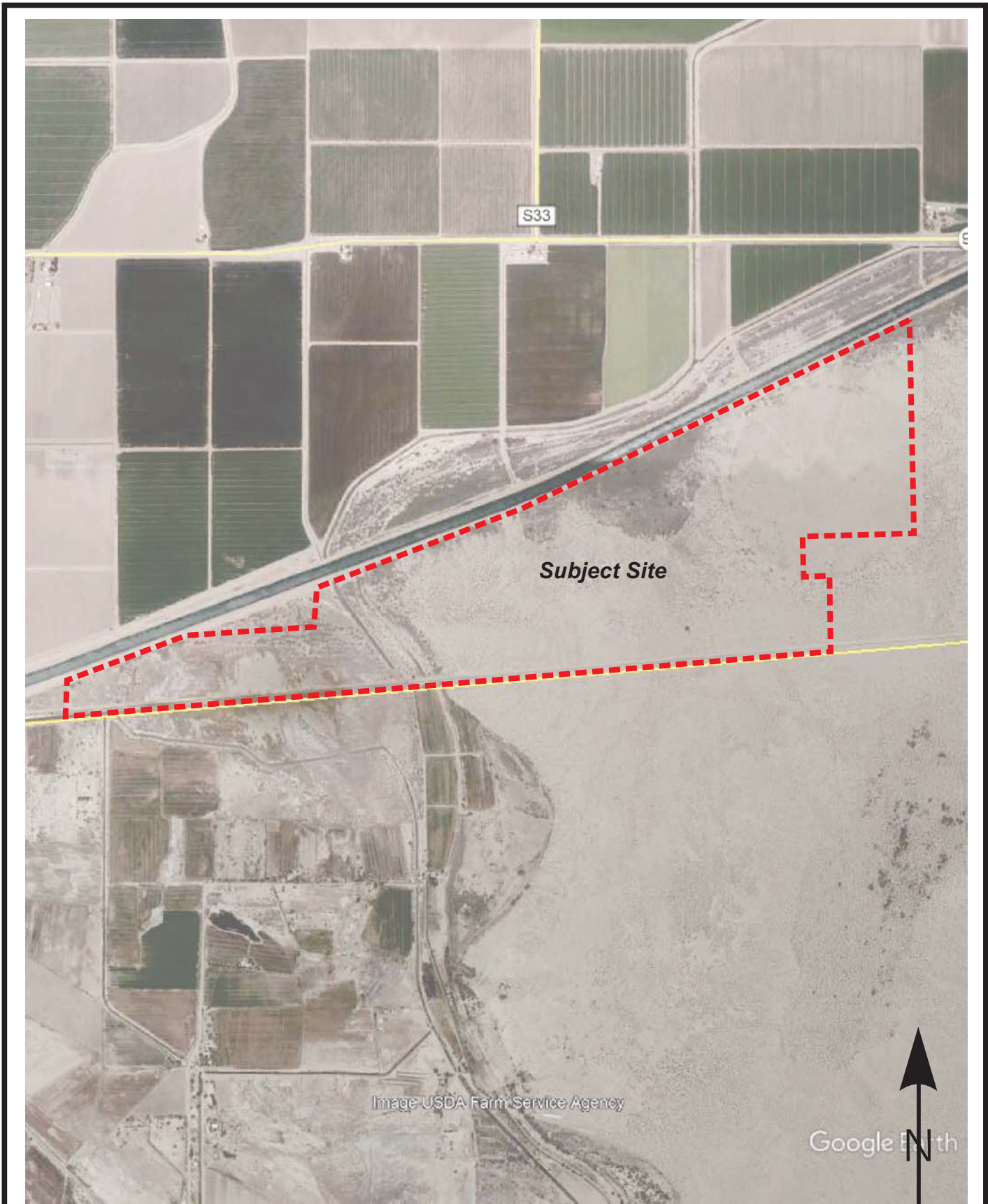
GS Lyon

Project No.: GS2015

2006 Aerial Photograph

Plate
11

INFO ITEM ONLY



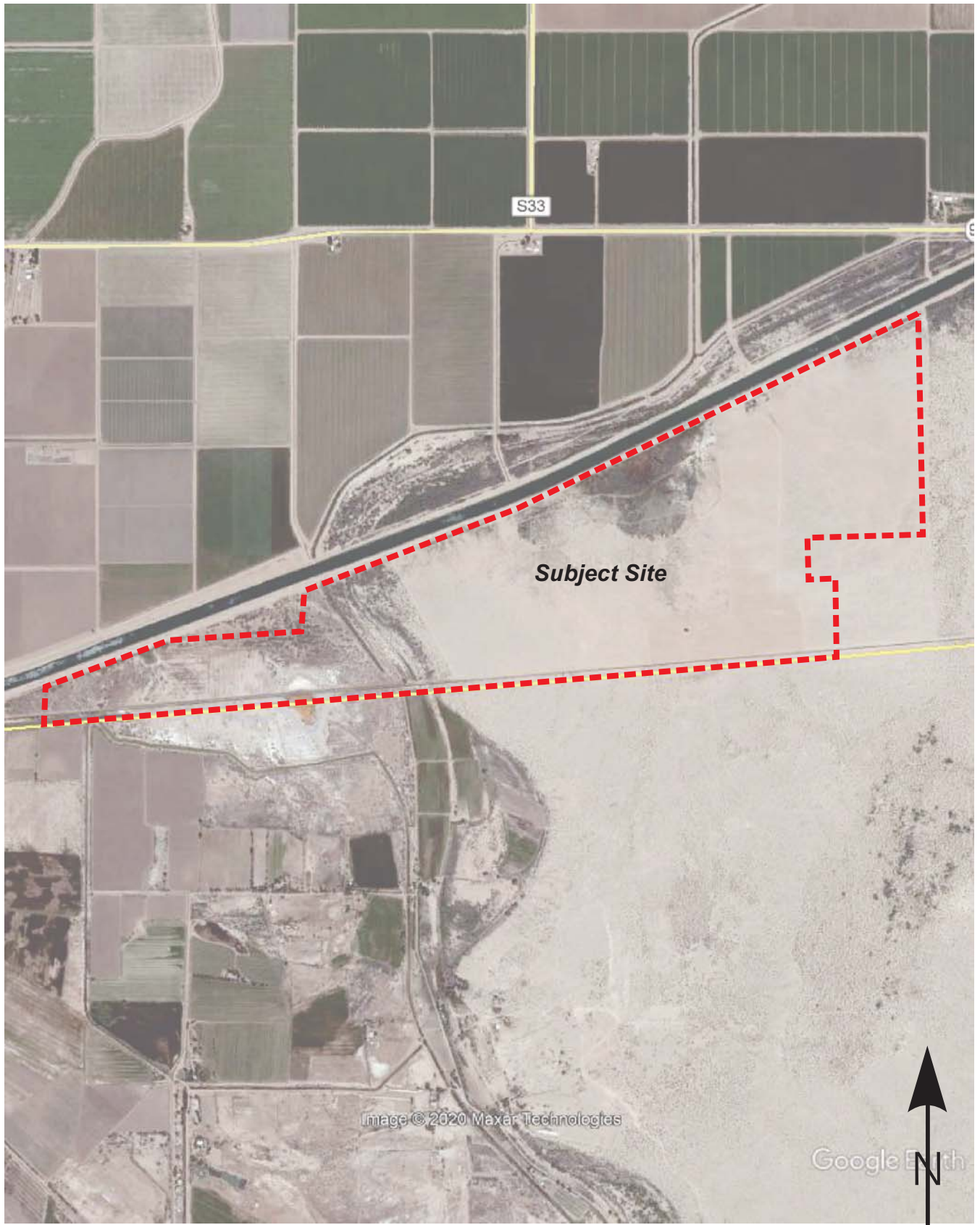
GS Lyon

Project No.: GS2015

2010 Aerial Photograph

Plate
12

INFO ITEM ONLY



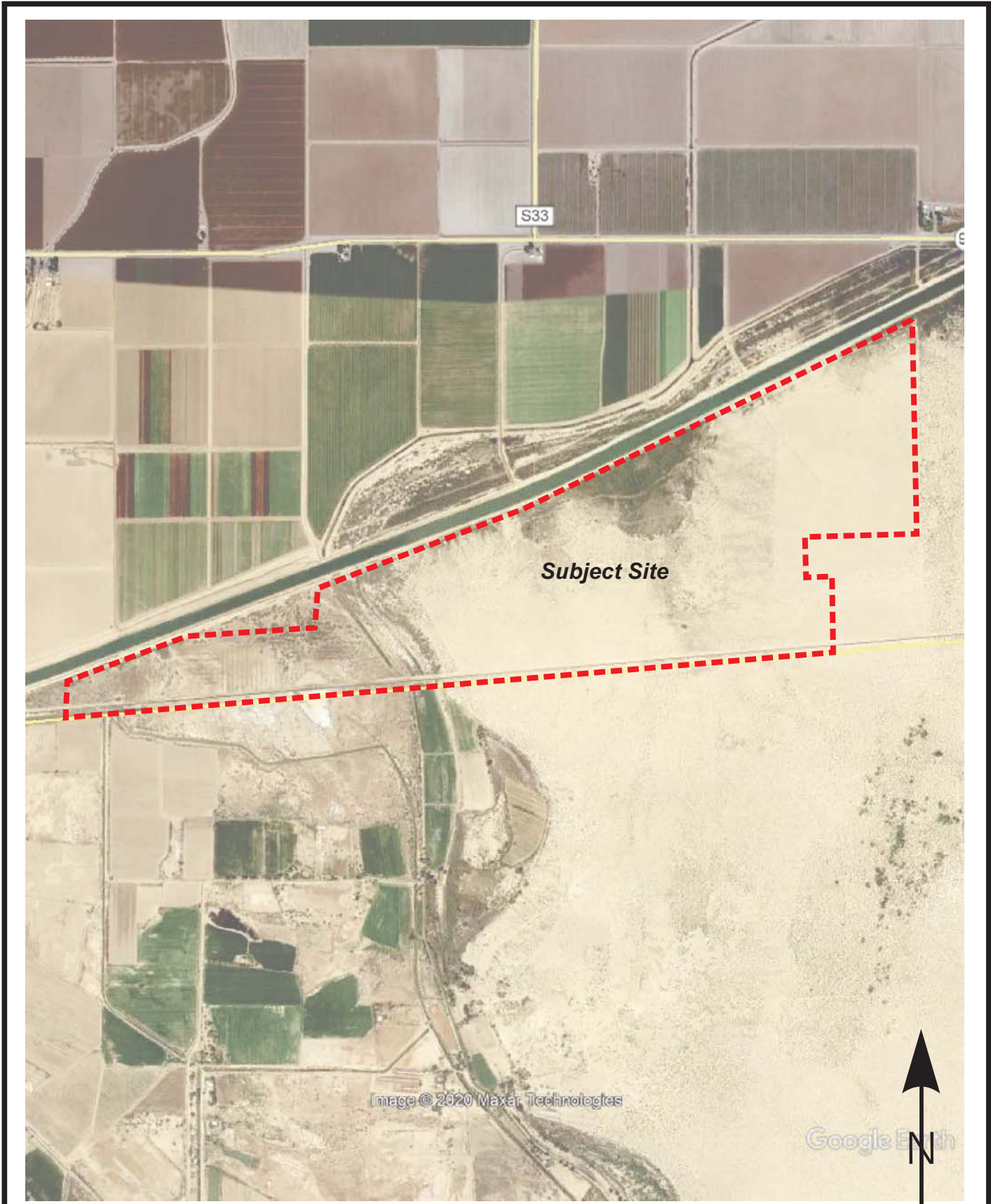
GS Lyon

Project No.: GS2015

2014 Aerial Photograph

Plate
13

INFO ITEM ONLY



GS Lyon

Project No.: GS2015

2018 Aerial Photograph

Plate
14

INFO ITEM ONLY

APPENDIX D

Cedar Solar 1
SEC All American Canal & Bonds Corner
Calexico, CA 92283

Inquiry Number: 6171645.1

August 28, 2020

EDR Historical Topo Map Report

with QuadMatch™



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

INFO ITEM ONLY

EDR Historical Topo Map Report

08/28/20

Site Name:

Cedar Solar 1
SEC All American Canal & Bor
Calexico, CA 92283
EDR Inquiry # 6171645.1

Client Name:

GS Lyon Consultants
780 N. Fourth Street
El Centro, CA 92243
Contact: Peter E. Labrucherie



EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by GS Lyon Consultants were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDR's Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:**Coordinates:**

P.O.#	NA	Latitude:	32.682206 32° 40' 56" North
Project:	GS2015	Longitude:	-115.308199 -115° 18' 30" West
		UTM Zone:	Zone 11 North
		UTM X Meters:	658614.82
		UTM Y Meters:	3617321.89
		Elevation:	46.00' above sea level

Maps Provided:

2012
1976
1957
1947
1940
1907

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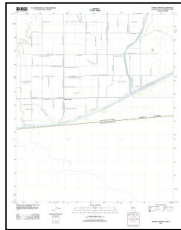
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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets



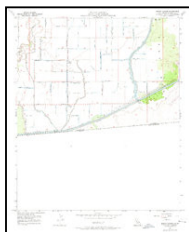
Bonds Corner
2012
7.5-minute, 24000

1976 Source Sheets



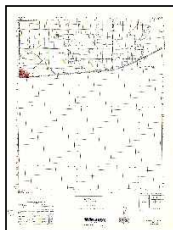
Bonds Corner
1976
7.5-minute, 24000
Aerial Photo Revised 1953

1957 Source Sheets



Bonds Corner
1957
7.5-minute, 24000
Aerial Photo Revised 1953

1947 Source Sheets



CALEXICO
1947
15-minute, 50000

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1940 Source Sheets

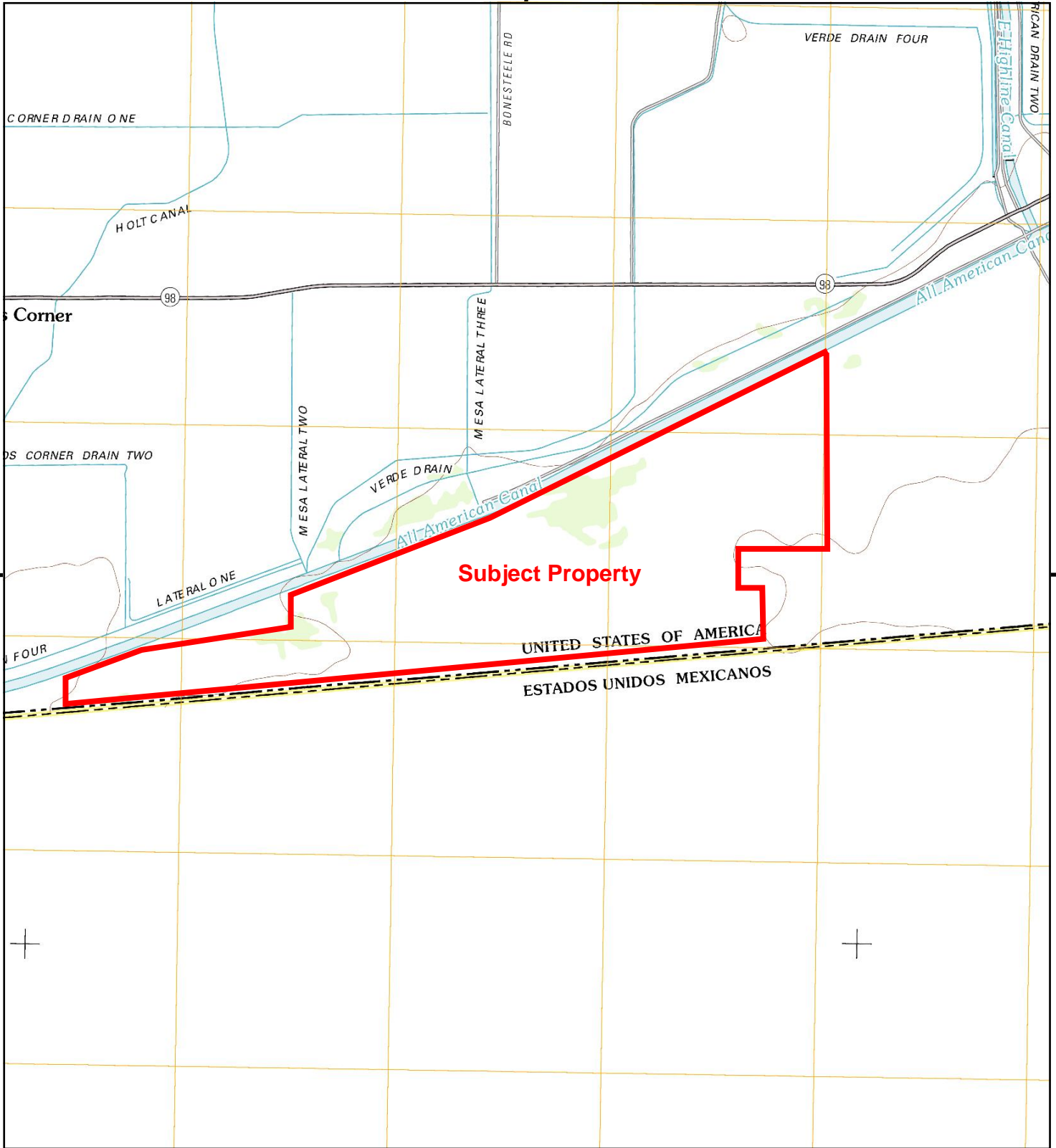


Calexico
1940
15-minute, 62500
Aerial Photo Revised 1940

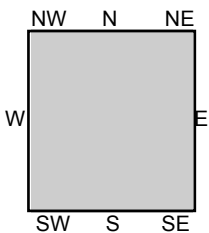
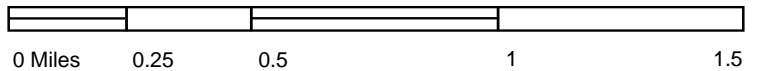
1907 Source Sheets



Holtville
1907
30-minute, 125000



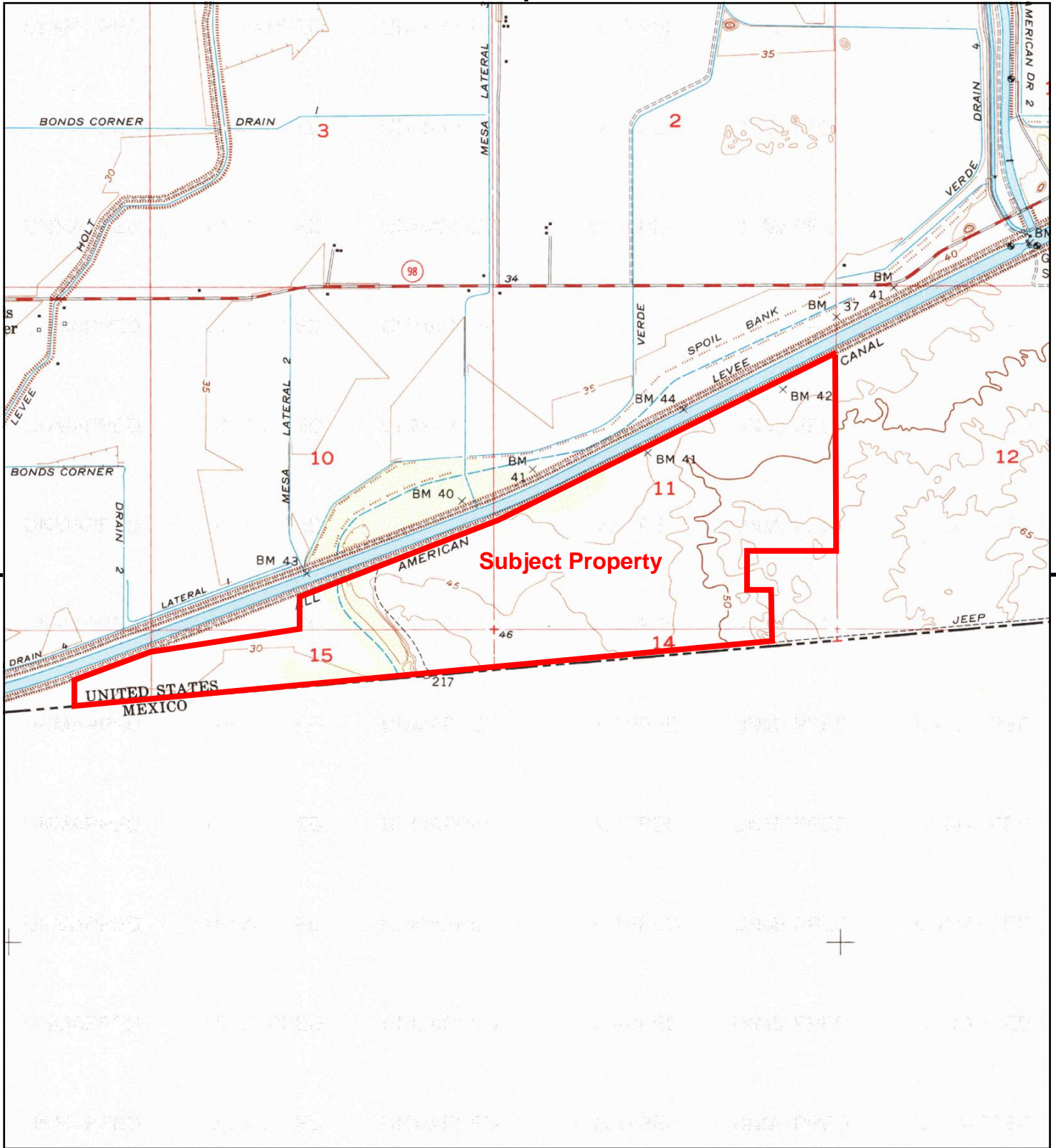
This report includes information from the following map sheet(s).



TP, Bonds Corner, 2012, 7.5-minute

SITE NAME: Cedar Solar 1
 ADDRESS: SEC All American Canal & Bonds Corner
 Calexico, CA 92283
 CLIENT: GS Lyon Consultants





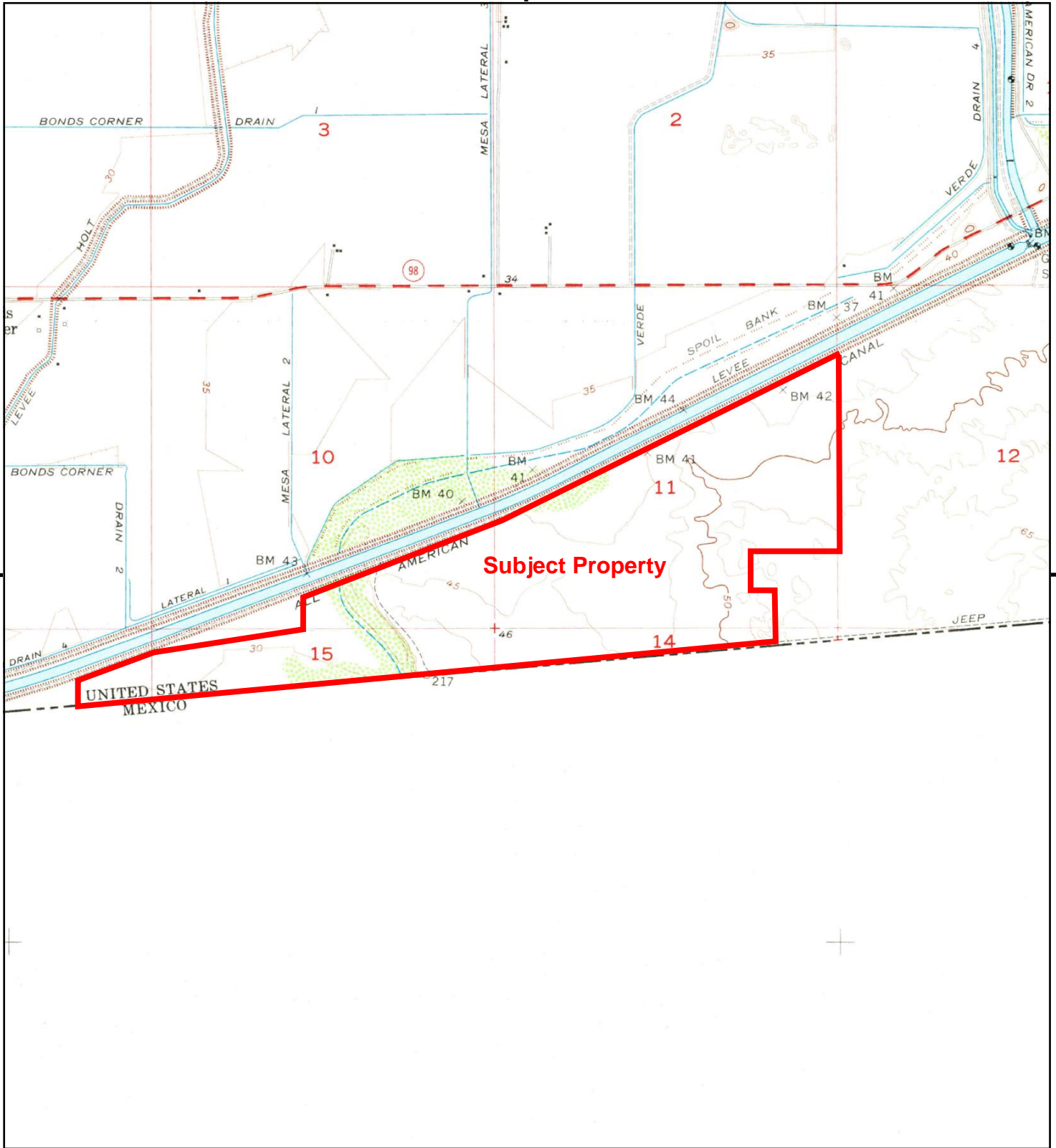
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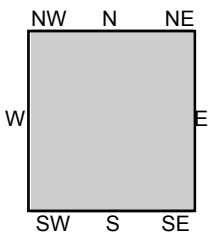
TP, Bonds Corner, 1976, 7.5-minute

SITE NAME: Cedar Solar 1
ADDRESS: SEC All American Canal & Bonds Corner
 Calexico, CA 92283
CLIENT: GS Lyon Consultants





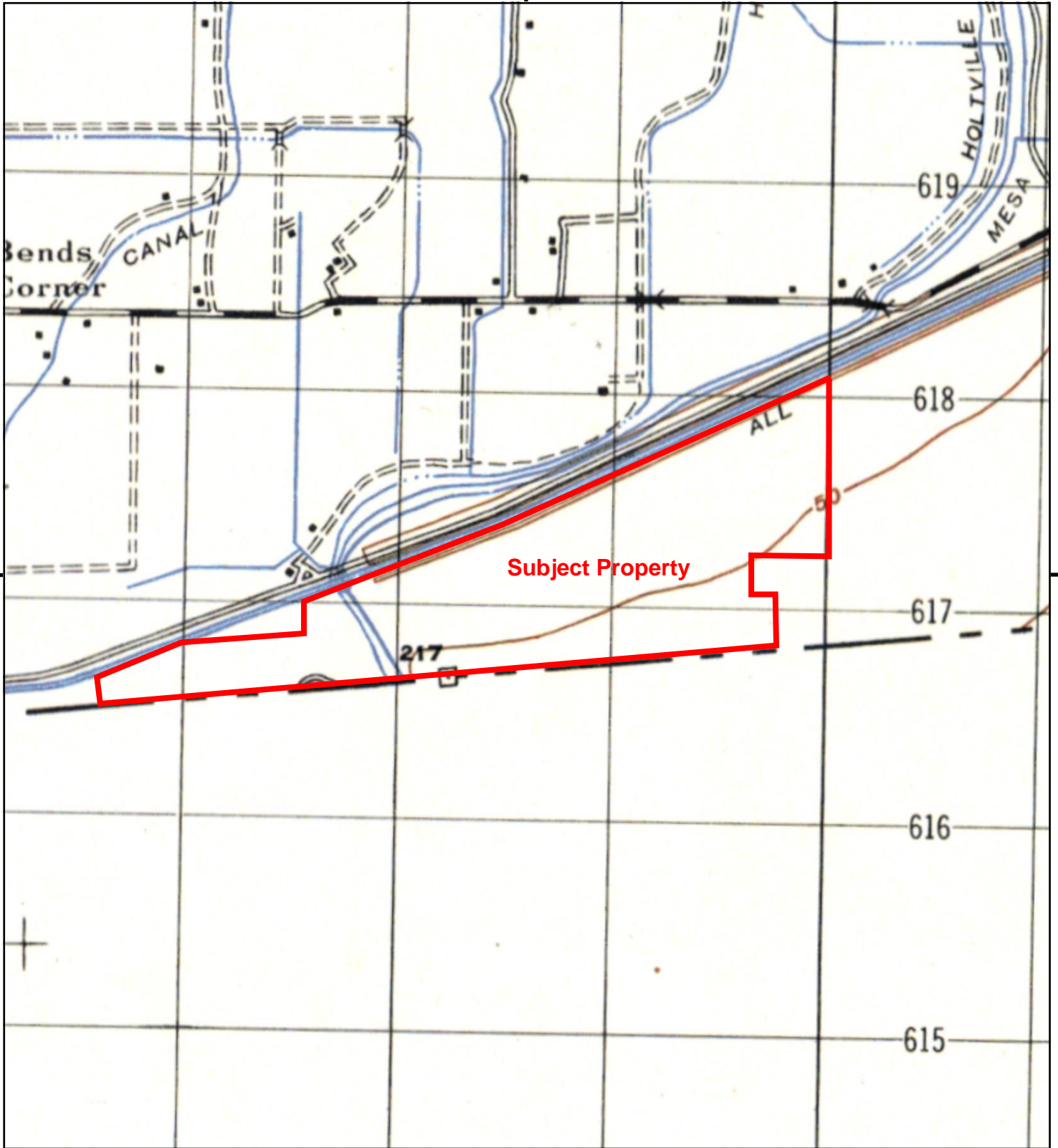
This report includes information from the following map sheet(s).



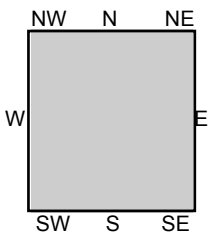
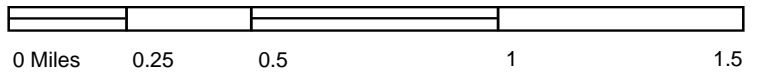
TP, Bonds Corner, 1957, 7.5-minute

SITE NAME: Cedar Solar 1
 ADDRESS: SEC All American Canal & Bonds Corner
 Calexico, CA 92283
 CLIENT: GS Lyon Consultants





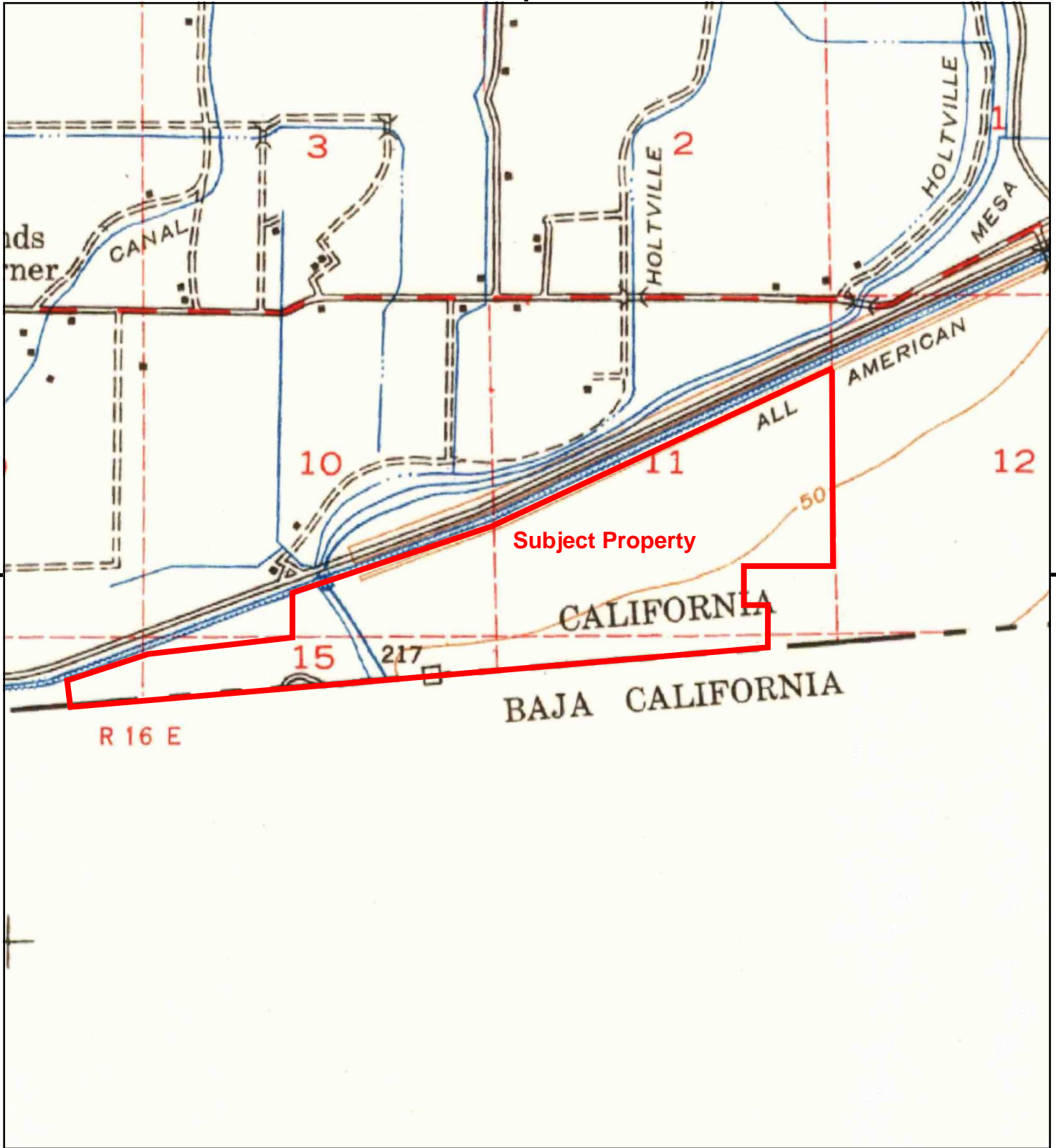
This report includes information from the following map sheet(s).



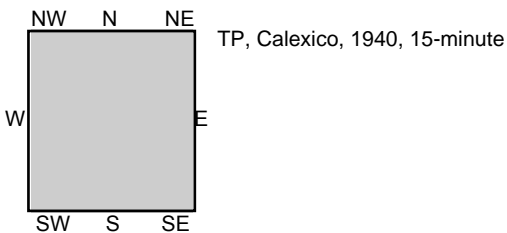
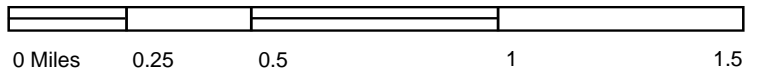
TP, CALEXICO, 1947, 15-minute

SITE NAME: Cedar Solar 1
 ADDRESS: SEC All American Canal & Bonds Corner
 Calexico, CA 92283
 CLIENT: GS Lyon Consultants



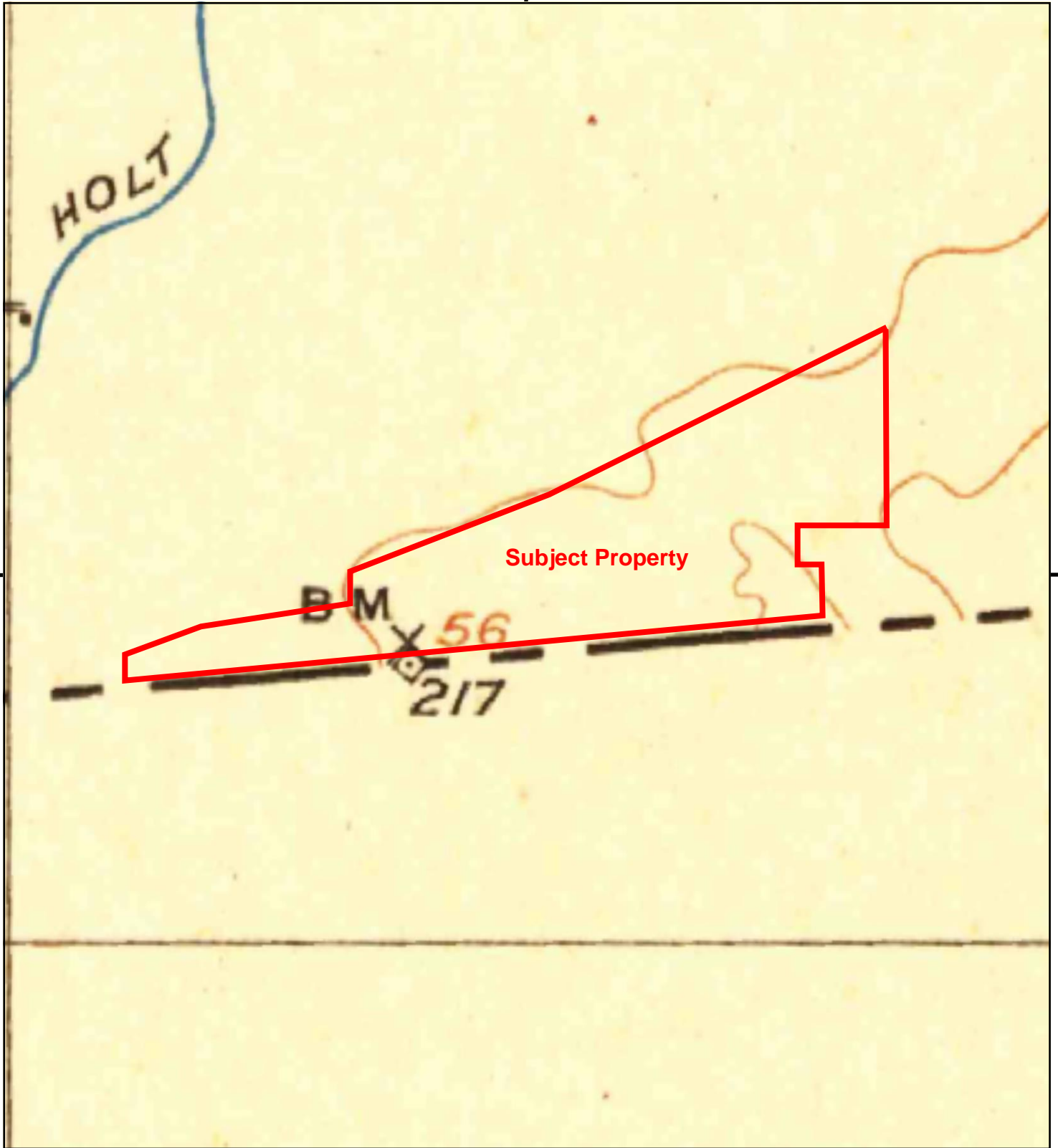


This report includes information from the following map sheet(s).

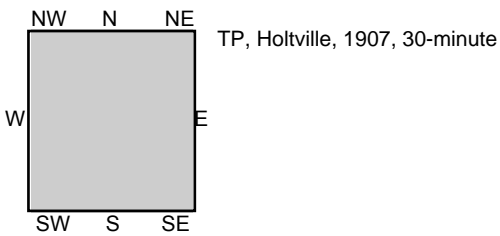


SITE NAME: Cedar Solar 1
 ADDRESS: SEC All American Canal & Bonds Corner
 Calexico, CA 92283
 CLIENT: GS Lyon Consultants





This report includes information from the following map sheet(s).



SITE NAME: Cedar Solar 1
 ADDRESS: SEC All American Canal & Bonds Corner
 Calexico, CA 92283
 CLIENT: GS Lyon Consultants



APPENDIX E

Cedar Solar 1

SEC All American Canal & Bonds Corner
Calexico, CA 92283

Inquiry Number: 6171645.3s
August 27, 2020

EDR Area / Corridor Report



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

INFO ITEM ONLY

TABLE OF CONTENTS

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Mapped Sites Summary	2
Key Map	2
Map Findings Summary	3
Focus Maps	8
Map Findings	20
Orphan Summary	OR-1
Government Records Searched/Data Currency Tracking	GR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

SUBJECT PROPERTY INFORMATION

ADDRESS

SEC ALL AMERICAN CANAL & BONDS CORNER
CALEXICO, CA 92283

TARGET PROPERTY SEARCH RESULTS

The Target Property was identified in the following databases.

Page Numbers and Map Identifications refer to the EDR Area/Corridor Report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were not identified.

Unmappable (orphan) sites are not considered in the foregoing analysis.

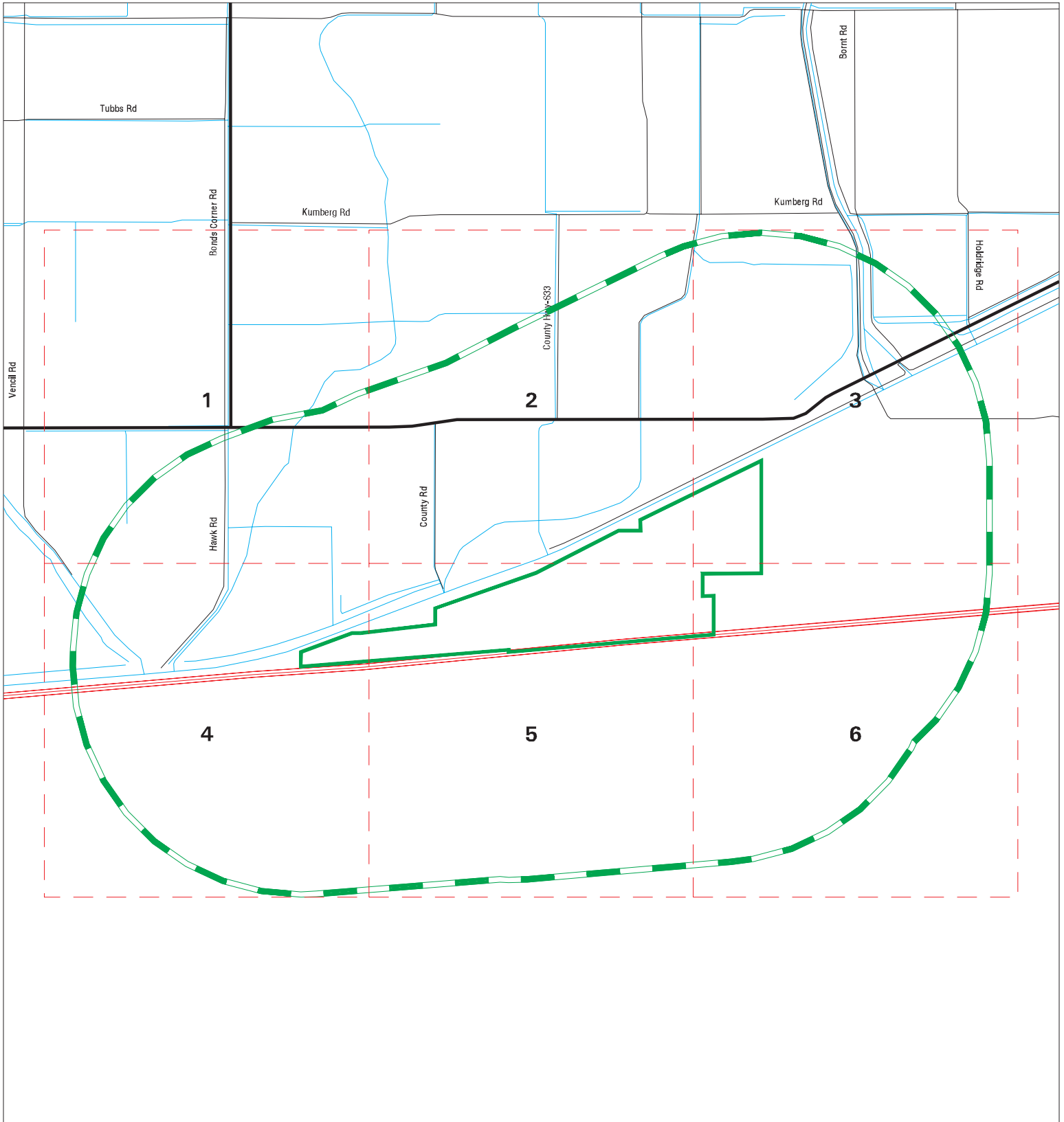
MAPPED SITES SUMMARY

Target Property:
SEC ALL AMERICAN CANAL & BONDS CORNER
CALEXICO, CA 92283

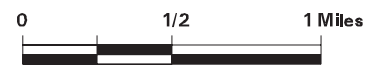
MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
-----------------------	-----------	---------	-------------------	-------------------------------

NO MAPPED SITES FOUND

Key Map - 6171645.3s



- ▲ Sites
- ▬ Target Property
- ▬ Search Buffer
- ▬ Focus Map - No Sites
- ▬ Focus Map - Sites
- National Priority List Sites
- Areas of Concern
- Dept. Defense Sites
- Indian Reservations BIA



SITE NAME: Cedar Solar 1 ADDRESS: SEC All American Canal & Bonds Corner CITY/STATE: Calexico CA ZIP: 92283	CLIENT: GS Lyon Consultants CONTACT: Peter E. Labrucherie INQUIRY #: 6171645.3s DATE: 08/27/20
---	---

INFORMATION ONLY

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
<u>STANDARD ENVIRONMENTAL RECORDS</u>								
<i>Federal NPL site list</i>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1.000		0	0	0	0	NR	0
<i>Federal CERCLIS list</i>								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
<i>Federal CERCLIS NFRAP site list</i>								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	1.000		0	0	0	0	NR	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
<i>Federal institutional controls / engineering controls registries</i>								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
<i>Federal ERNS list</i>								
ERNS	TP		NR	NR	NR	NR	NR	0
<i>State- and tribal - equivalent NPL RESPONSE</i>								
RESPONSE	1.000		0	0	0	0	NR	0
<i>State- and tribal - equivalent CERCLIS ENVIROSTOR</i>								
ENVIROSTOR	1.000		0	0	0	0	NR	0
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
SWF/LF	0.500		0	0	0	NR	NR	0
<i>State and tribal leaking storage tank lists</i>								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
<u>ADDITIONAL ENVIRONMENTAL RECORDS</u>								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

<u>Database</u>	<u>Search Distance (Miles)</u>	<u>Target Property</u>	<u>< 1/8</u>	<u>1/8 - 1/4</u>	<u>1/4 - 1/2</u>	<u>1/2 - 1</u>	<u>> 1</u>	<u>Total Plotted</u>
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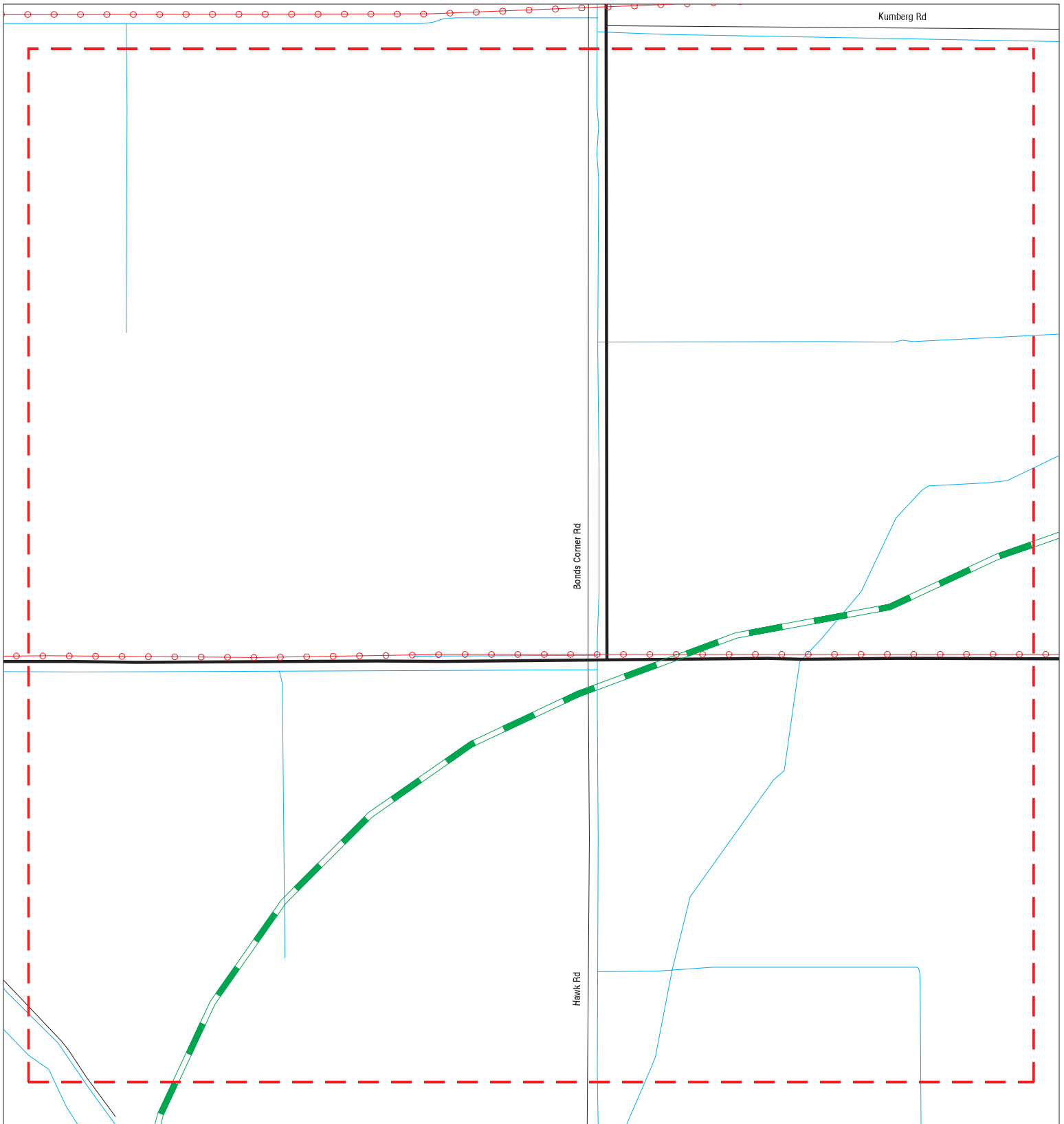
NOTES:

TP = Target Property

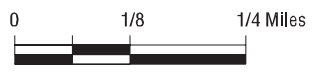
NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Focus Map - 1 - 6171645.3s



- ▲ Sites
- Target Property
- - - Search Buffer
- - - Focus Map - No Sites
- / / Focus Map - Sites
- Power Line
- National Priority List Sites
- Areas of Concern
- Dept. Defense Sites
- Indian Reservations BIA



<p>SITE NAME: Cedar Solar 1 ADDRESS: SEC All American Canal & Bonds Corner CITY/STATE: Calexico CA ZIP: 92283</p>	<p>CLIENT: GS Lyon Consultants CONTACT: Peter E. Labrucherie INQUIRY #: 6171645.3s DATE: 08/27/20</p>
--	--

INFO ITEM ONLY

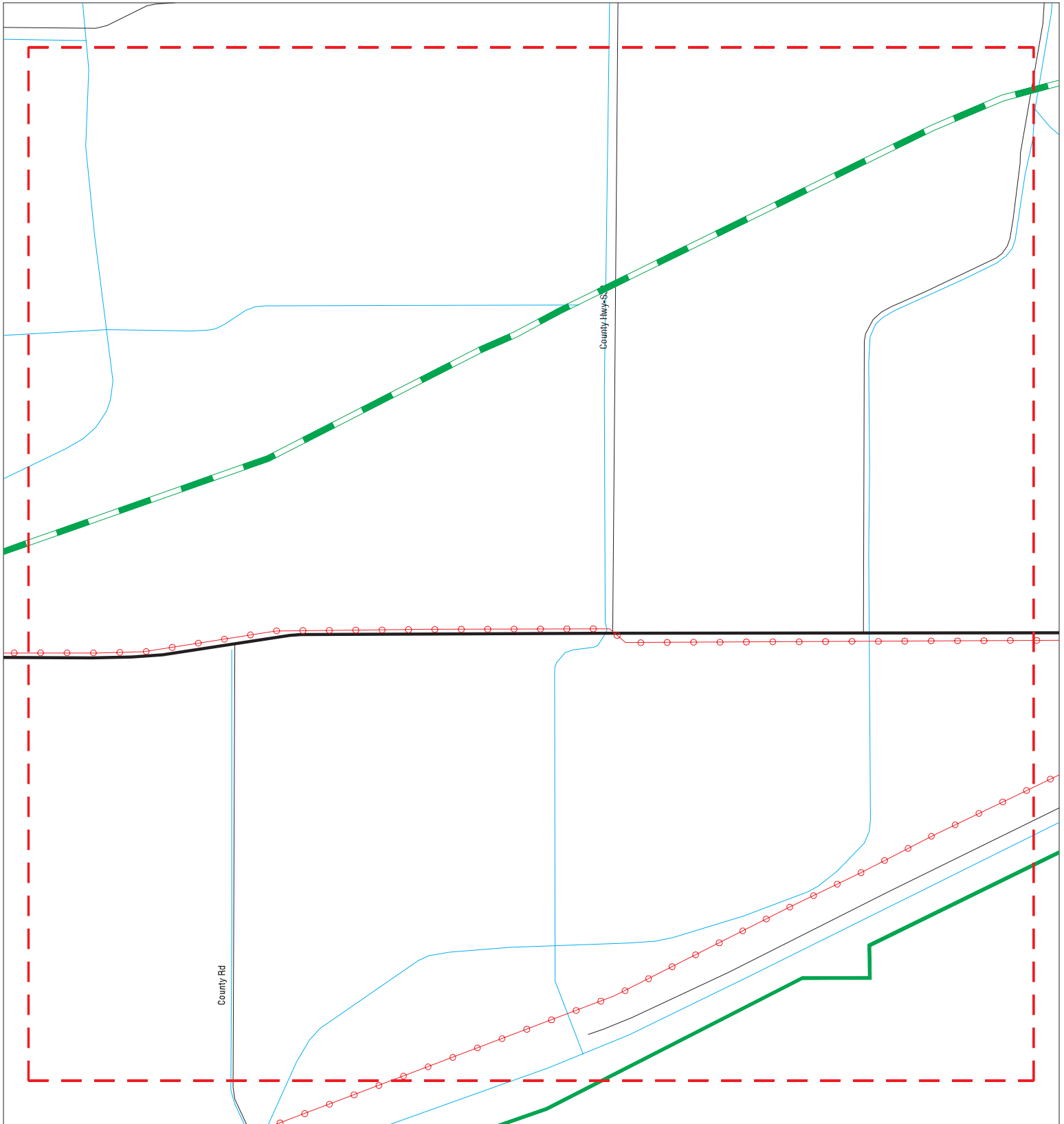
MAPPED SITES SUMMARY - FOCUS MAP 1

Target Property:
SEC ALL AMERICAN CANAL & BONDS CORNER
CALEXICO, CA 92283

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
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NO MAPPED SITES FOUND

Focus Map - 2 - 6171645.3s



- | | | |
|----------------------|------------------------------|-------------------------|
| Sites | Focus Map - Sites | Dept. Defense Sites |
| Target Property | Power Line | Indian Reservations BIA |
| Search Buffer | National Priority List Sites | Areas of Concern |
| Focus Map - No Sites | | |



SITE NAME: Cedar Solar 1
ADDRESS: SEC All American Canal & Bonds Corner
CITY/STATE: Calexico CA
ZIP: 92283

CLIENT: GS Lyon Consultants
CONTACT: Peter E. Labrucherie
INQUIRY #: 6171645.3s
DATE: 08/27/20

INFO ITEM ONLY

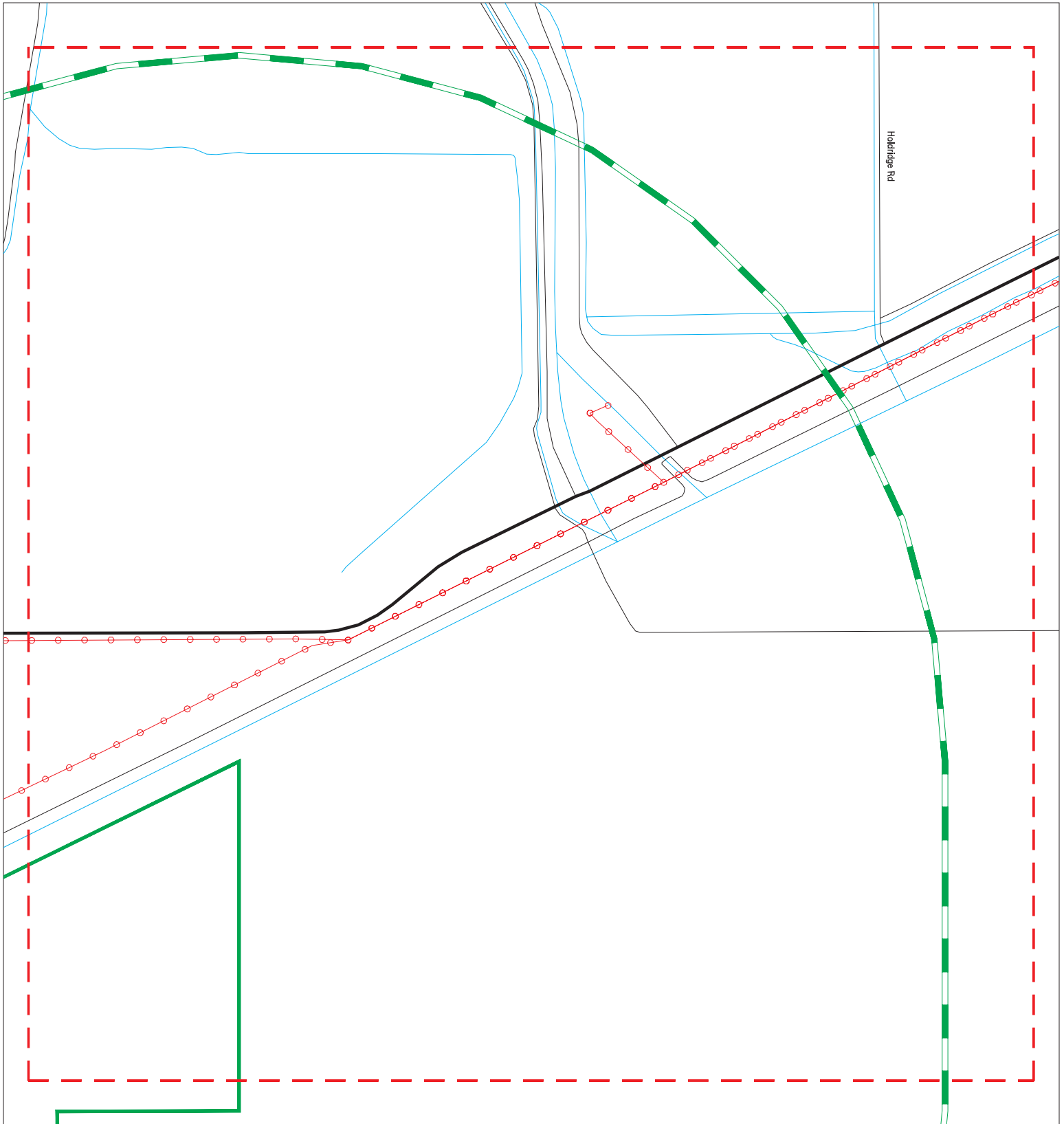
MAPPED SITES SUMMARY - FOCUS MAP 2











Target Property:
SEC ALL AMERICAN CANAL & BONDS CORNER
CALEXICO, CA 92283

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
-----------------------	-----------	---------	-------------------	-------------------------------

NO MAPPED SITES FOUND

Focus Map - 3 - 6171645.3s



- | | | | | | |
|---|----------------------|---|------------------------------|---|-------------------------|
|  | Sites |  | Focus Map - Sites |  | Dept. Defense Sites |
|  | Target Property |  | Power Line |  | Indian Reservations BIA |
|  | Search Buffer |  | National Priority List Sites |  | Areas of Concern |
|  | Focus Map - No Sites | | | | |



SITE NAME: Cedar Solar 1
ADDRESS: SEC All American Canal & Bonds Corner
CITY/STATE: Calexico CA
ZIP: 92283

CLIENT: GS Lyon Consultants
CONTACT: Peter E. Labrucherie
INQUIRY #: 6171645.3s
DATE: 08/27/20

INFO ITEM ONLY

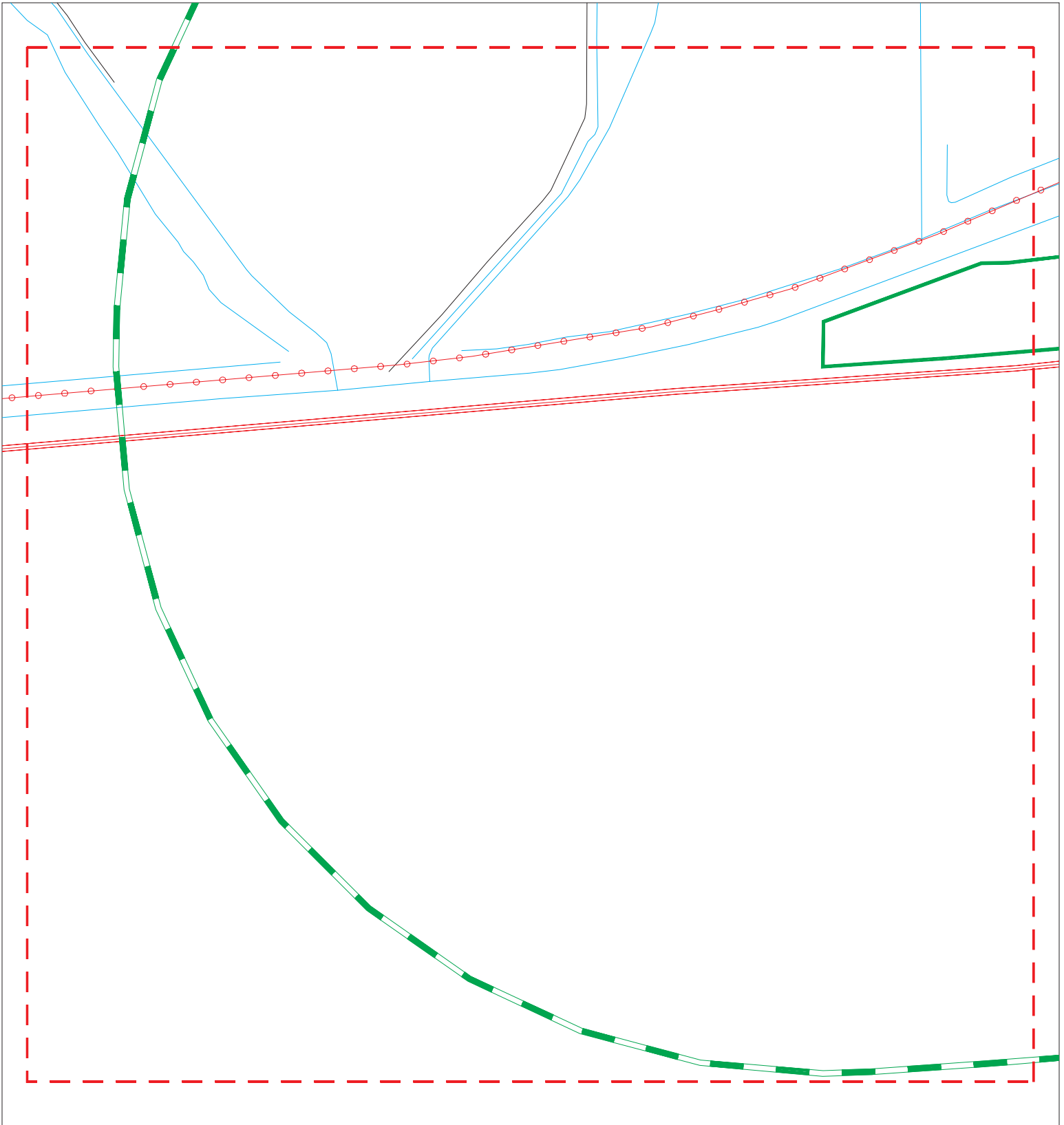
MAPPED SITES SUMMARY - FOCUS MAP 3











Target Property:
SEC ALL AMERICAN CANAL & BONDS CORNER
CALEXICO, CA 92283

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
-----------------------	-----------	---------	-------------------	-------------------------------

NO MAPPED SITES FOUND

Focus Map - 4 - 6171645.3s



- | | | |
|---|--|---|
|  Sites |  Focus Map - Sites |  Dept. Defense Sites |
|  Target Property |  Power Line |  Indian Reservations BIA |
|  Search Buffer |  National Priority List Sites |  Areas of Concern |
|  Focus Map - No Sites | | |



SITE NAME: Cedar Solar 1
ADDRESS: SEC All American Canal & Bonds Corner
CITY/STATE: Calexico CA
ZIP: 92283

CLIENT: GS Lyon Consultants
CONTACT: Peter E. Labrucherie
INQUIRY #: 6171645.3s
DATE: 08/27/20

INFO ITEM ONLY

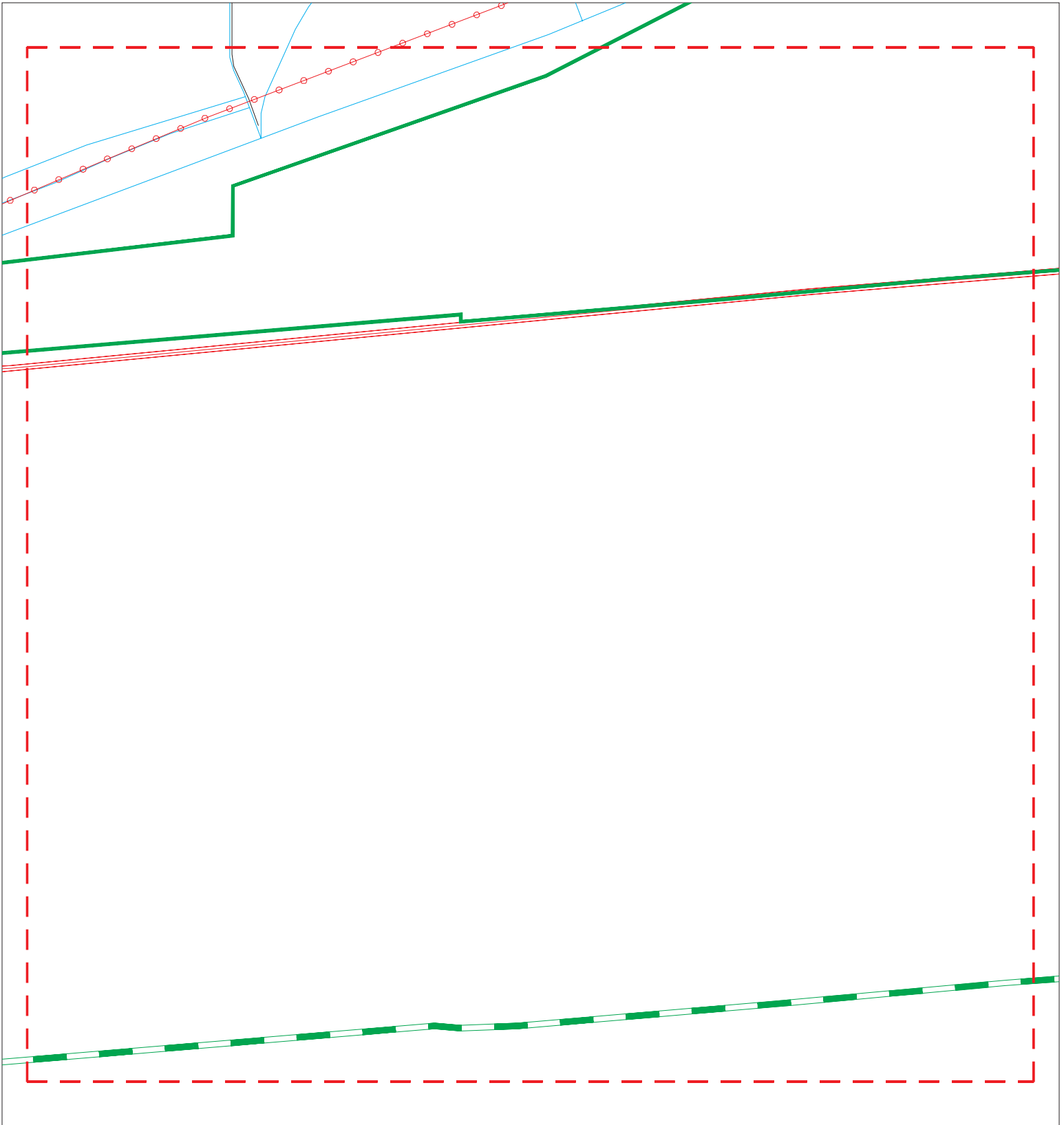
MAPPED SITES SUMMARY - FOCUS MAP 4











Target Property:
SEC ALL AMERICAN CANAL & BONDS CORNER
CALEXICO, CA 92283

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
-----------------------	-----------	---------	-------------------	-------------------------------

NO MAPPED SITES FOUND

Focus Map - 5 - 6171645.3s



- | | | |
|---|--|---|
|  Sites |  Focus Map - Sites |  Dept. Defense Sites |
|  Target Property |  Power Line |  Indian Reservations BIA |
|  Search Buffer |  National Priority List Sites |  Areas of Concern |
|  Focus Map - No Sites | | |



SITE NAME: Cedar Solar 1
 ADDRESS: SEC All American Canal & Bonds Corner
 CITY/STATE: Calexico CA
 ZIP: 92283

CLIENT: GS Lyon Consultants
 CONTACT: Peter E. Labrucherie
 INQUIRY #: 6171645.3s
 DATE: 08/27/20

INFO ITEM ONLY

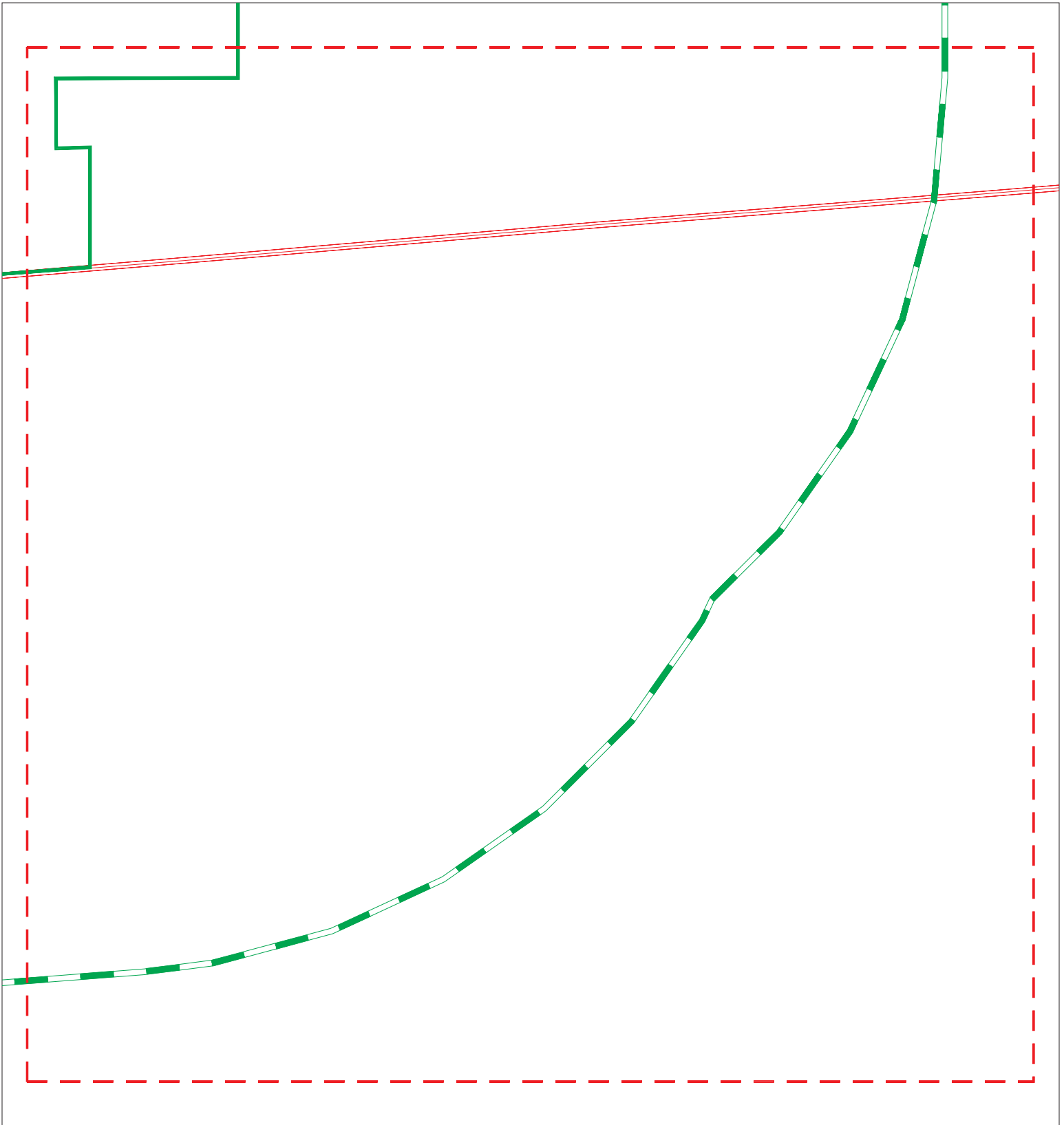
MAPPED SITES SUMMARY - FOCUS MAP 5











Target Property:
SEC ALL AMERICAN CANAL & BONDS CORNER
CALEXICO, CA 92283

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
-----------------------	-----------	---------	-------------------	-------------------------------

NO MAPPED SITES FOUND

Focus Map - 6 - 6171645.3s



- | | | |
|--|--|---|
|  Sites |  Focus Map - Sites |  Dept. Defense Sites |
|  Target Property |  Power Line |  Indian Reservations BIA |
|  Search Buffer |  National Priority List Sites |  Areas of Concern |
|  Focus Map - No Sites | | |



SITE NAME: Cedar Solar 1
 ADDRESS: SEC All American Canal & Bonds Corner
 CITY/STATE: Calexico CA
 ZIP: 92283

CLIENT: GS Lyon Consultants
 CONTACT: Peter E. Labrucherie
 INQUIRY #: 6171645.3s
 DATE: 08/27/20

INFO ITEM ONLY

MAPPED SITES SUMMARY - FOCUS MAP 6

Target Property:
SEC ALL AMERICAN CANAL & BONDS CORNER
CALEXICO, CA 92283

MAP ID / FOCUS MAP	SITE NAME	ADDRESS	DATABASE ACRONYMS	DIST (ft. & mi.) DIRECTION
-----------------------	-----------	---------	-------------------	-------------------------------

NO MAPPED SITES FOUND

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

NO SITES FOUND

Count: 1 records

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
HOLTVILLE	S117696630	CALTRANS UTILITY RELOCATION PR	16 T16 S R15E SEC 11 12 13 14 23	92250	NPDES, CIWQS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/29/2020	Source: EPA
Date Data Arrived at EDR: 08/03/2020	Telephone: N/A
Date Made Active in Reports: 08/25/2020	Last EDR Contact: 08/03/2020
Number of Days to Update: 22	Next Scheduled EDR Contact: 10/12/2020
	Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 07/29/2020	Source: EPA
Date Data Arrived at EDR: 08/03/2020	Telephone: N/A
Date Made Active in Reports: 08/25/2020	Last EDR Contact: 08/03/2020
Number of Days to Update: 22	Next Scheduled EDR Contact: 10/12/2020
	Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: EPA
Telephone: N/A
Last EDR Contact: 08/03/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 04/03/2019
Date Data Arrived at EDR: 04/05/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 07/02/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly known as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 08/03/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 07/29/2020	Source: EPA
Date Data Arrived at EDR: 08/03/2020	Telephone: 800-424-9346
Date Made Active in Reports: 08/25/2020	Last EDR Contact: 08/03/2020
Number of Days to Update: 22	Next Scheduled EDR Contact: 10/26/2020
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/23/2020	Source: EPA
Date Data Arrived at EDR: 03/25/2020	Telephone: 800-424-9346
Date Made Active in Reports: 05/21/2020	Last EDR Contact: 06/22/2020
Number of Days to Update: 57	Next Scheduled EDR Contact: 10/05/2020
	Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/23/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/25/2020	Telephone: (415) 495-8895
Date Made Active in Reports: 05/21/2020	Last EDR Contact: 06/22/2020
Number of Days to Update: 57	Next Scheduled EDR Contact: 10/05/2020
	Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/23/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/25/2020	Telephone: (415) 495-8895
Date Made Active in Reports: 05/21/2020	Last EDR Contact: 06/22/2020
Number of Days to Update: 57	Next Scheduled EDR Contact: 10/05/2020
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/23/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/25/2020	Telephone: (415) 495-8895
Date Made Active in Reports: 05/21/2020	Last EDR Contact: 06/22/2020
Number of Days to Update: 57	Next Scheduled EDR Contact: 10/05/2020
	Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/23/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/25/2020	Telephone: (415) 495-8895
Date Made Active in Reports: 05/21/2020	Last EDR Contact: 06/22/2020
Number of Days to Update: 57	Next Scheduled EDR Contact: 10/05/2020
	Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/15/2020	Source: Department of the Navy
Date Data Arrived at EDR: 05/19/2020	Telephone: 843-820-7326
Date Made Active in Reports: 06/18/2020	Last EDR Contact: 08/04/2020
Number of Days to Update: 30	Next Scheduled EDR Contact: 11/23/2020
	Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/13/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/20/2020	Telephone: 703-603-0695
Date Made Active in Reports: 05/15/2020	Last EDR Contact: 08/24/2020
Number of Days to Update: 85	Next Scheduled EDR Contact: 09/07/2020
	Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 02/13/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/20/2020	Telephone: 703-603-0695
Date Made Active in Reports: 05/15/2020	Last EDR Contact: 08/24/2020
Number of Days to Update: 85	Next Scheduled EDR Contact: 12/07/2020
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 03/22/2020

Date Data Arrived at EDR: 03/24/2020

Date Made Active in Reports: 06/18/2020

Number of Days to Update: 86

Source: National Response Center, United States Coast Guard

Telephone: 202-267-2180

Last EDR Contact: 06/22/2020

Next Scheduled EDR Contact: 10/05/2020

Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity.

These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 04/27/2020

Date Data Arrived at EDR: 04/28/2020

Date Made Active in Reports: 07/13/2020

Number of Days to Update: 76

Source: Department of Toxic Substances Control

Telephone: 916-323-3400

Last EDR Contact: 07/27/2020

Next Scheduled EDR Contact: 11/09/2020

Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 04/27/2020

Date Data Arrived at EDR: 04/28/2020

Date Made Active in Reports: 07/13/2020

Number of Days to Update: 76

Source: Department of Toxic Substances Control

Telephone: 916-323-3400

Last EDR Contact: 07/27/2020

Next Scheduled EDR Contact: 11/09/2020

Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/11/2020

Date Data Arrived at EDR: 05/12/2020

Date Made Active in Reports: 07/27/2020

Number of Days to Update: 76

Source: Department of Resources Recycling and Recovery

Telephone: 916-341-6320

Last EDR Contact: 08/10/2020

Next Scheduled EDR Contact: 11/23/2020

Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003	Source: California Regional Water Quality Control Board Lahontan Region (6)
Date Data Arrived at EDR: 09/10/2003	Telephone: 530-542-5572
Date Made Active in Reports: 10/07/2003	Last EDR Contact: 09/12/2011
Number of Days to Update: 27	Next Scheduled EDR Contact: 12/26/2011
	Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005	Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Date Data Arrived at EDR: 06/07/2005	Telephone: 760-241-7365
Date Made Active in Reports: 06/29/2005	Last EDR Contact: 09/12/2011
Number of Days to Update: 22	Next Scheduled EDR Contact: 12/26/2011
	Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001	Source: California Regional Water Quality Control Board North Coast (1)
Date Data Arrived at EDR: 02/28/2001	Telephone: 707-570-3769
Date Made Active in Reports: 03/29/2001	Last EDR Contact: 08/01/2011
Number of Days to Update: 29	Next Scheduled EDR Contact: 11/14/2011
	Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004	Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Date Data Arrived at EDR: 02/26/2004	Telephone: 760-776-8943
Date Made Active in Reports: 03/24/2004	Last EDR Contact: 08/01/2011
Number of Days to Update: 27	Next Scheduled EDR Contact: 11/14/2011
	Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/08/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/09/2020	Telephone: see region list
Date Made Active in Reports: 08/19/2020	Last EDR Contact: 06/09/2020
Number of Days to Update: 71	Next Scheduled EDR Contact: 09/21/2020
	Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/14/2020	Source: EPA Region 10
Date Data Arrived at EDR: 05/20/2020	Telephone: 206-553-2857
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 04/14/2020	Source: EPA Region 4
Date Data Arrived at EDR: 05/26/2020	Telephone: 404-562-8677
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 78	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/14/2020	Source: EPA, Region 5
Date Data Arrived at EDR: 05/20/2020	Telephone: 312-886-7439
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/29/2020	Source: EPA Region 1
Date Data Arrived at EDR: 05/20/2020	Telephone: 617-918-1313
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/08/2020	Source: EPA Region 6
Date Data Arrived at EDR: 05/20/2020	Telephone: 214-665-6597
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/15/2020	Source: EPA Region 7
Date Data Arrived at EDR: 05/20/2020	Telephone: 913-551-7003
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/14/2020	Source: EPA Region 8
Date Data Arrived at EDR: 05/20/2020	Telephone: 303-312-6271
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/08/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 05/20/2020	Telephone: 415-972-3372
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/08/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/09/2020	Telephone: 866-480-1028
Date Made Active in Reports: 08/19/2020	Last EDR Contact: 06/09/2020
Number of Days to Update: 71	Next Scheduled EDR Contact: 09/21/2020
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC REG 6L: SLIC Sites

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 02/01/2020
Date Data Arrived at EDR: 03/19/2020
Date Made Active in Reports: 06/09/2020
Number of Days to Update: 82

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 07/06/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)

Military ust sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/09/2020
Next Scheduled EDR Contact: 09/21/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 06/08/2020	Source: SWRCB
Date Data Arrived at EDR: 06/09/2020	Telephone: 916-341-5851
Date Made Active in Reports: 08/20/2020	Last EDR Contact: 06/09/2020
Number of Days to Update: 72	Next Scheduled EDR Contact: 09/21/2020
	Data Release Frequency: Semi-Annually

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases

UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 05/26/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/09/2020	Telephone: 916-327-7844
Date Made Active in Reports: 08/20/2020	Last EDR Contact: 06/09/2020
Number of Days to Update: 72	Next Scheduled EDR Contact: 09/21/2020
	Data Release Frequency: Varies

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 07/12/2016	Telephone: 916-327-5092
Date Made Active in Reports: 09/19/2016	Last EDR Contact: 06/10/2020
Number of Days to Update: 69	Next Scheduled EDR Contact: 09/28/2020
	Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 04/14/2020	Source: EPA Region 4
Date Data Arrived at EDR: 05/26/2020	Telephone: 404-562-9424
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 78	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/14/2020	Source: EPA Region 5
Date Data Arrived at EDR: 05/20/2020	Telephone: 312-886-6136
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/14/2020	Source: EPA Region 10
Date Data Arrived at EDR: 05/20/2020	Telephone: 206-553-2857
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/03/2020	Source: EPA Region 7
Date Data Arrived at EDR: 05/20/2020	Telephone: 913-551-7003
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/08/2020	Source: EPA Region 6
Date Data Arrived at EDR: 05/20/2020	Telephone: 214-665-7591
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/08/2020	Source: EPA Region 9
Date Data Arrived at EDR: 05/20/2020	Telephone: 415-972-3368
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/23/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/01/2020
	Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/29/2020	Source: EPA, Region 1
Date Data Arrived at EDR: 05/20/2020	Telephone: 617-918-1313
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/14/2020	Source: EPA Region 8
Date Data Arrived at EDR: 05/20/2020	Telephone: 303-312-6137
Date Made Active in Reports: 08/13/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 85	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 04/27/2020	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 04/28/2020	Telephone: 916-323-3400
Date Made Active in Reports: 07/13/2020	Last EDR Contact: 07/27/2020
Number of Days to Update: 76	Next Scheduled EDR Contact: 11/09/2020
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015	Source: EPA, Region 1
Date Data Arrived at EDR: 09/29/2015	Telephone: 617-918-1102
Date Made Active in Reports: 02/18/2016	Last EDR Contact: 06/17/2020
Number of Days to Update: 142	Next Scheduled EDR Contact: 10/05/2020
	Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfields Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 03/23/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/24/2020	Telephone: 916-323-7905
Date Made Active in Reports: 06/05/2020	Last EDR Contact: 06/22/2020
Number of Days to Update: 73	Next Scheduled EDR Contact: 10/05/2020
	Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/01/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 06/02/2020	Telephone: 202-566-2777
Date Made Active in Reports: 06/09/2020	Last EDR Contact: 06/02/2020
Number of Days to Update: 7	Next Scheduled EDR Contact: 09/28/2020
	Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/09/2020
Next Scheduled EDR Contact: 09/21/2020
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 05/28/2020
Date Data Arrived at EDR: 05/29/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 75

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 08/04/2020
Next Scheduled EDR Contact: 11/23/2020
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Services, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 07/31/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 03/18/2020	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 03/19/2020	Telephone: 202-307-1000
Date Made Active in Reports: 06/09/2020	Last EDR Contact: 08/19/2020
Number of Days to Update: 82	Next Scheduled EDR Contact: 12/07/2020
	Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005	Source: Department of Toxic Substance Control
Date Data Arrived at EDR: 08/03/2006	Telephone: 916-323-3400
Date Made Active in Reports: 08/24/2006	Last EDR Contact: 02/23/2009
Number of Days to Update: 21	Next Scheduled EDR Contact: 05/25/2009
	Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 04/27/2020	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 04/28/2020	Telephone: 916-323-3400
Date Made Active in Reports: 07/13/2020	Last EDR Contact: 07/27/2020
Number of Days to Update: 76	Next Scheduled EDR Contact: 11/09/2020
	Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2019	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 05/28/2020	Telephone: 916-255-6504
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 07/09/2020
Number of Days to Update: 76	Next Scheduled EDR Contact: 10/19/2020
	Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995	Source: State Water Resources Control Board
Date Data Arrived at EDR: 08/30/1995	Telephone: 916-227-4364
Date Made Active in Reports: 09/26/1995	Last EDR Contact: 01/26/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 04/27/2009
	Data Release Frequency: No Update Planned

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/20/2020
Date Data Arrived at EDR: 04/21/2020
Date Made Active in Reports: 07/13/2020
Number of Days to Update: 83

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 03/18/2020
Date Data Arrived at EDR: 03/19/2020
Date Made Active in Reports: 06/09/2020
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Quarterly

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/09/2020
Next Scheduled EDR Contact: 09/21/2020
Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 05/20/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/06/2020
Number of Days to Update: 78

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 08/17/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

Date of Government Version: 05/04/2020
Date Data Arrived at EDR: 05/06/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 72

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 04/20/2020
Date Data Arrived at EDR: 04/21/2020
Date Made Active in Reports: 07/09/2020
Number of Days to Update: 79

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 05/28/2020
Date Data Arrived at EDR: 05/29/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 75

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 08/03/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 06/01/2020	Source: DTSC and SWRCB
Date Data Arrived at EDR: 06/02/2020	Telephone: 916-323-3400
Date Made Active in Reports: 08/14/2020	Last EDR Contact: 06/02/2020
Number of Days to Update: 73	Next Scheduled EDR Contact: 09/14/2020
	Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 02/27/2020	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 03/24/2020	Telephone: 202-366-4555
Date Made Active in Reports: 06/18/2020	Last EDR Contact: 06/23/2020
Number of Days to Update: 86	Next Scheduled EDR Contact: 10/05/2020
	Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 03/31/2020	Source: Office of Emergency Services
Date Data Arrived at EDR: 04/21/2020	Telephone: 916-845-8400
Date Made Active in Reports: 07/09/2020	Last EDR Contact: 07/21/2020
Number of Days to Update: 79	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/08/2020	Source: State Water Quality Control Board
Date Data Arrived at EDR: 06/09/2020	Telephone: 866-480-1028
Date Made Active in Reports: 08/19/2020	Last EDR Contact: 06/09/2020
Number of Days to Update: 71	Next Scheduled EDR Contact: 09/21/2020
	Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 06/08/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/09/2020	Telephone: 866-480-1028
Date Made Active in Reports: 08/19/2020	Last EDR Contact: 06/09/2020
Number of Days to Update: 71	Next Scheduled EDR Contact: 09/21/2020
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012	Source: FirstSearch
Date Data Arrived at EDR: 01/03/2013	Telephone: N/A
Date Made Active in Reports: 02/22/2013	Last EDR Contact: 01/03/2013
Number of Days to Update: 50	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/23/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/25/2020	Telephone: (415) 495-8895
Date Made Active in Reports: 05/21/2020	Last EDR Contact: 06/22/2020
Number of Days to Update: 57	Next Scheduled EDR Contact: 10/05/2020
	Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 05/13/2020	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 05/18/2020	Telephone: 202-528-4285
Date Made Active in Reports: 08/12/2020	Last EDR Contact: 08/13/2020
Number of Days to Update: 86	Next Scheduled EDR Contact: 11/30/2020
	Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 11/10/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 07/09/2020
Number of Days to Update: 62	Next Scheduled EDR Contact: 10/19/2020
	Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018	Source: U.S. Geological Survey
Date Data Arrived at EDR: 04/11/2018	Telephone: 888-275-8747
Date Made Active in Reports: 11/06/2019	Last EDR Contact: 07/06/2020
Number of Days to Update: 574	Next Scheduled EDR Contact: 10/19/2020
	Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/05/2020
Next Scheduled EDR Contact: 11/23/2020
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/23/2020
Date Data Arrived at EDR: 03/24/2020
Date Made Active in Reports: 06/18/2020
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 06/22/2020
Next Scheduled EDR Contact: 10/05/2020
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 07/31/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/06/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 06/17/2020
Next Scheduled EDR Contact: 09/28/2020
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 02/05/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 79

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/14/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 03/01/2020
Date Data Arrived at EDR: 04/21/2020
Date Made Active in Reports: 07/15/2020
Number of Days to Update: 85

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 08/03/2020
Next Scheduled EDR Contact: 09/14/2020
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 01/31/2020
Date Data Arrived at EDR: 05/13/2020
Date Made Active in Reports: 08/03/2020
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/15/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 04/27/2020	Source: EPA
Date Data Arrived at EDR: 05/06/2020	Telephone: 202-564-6023
Date Made Active in Reports: 06/09/2020	Last EDR Contact: 08/03/2020
Number of Days to Update: 34	Next Scheduled EDR Contact: 11/16/2020
	Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 10/09/2019	Source: EPA
Date Data Arrived at EDR: 10/11/2019	Telephone: 202-566-0500
Date Made Active in Reports: 12/20/2019	Last EDR Contact: 07/13/2020
Number of Days to Update: 70	Next Scheduled EDR Contact: 10/19/2020
	Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/23/2016	Telephone: 202-564-2501
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 06/30/2020
Number of Days to Update: 79	Next Scheduled EDR Contact: 10/19/2020
	Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/18/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/04/2017
	Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/18/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/04/2017
	Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/25/2019	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 10/25/2019	Telephone: 301-415-7169
Date Made Active in Reports: 01/15/2020	Last EDR Contact: 07/20/2020
Number of Days to Update: 82	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2018	Source: Department of Energy
Date Data Arrived at EDR: 12/04/2019	Telephone: 202-586-8719
Date Made Active in Reports: 01/15/2020	Last EDR Contact: 06/05/2020
Number of Days to Update: 42	Next Scheduled EDR Contact: 09/14/2020
	Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/05/2019	Telephone: N/A
Date Made Active in Reports: 11/11/2019	Last EDR Contact: 06/01/2020
Number of Days to Update: 251	Next Scheduled EDR Contact: 09/14/2020
	Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/06/2019	Telephone: 202-566-0517
Date Made Active in Reports: 02/10/2020	Last EDR Contact: 08/06/2020
Number of Days to Update: 96	Next Scheduled EDR Contact: 11/16/2020
	Data Release Frequency: Varies

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/01/2019	Telephone: 202-343-9775
Date Made Active in Reports: 09/23/2019	Last EDR Contact: 06/24/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 10/12/2020
	Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transportation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 07/27/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/30/2020
Date Data Arrived at EDR: 07/15/2020
Date Made Active in Reports: 07/21/2020
Number of Days to Update: 6

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 07/06/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 06/22/2020
Next Scheduled EDR Contact: 10/05/2020
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 07/07/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/21/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 07/29/2020
Date Data Arrived at EDR: 08/03/2020
Date Made Active in Reports: 08/25/2020
Number of Days to Update: 22

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 08/03/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/01/2020
Date Data Arrived at EDR: 05/21/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 84

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/28/2020
Date Data Arrived at EDR: 05/28/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 77

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 08/26/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/27/2020
Next Scheduled EDR Contact: 09/07/2020
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/21/2020
Next Scheduled EDR Contact: 09/07/2020
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 03/05/2020
Date Data Arrived at EDR: 03/06/2020
Date Made Active in Reports: 05/29/2020
Number of Days to Update: 84

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 06/19/2020
Next Scheduled EDR Contact: 09/21/2020
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/03/2020
Date Data Arrived at EDR: 03/03/2020
Date Made Active in Reports: 05/28/2020
Number of Days to Update: 86

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 08/26/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/17/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 74

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 07/09/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 04/04/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/07/2020	Telephone: 202-564-2280
Date Made Active in Reports: 06/26/2020	Last EDR Contact: 07/02/2020
Number of Days to Update: 80	Next Scheduled EDR Contact: 10/19/2020
	Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/26/2018	Telephone: 202-564-0527
Date Made Active in Reports: 10/05/2018	Last EDR Contact: 08/19/2020
Number of Days to Update: 71	Next Scheduled EDR Contact: 12/07/2020
	Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 05/18/2020	Source: EPA
Date Data Arrived at EDR: 05/19/2020	Telephone: 800-385-6164
Date Made Active in Reports: 08/03/2020	Last EDR Contact: 08/17/2020
Number of Days to Update: 76	Next Scheduled EDR Contact: 11/30/2020
	Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989	Source: Department of Health Services
Date Data Arrived at EDR: 07/27/1994	Telephone: 916-255-2118
Date Made Active in Reports: 08/02/1994	Last EDR Contact: 05/31/1994
Number of Days to Update: 6	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 03/23/2020	Source: CAL EPA/Office of Emergency Information
Date Data Arrived at EDR: 03/24/2020	Telephone: 916-323-3400
Date Made Active in Reports: 06/05/2020	Last EDR Contact: 06/22/2020
Number of Days to Update: 73	Next Scheduled EDR Contact: 10/05/2020
	Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing

list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 05/01/2019	Source: Livermore-Pleasanton Fire Department
Date Data Arrived at EDR: 05/14/2019	Telephone: 925-454-2361
Date Made Active in Reports: 07/17/2019	Last EDR Contact: 08/14/2020
Number of Days to Update: 64	Next Scheduled EDR Contact: 11/23/2020
	Data Release Frequency: Varies

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/04/2020
Date Data Arrived at EDR: 05/06/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 72

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

KERN CO CUPA: Hazardous Material Business Plan

A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 04/29/2020
Date Data Arrived at EDR: 05/05/2020
Date Made Active in Reports: 08/26/2020
Number of Days to Update: 113

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 06/04/2020
Date Data Arrived at EDR: 06/05/2020
Date Made Active in Reports: 08/17/2020
Number of Days to Update: 73

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 08/24/2020
Next Scheduled EDR Contact: 12/13/2020
Data Release Frequency: Annually

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 05/28/2020
Date Data Arrived at EDR: 05/29/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 75

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 03/25/2020
Date Data Arrived at EDR: 03/26/2020
Date Made Active in Reports: 06/15/2020
Number of Days to Update: 81

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 08/17/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: Varies

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/24/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 59

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 06/16/2020
Next Scheduled EDR Contact: 09/28/2020
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 04/03/2020
Date Data Arrived at EDR: 04/07/2020
Date Made Active in Reports: 04/15/2020
Number of Days to Update: 8

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 04/09/2020
Date Data Arrived at EDR: 04/10/2020
Date Made Active in Reports: 07/01/2020
Number of Days to Update: 82

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 05/14/2020
Date Data Arrived at EDR: 05/15/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 73

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 08/04/2020
Next Scheduled EDR Contact: 11/23/2020
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 04/15/2020
Date Made Active in Reports: 07/02/2020
Number of Days to Update: 78

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 07/06/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 05/18/2020
Date Data Arrived at EDR: 05/19/2020
Date Made Active in Reports: 07/31/2020
Number of Days to Update: 73

Source: Department of Toxic Substances Control
Telephone: 877-786-9427
Last EDR Contact: 08/17/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/18/2020
Date Data Arrived at EDR: 05/18/2020
Date Made Active in Reports: 07/31/2020
Number of Days to Update: 74

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/17/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 04/06/2020	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 04/08/2020	Telephone: 916-440-7145
Date Made Active in Reports: 06/26/2020	Last EDR Contact: 07/07/2020
Number of Days to Update: 79	Next Scheduled EDR Contact: 10/19/2020
	Data Release Frequency: Quarterly

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 06/08/2020	Source: Department of Conservation
Date Data Arrived at EDR: 06/09/2020	Telephone: 916-322-1080
Date Made Active in Reports: 08/19/2020	Last EDR Contact: 06/09/2020
Number of Days to Update: 71	Next Scheduled EDR Contact: 09/21/2020
	Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 05/28/2020	Source: Department of Public Health
Date Data Arrived at EDR: 06/02/2020	Telephone: 916-558-1784
Date Made Active in Reports: 08/14/2020	Last EDR Contact: 06/02/2020
Number of Days to Update: 73	Next Scheduled EDR Contact: 09/14/2020
	Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 05/12/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 05/12/2020	Telephone: 916-445-9379
Date Made Active in Reports: 07/28/2020	Last EDR Contact: 08/10/2020
Number of Days to Update: 77	Next Scheduled EDR Contact: 11/23/2020
	Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 06/01/2020	Source: Department of Pesticide Regulation
Date Data Arrived at EDR: 06/02/2020	Telephone: 916-445-4038
Date Made Active in Reports: 08/14/2020	Last EDR Contact: 06/02/2020
Number of Days to Update: 73	Next Scheduled EDR Contact: 09/14/2020
	Data Release Frequency: Quarterly

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 06/08/2020	Source: Department of Conservation
Date Data Arrived at EDR: 06/09/2020	Telephone: 916-323-3836
Date Made Active in Reports: 08/19/2020	Last EDR Contact: 06/09/2020
Number of Days to Update: 71	Next Scheduled EDR Contact: 09/21/2020
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 03/12/2020	Source: State Water Resources Control Board
Date Data Arrived at EDR: 03/13/2020	Telephone: 916-445-3846
Date Made Active in Reports: 05/21/2020	Last EDR Contact: 08/20/2020
Number of Days to Update: 69	Next Scheduled EDR Contact: 09/28/2020
	Data Release Frequency: No Update Planned

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 06/06/2020	Source: Department of Conservation
Date Data Arrived at EDR: 06/09/2020	Telephone: 916-445-2408
Date Made Active in Reports: 08/20/2020	Last EDR Contact: 06/09/2020
Number of Days to Update: 72	Next Scheduled EDR Contact: 09/21/2020
	Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)

Underground control injection sites

Date of Government Version: 06/08/2020	Source: State Water Resource Control Board
Date Data Arrived at EDR: 06/09/2020	Telephone: 866-480-1028
Date Made Active in Reports: 08/19/2020	Last EDR Contact: 06/09/2020
Number of Days to Update: 71	Next Scheduled EDR Contact: 09/21/2020
	Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing

Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 11/19/2019	Source: RWQCB, Central Valley Region
Date Data Arrived at EDR: 01/07/2020	Telephone: 559-445-5577
Date Made Active in Reports: 03/09/2020	Last EDR Contact: 07/09/2020
Number of Days to Update: 62	Next Scheduled EDR Contact: 10/19/2020
	Data Release Frequency: Varies

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/20/2007	Telephone: 916-341-5227
Date Made Active in Reports: 06/29/2007	Last EDR Contact: 08/11/2020
Number of Days to Update: 9	Next Scheduled EDR Contact: 11/30/2020
	Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009	Source: Los Angeles Water Quality Control Board
Date Data Arrived at EDR: 07/21/2009	Telephone: 213-576-6726
Date Made Active in Reports: 08/03/2009	Last EDR Contact: 06/17/2020
Number of Days to Update: 13	Next Scheduled EDR Contact: 10/05/2020
	Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)

Military privatized sites

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/09/2020
Next Scheduled EDR Contact: 09/21/2020
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER) Projects sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/09/2020
Next Scheduled EDR Contact: 09/21/2020
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/20/2020
Number of Days to Update: 72

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 06/09/2020
Next Scheduled EDR Contact: 09/21/2020
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 06/01/2020
Date Data Arrived at EDR: 06/02/2020
Date Made Active in Reports: 08/14/2020
Number of Days to Update: 73

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 06/02/2020
Next Scheduled EDR Contact: 09/14/2020
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 04/20/2020
Date Data Arrived at EDR: 04/21/2020
Date Made Active in Reports: 07/13/2020
Number of Days to Update: 83

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/09/2020
Next Scheduled EDR Contact: 09/21/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/09/2020
Next Scheduled EDR Contact: 09/21/2020
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)

Produced water ponds sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/09/2020
Next Scheduled EDR Contact: 09/21/2020
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)

Sampling point - public sites

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/09/2020
Next Scheduled EDR Contact: 09/21/2020
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)

Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/09/2020
Date Made Active in Reports: 08/19/2020
Number of Days to Update: 71

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/09/2020
Next Scheduled EDR Contact: 09/21/2020
Data Release Frequency: Varies

PCS: Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 06/08/2020
Next Scheduled EDR Contact: 09/21/2020
Data Release Frequency: Semi-Annually

PCS INACTIVE: Listing of Inactive PCS Permits

An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 07/09/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Semi-Annually

PCS ENF: Enforcement data

No description is available for this data

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29

Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 07/01/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3

Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 05/21/2020
Next Scheduled EDR Contact: 09/07/2020
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System

DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 04/09/2020
Date Made Active in Reports: 07/01/2020
Number of Days to Update: 83

Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 08/02/2020
Next Scheduled EDR Contact: 10/18/2020
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A	Source: Department of Resources Recycling and Recovery
Date Data Arrived at EDR: 07/01/2013	Telephone: N/A
Date Made Active in Reports: 01/13/2014	Last EDR Contact: 06/01/2012
Number of Days to Update: 196	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A	Source: State Water Resources Control Board
Date Data Arrived at EDR: 07/01/2013	Telephone: N/A
Date Made Active in Reports: 12/30/2013	Last EDR Contact: 06/01/2012
Number of Days to Update: 182	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019	Source: Alameda County Environmental Health Services
Date Data Arrived at EDR: 01/11/2019	Telephone: 510-567-6700
Date Made Active in Reports: 03/05/2019	Last EDR Contact: 06/30/2020
Number of Days to Update: 53	Next Scheduled EDR Contact: 10/19/2020
	Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 06/30/2020	Source: Alameda County Environmental Health Services
Date Data Arrived at EDR: 07/01/2020	Telephone: 510-567-6700
Date Made Active in Reports: 07/17/2020	Last EDR Contact: 06/30/2020
Number of Days to Update: 16	Next Scheduled EDR Contact: 10/19/2020
	Data Release Frequency: Semi-Annually

AMADOR COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA AMADOR: CUPA Facility List Cupa Facility List

Date of Government Version: 05/18/2020
Date Data Arrived at EDR: 05/19/2020
Date Made Active in Reports: 06/01/2020
Number of Days to Update: 13

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 06/30/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing Cupa Facility Listing

Date of Government Version: 03/27/2020
Date Data Arrived at EDR: 03/31/2020
Date Made Active in Reports: 06/15/2020
Number of Days to Update: 76

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 06/17/2020
Next Scheduled EDR Contact: 10/05/2020
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 04/01/2020
Date Data Arrived at EDR: 04/20/2020
Date Made Active in Reports: 07/06/2020
Number of Days to Update: 77

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA DEL NORTE: CUPA Facility List Cupa Facility list

Date of Government Version: 04/16/2020
Date Data Arrived at EDR: 04/20/2020
Date Made Active in Reports: 07/08/2020
Number of Days to Update: 79

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 08/13/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List CUPA facility list.

Date of Government Version: 05/07/2020
Date Data Arrived at EDR: 05/07/2020
Date Made Active in Reports: 07/23/2020
Number of Days to Update: 77

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 08/13/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 01/10/2020
Date Data Arrived at EDR: 03/31/2020
Date Made Active in Reports: 06/15/2020
Number of Days to Update: 76

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 06/30/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List CUPA facility list.

Date of Government Version: 05/19/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 06/15/2020
Number of Days to Update: 26

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA IMPERIAL: CUPA Facility List Cupa facility list.

Date of Government Version: 04/09/2020
Date Data Arrived at EDR: 04/10/2020
Date Made Active in Reports: 07/01/2020
Number of Days to Update: 82

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 73

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

KERN COUNTY:

UST KERN: Underground Storage Tank Sites & Tank Listing Kern County Sites and Tanks Listing.

Date of Government Version: 04/29/2020
Date Data Arrived at EDR: 05/05/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 73

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 05/11/2020
Date Data Arrived at EDR: 05/12/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 76

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 08/21/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List Cupa facility list

Date of Government Version: 04/20/2020
Date Data Arrived at EDR: 04/28/2020
Date Made Active in Reports: 07/14/2020
Number of Days to Update: 77

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 07/08/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Varies

LASSEN COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA LASSEN: CUPA Facility List Cupa facility list

Date of Government Version: 01/30/2020
Date Data Arrived at EDR: 01/31/2020
Date Made Active in Reports: 04/09/2020
Number of Days to Update: 69

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 06/10/2020
Next Scheduled EDR Contact: 09/28/2020
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 03/26/2020
Date Data Arrived at EDR: 03/26/2020
Date Made Active in Reports: 06/15/2020
Number of Days to Update: 81

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 06/30/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 04/13/2020
Date Data Arrived at EDR: 04/14/2020
Date Made Active in Reports: 07/01/2020
Number of Days to Update: 78

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 07/13/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 01/15/2019
Date Made Active in Reports: 03/07/2019
Number of Days to Update: 51

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 07/08/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory

A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58

Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 06/25/2020
Next Scheduled EDR Contact: 10/05/2020
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LOS ANGELES CO LF METHANE: Methane Producing Landfills

This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 04/30/2012	Source: Los Angeles County Department of Public Works
Date Data Arrived at EDR: 04/17/2019	Telephone: 626-458-6973
Date Made Active in Reports: 05/29/2019	Last EDR Contact: 08/11/2020
Number of Days to Update: 42	Next Scheduled EDR Contact: 10/26/2020
	Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory

A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019	Source: Los Angeles Fire Department
Date Data Arrived at EDR: 06/25/2019	Telephone: 213-978-3800
Date Made Active in Reports: 08/22/2019	Last EDR Contact: 06/25/2020
Number of Days to Update: 58	Next Scheduled EDR Contact: 10/05/2020
	Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory

A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 06/01/2019	Source: Los Angeles Fire Department
Date Data Arrived at EDR: 06/25/2019	Telephone: 213-978-3800
Date Made Active in Reports: 08/22/2019	Last EDR Contact: 06/25/2020
Number of Days to Update: 58	Next Scheduled EDR Contact: 10/05/2020
	Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 03/25/2020	Source: Community Health Services
Date Data Arrived at EDR: 04/14/2020	Telephone: 323-890-7806
Date Made Active in Reports: 07/01/2020	Last EDR Contact: 07/17/2020
Number of Days to Update: 78	Next Scheduled EDR Contact: 10/26/2020
	Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017	Source: City of El Segundo Fire Department
Date Data Arrived at EDR: 04/19/2017	Telephone: 310-524-2236
Date Made Active in Reports: 05/10/2017	Last EDR Contact: 07/08/2020
Number of Days to Update: 21	Next Scheduled EDR Contact: 10/26/2020
	Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019	Source: City of Long Beach Fire Department
Date Data Arrived at EDR: 04/23/2019	Telephone: 562-570-2563
Date Made Active in Reports: 06/27/2019	Last EDR Contact: 07/14/2020
Number of Days to Update: 65	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 06/27/2019	Source: City of Torrance Fire Department
Date Data Arrived at EDR: 07/30/2019	Telephone: 310-618-2973
Date Made Active in Reports: 10/02/2019	Last EDR Contact: 07/14/2020
Number of Days to Update: 64	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 02/24/2020	Source: Madera County Environmental Health
Date Data Arrived at EDR: 02/25/2020	Telephone: 559-675-7823
Date Made Active in Reports: 05/07/2020	Last EDR Contact: 08/04/2020
Number of Days to Update: 72	Next Scheduled EDR Contact: 11/30/2020
	Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018	Source: Public Works Department Waste Management
Date Data Arrived at EDR: 10/04/2018	Telephone: 415-473-6647
Date Made Active in Reports: 11/02/2018	Last EDR Contact: 06/24/2020
Number of Days to Update: 29	Next Scheduled EDR Contact: 10/12/2020
	Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/28/2020	Source: Merced County Environmental Health
Date Data Arrived at EDR: 07/30/2020	Telephone: 209-381-1094
Date Made Active in Reports: 07/31/2020	Last EDR Contact: 07/24/2020
Number of Days to Update: 1	Next Scheduled EDR Contact: 11/30/2020
	Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 05/15/2020	Source: Mono County Health Department
Date Data Arrived at EDR: 06/02/2020	Telephone: 760-932-5580
Date Made Active in Reports: 08/14/2020	Last EDR Contact: 08/19/2020
Number of Days to Update: 73	Next Scheduled EDR Contact: 12/07/2020
	Data Release Frequency: Varies

MONTEREY COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA MONTEREY: CUPA Facility Listing

CUPA Program listing from the Environmental Health Division.

Date of Government Version: 07/13/2020
Date Data Arrived at EDR: 07/15/2020
Date Made Active in Reports: 07/31/2020
Number of Days to Update: 16

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 07/08/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination

A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites

Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List

CUPA facility list.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/07/2020
Date Made Active in Reports: 07/24/2020
Number of Days to Update: 78

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 07/21/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups

Petroleum and non-petroleum spills.

Date of Government Version: 05/01/2020
Date Data Arrived at EDR: 05/08/2020
Date Made Active in Reports: 07/24/2020
Number of Days to Update: 77

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/31/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups

Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 05/01/2020
Date Data Arrived at EDR: 05/08/2020
Date Made Active in Reports: 07/24/2020
Number of Days to Update: 77

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 07/31/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST ORANGE: List of Underground Storage Tank Facilities

Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 05/01/2020
Date Data Arrived at EDR: 05/05/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 73

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/03/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities

List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 06/10/2020
Date Made Active in Reports: 08/24/2020
Number of Days to Update: 75

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List

Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites

Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 03/10/2020
Date Data Arrived at EDR: 03/11/2020
Date Made Active in Reports: 05/20/2020
Number of Days to Update: 70

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 06/10/2020
Next Scheduled EDR Contact: 09/28/2020
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 03/10/2020
Date Data Arrived at EDR: 03/11/2020
Date Made Active in Reports: 05/20/2020
Number of Days to Update: 70

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 06/10/2020
Next Scheduled EDR Contact: 09/28/2020
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/18/2020
Date Data Arrived at EDR: 03/31/2020
Date Made Active in Reports: 06/15/2020
Number of Days to Update: 76

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/02/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 02/24/2020
Date Data Arrived at EDR: 03/31/2020
Date Made Active in Reports: 06/17/2020
Number of Days to Update: 78

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/02/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List

Cupa facility list

Date of Government Version: 04/24/2020
Date Data Arrived at EDR: 04/28/2020
Date Made Active in Reports: 07/13/2020
Number of Days to Update: 76

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 02/25/2020
Date Data Arrived at EDR: 02/26/2020
Date Made Active in Reports: 05/07/2020
Number of Days to Update: 71

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 06/01/2020
Date Data Arrived at EDR: 06/02/2020
Date Made Active in Reports: 08/14/2020
Number of Days to Update: 73

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 06/02/2020
Next Scheduled EDR Contact: 09/14/2020
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 56

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 04/09/2020
Date Data Arrived at EDR: 04/10/2020
Date Made Active in Reports: 06/26/2020
Number of Days to Update: 77

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

LUST SAN FRANCISCO: Local Oversight Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 05/04/2020
Date Data Arrived at EDR: 05/06/2020
Date Made Active in Reports: 07/17/2020
Number of Days to Update: 72

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 06/10/2020
Next Scheduled EDR Contact: 09/28/2020
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA SAN LUIS OBISPO: CUPA Facility List Cupa Facility List.

Date of Government Version: 05/08/2020
Date Data Arrived at EDR: 05/08/2020
Date Made Active in Reports: 08/03/2020
Number of Days to Update: 87

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/12/2020
Next Scheduled EDR Contact: 09/21/2020
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/03/2020
Next Scheduled EDR Contact: 09/21/2020
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing

CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List

Cupa facility list

Date of Government Version: 05/08/2020
Date Data Arrived at EDR: 05/12/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 76

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST SANTA CLARA: LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 08/19/2020
Next Scheduled EDR Contact: 12/07/2020
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 04/22/2020
Date Data Arrived at EDR: 04/24/2020
Date Made Active in Reports: 05/07/2020
Number of Days to Update: 13

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 07/28/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List

CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List

Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 03/02/2020
Date Data Arrived at EDR: 03/04/2020
Date Made Active in Reports: 05/14/2020
Number of Days to Update: 71

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Quarterly

SONOMA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA SONOMA: Cupa Facility List Cupa Facility list

Date of Government Version: 02/25/2020
Date Data Arrived at EDR: 02/26/2020
Date Made Active in Reports: 03/11/2020
Number of Days to Update: 14

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 06/30/2020
Next Scheduled EDR Contact: 10/05/2020
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 04/03/2020
Date Data Arrived at EDR: 04/08/2020
Date Made Active in Reports: 06/26/2020
Number of Days to Update: 79

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 06/17/2020
Next Scheduled EDR Contact: 10/05/2020
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List Cupa facility list

Date of Government Version: 02/04/2020
Date Data Arrived at EDR: 02/05/2020
Date Made Active in Reports: 04/15/2020
Number of Days to Update: 70

Source: Stanislaus County Department of Environmental Protection
Telephone: 209-525-6751
Last EDR Contact: 07/06/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 05/26/2020
Date Data Arrived at EDR: 05/28/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 77

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 08/25/2020
Next Scheduled EDR Contact: 12/14/2020
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List Cupa facilities

Date of Government Version: 05/18/2020
Date Data Arrived at EDR: 05/19/2020
Date Made Active in Reports: 07/31/2020
Number of Days to Update: 73

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List Cupa facility list

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/09/2020
Date Data Arrived at EDR: 04/10/2020
Date Made Active in Reports: 07/01/2020
Number of Days to Update: 82

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List Cupa program facilities

Date of Government Version: 05/14/2020
Date Data Arrived at EDR: 05/15/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 73

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 08/06/2020
Next Scheduled EDR Contact: 11/16/2020
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Division of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 07/14/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 03/26/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/09/2020
Number of Days to Update: 77

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/20/2020
Next Scheduled EDR Contact: 11/02/2020
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/24/2020
Next Scheduled EDR Contact: 10/12/2020
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/04/2020
Next Scheduled EDR Contact: 11/23/2020
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

MED WASTE VENTURA: Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 03/26/2020	Source: Ventura County Resource Management Agency
Date Data Arrived at EDR: 04/23/2020	Telephone: 805-654-2813
Date Made Active in Reports: 07/09/2020	Last EDR Contact: 07/20/2020
Number of Days to Update: 77	Next Scheduled EDR Contact: 11/02/2020
	Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 05/26/2020	Source: Environmental Health Division
Date Data Arrived at EDR: 06/09/2020	Telephone: 805-654-2813
Date Made Active in Reports: 08/20/2020	Last EDR Contact: 06/09/2020
Number of Days to Update: 72	Next Scheduled EDR Contact: 09/21/2020
	Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 03/23/2020	Source: Yolo County Department of Health
Date Data Arrived at EDR: 04/01/2020	Telephone: 530-666-8646
Date Made Active in Reports: 06/17/2020	Last EDR Contact: 06/24/2020
Number of Days to Update: 77	Next Scheduled EDR Contact: 10/12/2020
	Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List

CUPA facility listing for Yuba County.

Date of Government Version: 04/27/2020	Source: Yuba County Environmental Health Department
Date Data Arrived at EDR: 04/29/2020	Telephone: 530-749-7523
Date Made Active in Reports: 07/17/2020	Last EDR Contact: 08/04/2020
Number of Days to Update: 79	Next Scheduled EDR Contact: 11/09/2020
	Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 05/12/2020	Source: Department of Energy & Environmental Protection
Date Data Arrived at EDR: 05/12/2020	Telephone: 860-424-3375
Date Made Active in Reports: 07/27/2020	Last EDR Contact: 08/10/2020
Number of Days to Update: 76	Next Scheduled EDR Contact: 11/23/2020
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/09/2020
Next Scheduled EDR Contact: 10/19/2020
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 04/29/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 72

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 07/31/2020
Next Scheduled EDR Contact: 11/09/2020
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 07/09/2020
Next Scheduled EDR Contact: 10/26/2020
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 10/02/2019
Date Made Active in Reports: 12/10/2019
Number of Days to Update: 69

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/11/2020
Next Scheduled EDR Contact: 11/30/2020
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 06/04/2020
Next Scheduled EDR Contact: 09/21/2020
Data Release Frequency: Annually

Oil/Gas Pipelines

Source: Endeavor Business Media

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data

Source: Endeavor Business Media

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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AHA Hospitals:

Source: American Hospital Association, Inc.

Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities

Source: Department of Social Services

Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory

Source: Department of Fish and Wildlife

Telephone: 916-445-0411

STREET AND ADDRESS INFORMATION

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APPENDIX F

GEOTRACKER

calexico, ca

Map Address

Sites and Facilities - INFO

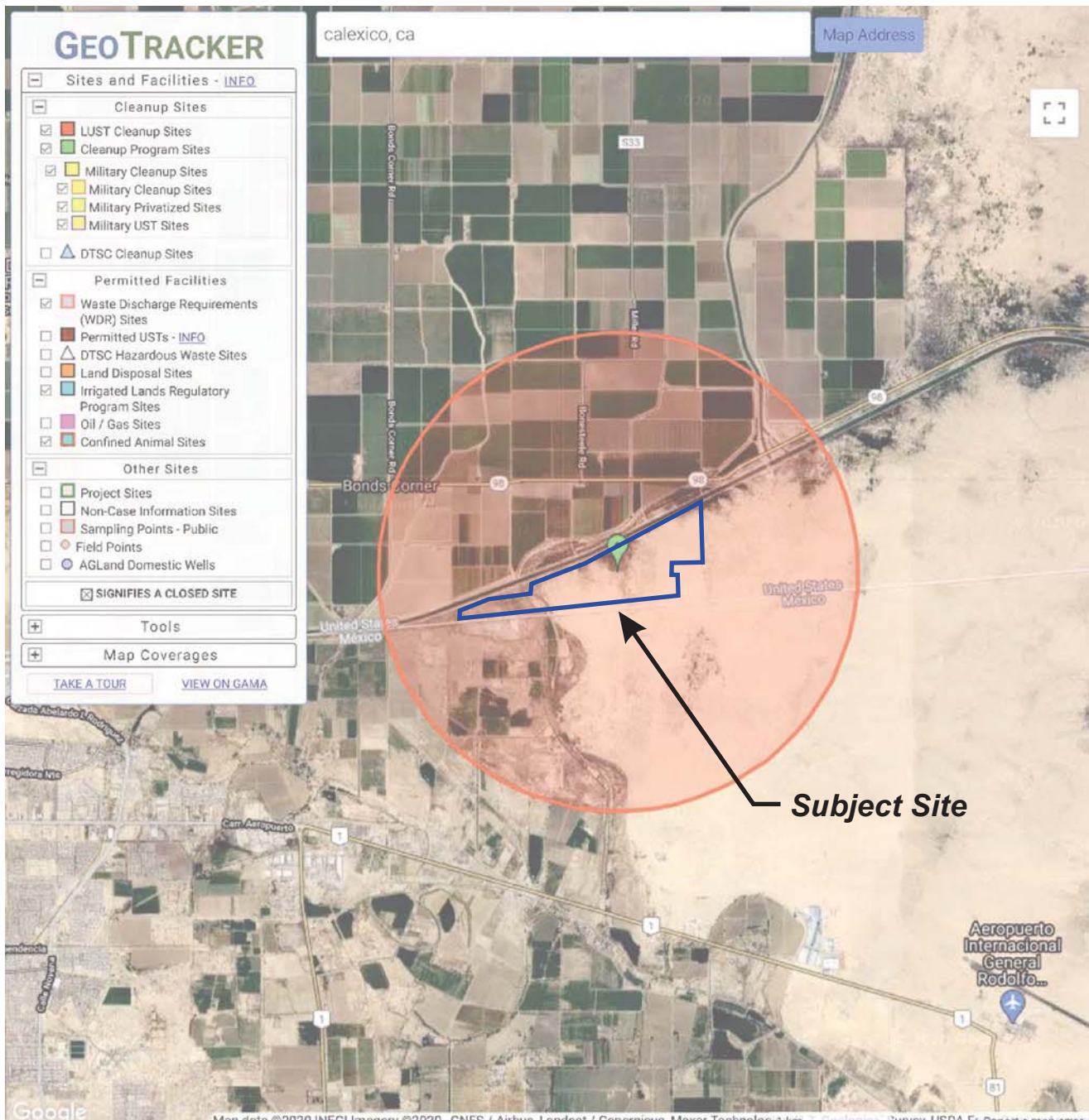
- Cleanup Sites
 - LUST Cleanup Sites
 - Cleanup Program Sites
 - Military Cleanup Sites
 - Military Cleanup Sites
 - Military Privatized Sites
 - Military UST Sites
 - DTSC Cleanup Sites
- Permitted Facilities
 - Waste Discharge Requirements (WDR) Sites
 - Permitted USTs - INFO
 - DTSC Hazardous Waste Sites
 - Land Disposal Sites
 - Irrigated Lands Regulatory Program Sites
 - Oil / Gas Sites
 - Confined Animal Sites
- Other Sites
 - Project Sites
 - Non-Case Information Sites
 - Sampling Points - Public
 - Field Points
 - AGLand Domestic Wells

SIGNIFIES A CLOSED SITE

Tools

Map Coverages

[TAKE A TOUR](#) [VIEW ON GAMA](#)



Subject Site

SITES FOUND IN SEARCH RADIUS: 0 SITES LISTED [EXPORT THIS LIST TO EXCEL](#)

SITE NAME	GLOBAL ID	STATUS	ADDRESS	CITY
-----------	-----------	--------	---------	------



Project No.: GS2015

Geotracker Map

Plate
15

INFO ITEM ONLY

ENVIROSTOR

calexico, ca

Map Address

Sites and Facilities

Cleanup Sites

- Federal Superfund
- State Response
- Voluntary Cleanup
- School Cleanup
- Evaluation
- School Investigation
- Military Evaluation
- Tiered Permit
- Corrective Action
- Field Points

STATUS
All Statuses

Permitted Sites

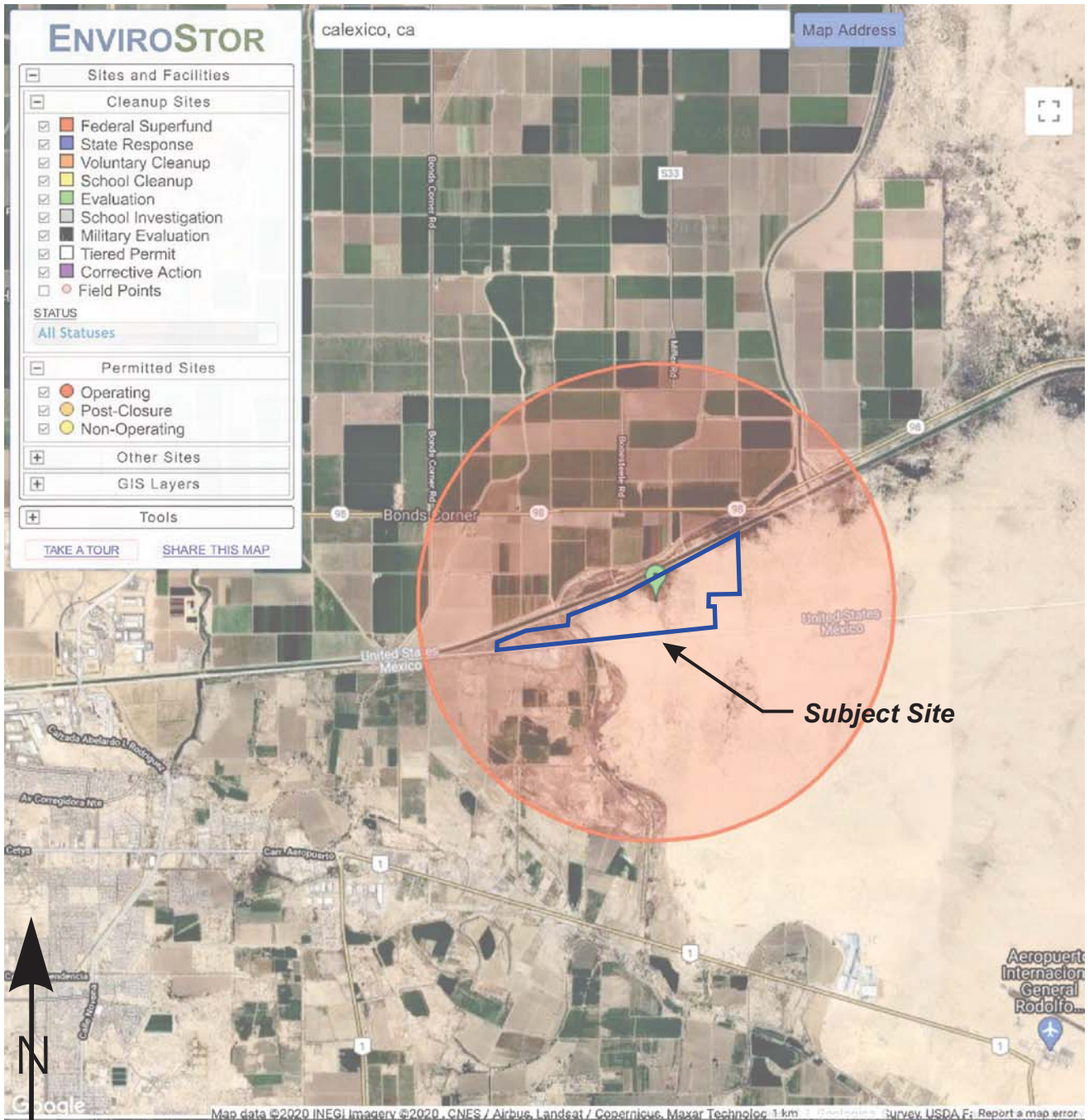
- Operating
- Post-Closure
- Non-Operating

Other Sites

GIS Layers

Tools

[TAKE A TOUR](#) [SHARE THIS MAP](#)



Subject Site

SITES FOUND IN SEARCH RADIUS: 0 SITES LISTED [EXPORT THIS LIST TO EXCEL](#)

PROJECT NAME	STATUS	PROJECT TYPE	ADDRESS	CITY



Project No.: GS2015

Envirostor Map

Plate
16

INFO ITEM ONLY

APPENDIX G

Fidelity National Title Company

4210 Riverwalk Parkway, Suite 200
Riverside, CA 92505
Phone: (951) 710-5912 • Fax:

Issuing Policies of Fidelity National Title Insurance Company

Title Officer: Mitch LaRiva
Escrow Officer: Major Accounts OAC

Order No.: 997-30053824-ML6

TO:
ZGlobal
604 Sutter Street, Suite 250
Folsom, CA 95630

ATTN: **Jamie Nichole Nagel**
YOUR REFERENCE: **059-300-015 SLATER**

PROPERTY ADDRESS: APN'S #059-300-015-000, 059-300-017-000 and 059-290-010-000, County of Imperial, CA

PRELIMINARY REPORT

*In response to the application for a policy of title insurance referenced herein, **Fidelity National Title Company** hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a policy or policies of title insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an exception herein or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations or Conditions of said policy forms.*

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said policy or policies are set forth in Attachment One. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Attachment One. Copies of the policy forms should be read. They are available from the office which issued this report.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

The policy(s) of title insurance to be issued hereunder will be policy(s) of Fidelity National Title Insurance Company, a Florida Corporation.

Please read the exceptions shown or referred to herein and the exceptions and exclusions set forth in Attachment One of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects and encumbrances affecting title to the land.

Countersigned by:



Authorized Signature

PRELIMINARY REPORT

EFFECTIVE DATE: August 31, 2020 at 7:30 a.m.

ORDER NO.: 997-30053824-ML6

The form of policy or policies of title insurance contemplated by this report is:

ALTA Standard Owners Policy (6-17-06)

1. THE ESTATE OR INTEREST IN THE LAND HEREINAFTER DESCRIBED OR REFERRED TO COVERED BY THIS REPORT IS:

A FEE

2. TITLE TO SAID ESTATE OR INTEREST AT THE DATE HEREOF IS [VESTED IN:](#)

TAMMY CHERI SLATER and JIMMIE R. DOYLE, Successor Co-Trustees of the EXEMPTION TRUST under the DOYLE FAMILY 2010 TRUST, dated August 13, 2010, as to an undivided 92.9% interest and TAMMY CHERI SLATER and JIMMIE R. DOYLE, Successor Co-Trustees of the SURVIVOR'S TRUST under the DOYLE FAMILY 2010 TRUST, dated August 13, 2010, as to an undivided 7.1% interest, subject to Item No. 24 of Exceptions and Item No's. 1 and 2 of Requirements

3. THE LAND REFERRED TO IN THIS REPORT IS DESCRIBED AS FOLLOWS:

See Exhibit A attached hereto and made a part hereof.

EXHIBIT A LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE UNINCORPORATED AREA OF COUNTY OF IMPERIAL, COUNTY OF IMPERIAL, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL 1:

THOSE PORTIONS OF LOTS 13, 20 AND 21, AND THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 10, LYING SOUTH OF THE ALL-AMERICAN CANAL, TOWNSHIP 17 SOUTH, RANGE 16 EAST, SAN BERNARDINO MERIDIAN, IN AN UNINCORPORATED AREA OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

PORTION OF [APN: 059-300-015-000](#)

PARCEL 2:

LOTS 11, 13, 15 AND THE NORTH HALF OF THE SOUTHEAST QUARTER OF SECTION 11, TOWNSHIP 17 SOUTH, RANGE 16 EAST, SAN BERNARDINO MERIDIAN, IN AN UNINCORPORATED AREA OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

PORTION OF [APN: 059-300-015-000](#)

PARCEL 3:

THOSE PORTIONS OF LOTS 6, 7 AND 10, AND THE NORTHEAST QUARTER OF SECTION 11, LYING SOUTH OF THE ALL-AMERICAN CANAL, TOWNSHIP 17 SOUTH, RANGE 16 EAST, SAN BERNARDINO MERIDIAN, IN AN UNINCORPORATED AREA OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

PORTION OF [APN: 059-300-015-000](#)

PARCEL 4:

TRACT 41, TOWNSHIP 17 SOUTH, RANGE 16 EAST, SAN BERNARDINO MERIDIAN, IN AN UNINCORPORATED AREA OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

EXCEPTING THEREFROM ONE-HALF OF ALL STEAM, MINERALS, OILS, GAS, WATER, CARBONS AND HYDROCARBONS ON OR UNDER THE HEREIN DESCRIBED PROPERTY, AS RESERVED BY NATALIE KAPLAN BY DEED RECORDED APRIL 5, 1979 AS DOCUMENT NO. 3 IN [BOOK 1431, PAGE 1454](#), OF OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM THE SOUTH 60 FEET THEREOF AS TAKEN BY THE UNITED STATES OF AMERICA IN DECLARATION OF TAKING RECORDED AUGUST 8, 2008 AS [DOCUMENT NO. 2008-023038, OF OFFICIAL RECORDS](#).

[APN: 059-300-017-000](#)

EXHIBIT A
(Continued)

PARCEL 5:

LOTS 2, 3, 4 AND 7, SECTION 15 AND THAT PORTION OF LOT 3, SECTION 16, LYING SOUTHERLY OF THE ALL- AMERICAN CANAL, ALL IN TOWNSHIP 17 SOUTH, RANGE 16 EAST, SAN BERNARDINO MERIDIAN, IN AN UNINCORPORATED AREA OF THE COUNTY OF IMPERIAL, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

EXCEPTING THEREFROM ANY PORTIONS THEREOF LYING WITHIN THE PUBLIC RESERVE, BEING THE SOUTH 60 FEET, LYING ADJACENT TO THE INTERNATIONAL BORDER BETWEEN THE UNITED STATES AND MEXICO, AS SET OUT BY PRESIDENTIAL PROCLAMATION DATED MAY 27, 1907 (35 STATS, 2186).

[APN: 059-290-010-000](#)

EXCEPTIONS

AT THE DATE HEREOF, ITEMS TO BE CONSIDERED AND EXCEPTIONS TO COVERAGE IN ADDITION TO THE PRINTED EXCEPTIONS AND EXCLUSIONS IN SAID POLICY FORM WOULD BE AS FOLLOWS:

- A. Property taxes, including any personal property taxes and any assessments collected with taxes, are as follows:

Tax Identification No.: 059-300-015-000
Fiscal Year: 2020-2021
1st Installment: \$1,369.48, OPEN (Delinquent after December 10)
Penalty: \$136.94
2nd Installment: \$1,369.48, OPEN (Delinquent after April 10)
Penalty and Cost: \$146.94
Homeowners Exemption: \$0.00
Code Area: 068-012

Affects: Parcels 1, 2 and 3.

Property taxes, including any personal property taxes and any assessments collected with taxes, are as follows:

Tax Identification No.: 059-300-017-000
Fiscal Year: 2020-2021
1st Installment: \$374.67, OPEN (Delinquent after December 10)
Penalty: \$37.46
2nd Installment: \$374.67, OPEN (Delinquent after April 10)
Penalty and Cost: \$47.46
Homeowners Exemption: \$0.00
Code Area: 068-012

Affects: Parcel 4.

Property taxes, including any personal property taxes and any assessments collected with taxes, are as follows:

Tax Identification No.: 059-290-010-000
Fiscal Year: 2020-2021
1st Installment: \$204.52, OPEN (Delinquent after December 10)
Penalty: \$20.45
2nd Installment: \$204.52, OPEN (Delinquent after April 10)
Penalty and Cost: \$30.45
Homeowners Exemption: \$0.00
Code Area: 068-012

Affects: Parcel 5.

- B. Taxes and assessments levied by the Imperial Irrigation District.
- C. The lien of supplemental or escaped assessments of property taxes, if any, made pursuant to the provisions of Chapter 3.5 (commencing with Section 75) or Part 2, Chapter 3, Articles 3 and 4, respectively, of the Revenue and Taxation Code of the State of California as a result of the transfer of title to the vestee named in Schedule A or as a result of changes in ownership or new construction occurring prior to Date of Policy.

**EXCEPTIONS
(Continued)**

1. Water rights, claims or title to water, whether or not disclosed by the public records.
2. Easement(s) in favor of the public over any existing roads lying within said Land.
3. Lack of right of access to and from a public street or highway.
4. Rights or claims of easements for canals, drains, laterals, irrigation pipelines and gates not recorded in the public record.
5. Title to, and easements in, any portion of the land lying within any highways, roads, streets, or other ways.
6. The herein described Land is located in an area frequently subject to Land Conservation Contracts executed pursuant to the Williamson Act (Cal. Govt. Code §§ 51200 et seq.). Land Conservation Contracts restrict the land use to agricultural, recreational, open-space and other compatible uses. If the herein described Land is subject to a Land Conservation Contract, please notify the Title Department.

The Company reserves the right to add additional items and/or make further requirements.

7. Canal right of way, dated October 4, 1915, Serial No. LA 026139 by Act of Congress March 3, 1891, as disclosed by the District Land Office of the Bureau of Land Management.

Affects: Lot 3 in Section 15 of Parcel 5.

8. Reservations contained in the Patent

From: The United States of America
Recording Date: February 16, 1916
Recording No: 20, [Book 7, Page 207](#), of Patents

Which among other things recites as follows:

Subject to any vested and accrued water rights for mining, agricultural, manufacturing, or other purposes and rights to ditches and reservoirs used in connection with such water rights, as may be recognized and acknowledged by the local customs, laws and decisions of the courts, and the reservation from the lands hereby granted, a right of way thereon for ditches or canals constructed by the authority of the United States.

Affects: Parcels 1 and 5.

**EXCEPTIONS
(Continued)**

9. Reservations contained in the Patent

From: The United States of America
Recording Date: August 20, 1919
Recording No: 24, [Book 9, Page 88](#), of Patents

Which among other things recites as follows:

Subject to any vested and accrued water rights for mining, agricultural, manufacturing, or other purposes and rights to ditches and reservoirs used in connection with such water rights, as may be recognized and acknowledged by the local customs, laws and decisions of the courts, and the reservation from the lands hereby granted, a right of way thereon for ditches or canals constructed by the authority of the United States.

Affects: A portion of Parcels 1, 2 and 3.

10. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: Imperial Water Company
Purpose: Irrigation purposes
Recording Date: March 26, 1913
Recording No: 33, [Book 69, Page 386](#), of Deeds
Affects: Parcel 3.

11. Matters contained in that certain document

Entitled: Agreement
Dated: July 26, 1923
Executed by: Imperial Irrigation District and Will Kimberly, et al.
Recording Date: December 1, 1924
Recording No: 90, [Book 68, Page 165](#), of Official Records

Reference is hereby made to said document for full particulars.

Among other things, said document provides for: Drainage ditches.

Affects: A right of way whose width shall not exceed one hundred and fifty (150) feet across, over Lots 3 and 4, in Section 15, as shown on the map attached to said document.

Affects: Parcel 5.

**EXCEPTIONS
(Continued)**

12. Reservations contained in the Patent

From: The United States of America
Recording Date: October 4, 1928
Recording No: 34, [Book 206, Page 223](#), of Official Records

Which among other things recites as follows:

Subject to any vested and accrued water rights for mining, agricultural, manufacturing, or other purposes and rights to ditches and reservoirs used in connection with such water rights, as may be recognized and acknowledged by the local customs, laws and decisions of the courts, and the reservation from the lands hereby granted, a right of way thereon for ditches or canals constructed by the authority of the United States.

Affects: Parcels 2 and 3.

13. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: Imperial Irrigation District
Purpose: Canal, telephone and power lines
Recording Date: November 4, 1952
Recording No: [Book 849, Page 666](#), of Official Records
Affects: A portion of said land as more particularly described in said document.

Affects: Parcels 2 and 3.

14. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: Imperial Irrigation District
Purpose: Canal, telephone and power lines
Recording Date: December 4, 1952
Recording No: [Book 849, Page 668](#), of Official Records
Affects: A portion of said land as more particularly described in said document.

Affects: Parcel 1.

15. Easement(s) for the purpose(s) shown below and rights incidental thereto as reserved in a document;

Reserved by: Imperial Irrigation District
Purpose: Irrigation, waste or drainage canals, or power or telephone lines and incidental purposes
Recording Date: December 5, 1952
Recording No: 23, [Book 851, Page 42](#), of Official Records
Affects: Parcels 2 and 3.

**EXCEPTIONS
(Continued)**

16. Matters contained in that certain document

Entitled: Agreement
Dated: April 12, 1977
Executed by: The Imperial Irrigation District and Earl A. Silzle, et ux.
Recording Date: April 19, 1977
Recording No: [Book 1400, Page 583](#), of Official Records

Reference is hereby made to said document for full particulars.

Among other things, said document provides for: Water delivery.

Affects: Parcels 1, 2 and 3.

17. Matters contained in that certain document

Entitled: Agreement
Dated: December 20, 1977
Executed by: Imperial Irrigation District and Earl A. Silzle, et ux.
Recording Date: January 4, 1978
Recording No: [Book 1410, Page 1432](#), of Official Records

Reference is hereby made to said document for full particulars.

Among other things, said document provides for: Operation and maintenance of the Verde Drain.

Affects: Parcels 1, 2 and 3.

18. Easement(s) for the purpose(s) shown below and rights incidental thereto as reserved in a document;

Reserved by: Imperial Irrigation District
Purpose: Irrigation, waste or drainage canals or power or telephone lines
Recording Date: April 5, 1979
Recording No: 1, [Book 1431, Page 1450](#), of Official Records
Affects: Parcel 4.

19. An unrecorded oil and gas lease for the term therein provided, with certain covenants, conditions and provisions, together with easements, if any, as set forth therein, disclosed by document

Entitled: Short Form of Lease and Agreement
Lessor: E. A. Silzle, et ux.
Lessee: Occidental Geothermal, Inc.
Recording Date: April 6, 1979
Recording No: [Book 1431, Page 1613](#), of Official Records

No assurance is made as to the present ownership of the leasehold created by said lease, nor as to other matters affecting the rights or interests of the lessor or lessee in said lease.

Affects: Parcels 1, 2 and 3.

**EXCEPTIONS
(Continued)**

20. An oil and gas lease for the term therein provided with certain covenants, conditions and provisions, together with easements, if any, as set forth therein.

Dated: July 14, 1981
Lessor: Bill Silzle, aka William Silzle, a married man dealing with his sole and separate property
Lessee: Emefco Petroleum, Inc.
Recording Date: August 28, 1981
Recording No: 52, [Book 1474, Page 49](#), of Official Records

No assurance is made as to the present ownership of the leasehold created by said lease, nor as to other matters affecting the rights or interests of the lessor or lessee in said lease.

Affects: Parcel 5.

21. An oil and gas lease for the term therein provided with certain covenants, conditions and provisions, together with easements, if any, as set forth therein.

Dated: July 14, 1981
Lessor: The Jet B Corporation, Inc., a California corporation
Lessee: Emefco Petroleum, Inc.
Recording Date: August 28, 1981
Recording No: 58, [Book 1474, Page 63](#), of Official Records

No assurance is made as to the present ownership of the leasehold created by said lease, nor as to other matters affecting the rights or interests of the lessor or lessee in said lease.

Affects: Parcels 1, 2 and 3.

22. An oil and gas lease for the term therein provided with certain covenants, conditions and provisions, together with easements, if any, as set forth therein.

Dated: June 14, 1981
Lessor: William Silzle, aka Bill Silzle and Barbara B. Bilzle, husband and wife as joint tenants
Lessee: Emefco Petroleum, Inc.
Recording Date: September 3, 1981
Recording No: 21, [Book 1474, Page 628](#), of Official Records

No assurance is made as to the present ownership of the leasehold created by said lease, nor as to other matters affecting the rights or interests of the lessor or lessee in said lease.

Affects: Parcel 4.

**EXCEPTIONS
(Continued)**

23. An option to purchase said Land with certain terms, covenants, conditions and provisions as set forth therein.

Optionor: Tammy Cheri Slater and Jimmie R. Doyle, Co-Trustees of the Exemption Trust under the Doyle Family 2010 Trust dated August 13, 2010 and Tammy Cheri Slater and Jimmie R. Doyle, Co-Trustees of the Survivor's Trust under the Doyle Family 2010 Trust, dated August 13, 2010

Optionee: Apex Energy Solutions, LLC, a California limited liability company

Disclosed by: Memorandum of Option for Purchase of Real Property

Recording Date: October 15, 2019

[Recording No: 2019020829, of Official Records](#)

24. Any invalidity or defect in the title of the vestees in the event that the trust referred to herein is invalid or fails to grant sufficient powers to the trustee(s) or in the event there is a lack of compliance with the terms and provisions of the trust instrument.

If title is to be insured in the trustee(s) of a trust, (or if their act is to be insured), this Company will require a Trust Certification pursuant to California Probate Code Section 18100.5.

The Company reserves the right to add additional items or make further requirements after review of the requested documentation.

25. Please be advised that our search did not disclose any open Deeds of Trust of record. If you should have knowledge of any outstanding obligation, please contact the Title Department immediately for further review prior to closing.

26. Any rights of the parties in possession of a portion of, or all of, said Land, which rights are not disclosed by the public records.

The Company will require, for review, a full and complete copy of any unrecorded agreement, contract, license and/or lease, together with all supplements, assignments and amendments thereto, before issuing any policy of title insurance without excepting this item from coverage.

The Company reserves the right to except additional items and/or make additional requirements after reviewing said documents.

27. Any easements not disclosed by the public records as to matters affecting title to real property, whether or not said easements are visible and apparent.

28. Matters which may be disclosed by an inspection and/or by a correct ALTA/NSPS Land Title Survey of said Land that is satisfactory to the Company, and/or by inquiry of the parties in possession thereof.

PLEASE REFER TO THE "INFORMATIONAL NOTES" AND "REQUIREMENTS" SECTIONS WHICH FOLLOW FOR INFORMATION NECESSARY TO COMPLETE THIS TRANSACTION.

END OF EXCEPTIONS

REQUIREMENTS SECTION

1. The Company will require either (a) a complete copy of the trust agreement and any amendments thereto certified by the trustee(s) to be a true and complete copy with respect to the hereinafter named trust, or (b) a Certification, pursuant to California Probate Code Section 18100.5, executed by all of the current trustee(s) of the hereinafter named trust, a form of which is attached.

Name of Trust: The Exemption Trust under the Doyle Family 2010 Trust, dated August 13, 2010

2. The Company will require either (a) a complete copy of the trust agreement and any amendments thereto certified by the trustee(s) to be a true and complete copy with respect to the hereinafter named trust, or (b) a Certification, pursuant to California Probate Code Section 18100.5, executed by all of the current trustee(s) of the hereinafter named trust, a form of which is attached.

Name of Trust: The Survivor's Trust under the Doyle Family 2010 Trust, dated August 13, 2010

3. Prior to the close of escrow, the Company requires a Statement of Information to be completed by the following party(s),

Party(s): All Parties

The Company reserves the right to add additional items or make further requirements after review of the requested Statement of Information.

4. Unrecorded matters which may be disclosed by an Owner's Affidavit or Declaration. A form of the Owner's Affidavit/Declaration is attached to this Preliminary Report/Commitment. This Affidavit/Declaration is to be completed by the record owner of the land and submitted for review prior to the closing of this transaction. Your prompt attention to this requirement will help avoid delays in the closing of this transaction. Thank you.

The Company reserves the right to add additional items or make further requirements after review of the requested Affidavit/Declaration.

END OF REQUIREMENTS

INFORMATIONAL NOTES SECTION

1. Note: The policy of title insurance will include an arbitration provision. The Company or the insured may demand arbitration. Arbitrable matters may include, but are not limited to, any controversy or claim between the Company and the insured arising out of or relating to this policy, any service of the Company in connection with its issuance or the breach of a policy provision or other obligation. Please ask your escrow or title officer for a sample copy of the policy to be issued if you wish to review the arbitration provisions and any other provisions pertaining to your Title Insurance coverage.
2. Notice: Please be aware that due to the conflict between federal and state laws concerning the cultivation, distribution, manufacture or sale of marijuana, the Company is not able to close or insure any transaction involving Land that is associated with these activities.
3. Pursuant to Government Code Section 27388.1, as amended and effective as of 1-1-2018, a Documentary Transfer Tax (DTT) Affidavit may be required to be completed and submitted with each document when DTT is being paid or when an exemption is being claimed from paying the tax. If a governmental agency is a party to the document, the form will not be required. DTT Affidavits may be available at a Tax Assessor-County Clerk-Recorder.
4. Due to the special requirements of SB 50 (California Public Resources Code Section 8560 et seq.), any transaction that includes the conveyance of title by an agency of the United States must be approved in advance by the Company's State Counsel, Regional Counsel, or one of their designees.
5. Note: The only conveyance(s) affecting said Land, which recorded within 24 months of the date of this report, are as follows:

Grantor:	Jimmy C. Doyle, decedent
Grantee:	Jimmie R. Doyle and Tammy Cheri Slater, Successor Trustees of the Doyle Family 2010 Trust
Recording Date:	August 30, 2019
<u>Recording No:</u>	<u>2019016567, of Official Records</u>

END OF INFORMATIONAL NOTES

Mitch LaRiva/717

Wire Fraud Alert

This Notice is not intended to provide legal or professional advice. If you have any questions, please consult with a lawyer.

All parties to a real estate transaction are targets for wire fraud and many have lost hundreds of thousands of dollars because they simply relied on the wire instructions received via email, without further verification. **If funds are to be wired in conjunction with this real estate transaction, we strongly recommend verbal verification of wire instructions through a known, trusted phone number prior to sending funds.**

In addition, the following non-exclusive self-protection strategies are recommended to minimize exposure to possible wire fraud.

- **NEVER RELY** on emails purporting to change wire instructions. Parties to a transaction rarely change wire instructions in the course of a transaction.
- **ALWAYS VERIFY** wire instructions, specifically the ABA routing number and account number, by calling the party who sent the instructions to you. DO NOT use the phone number provided in the email containing the instructions, use phone numbers you have called before or can otherwise verify. **Obtain the phone number of relevant parties to the transaction as soon as an escrow account is opened.** DO NOT send an email to verify as the email address may be incorrect or the email may be intercepted by the fraudster.
- **USE COMPLEX EMAIL PASSWORDS** that employ a combination of mixed case, numbers, and symbols. Make your passwords greater than eight (8) characters. Also, change your password often and do NOT reuse the same password for other online accounts.
- **USE MULTI-FACTOR AUTHENTICATION** for email accounts. Your email provider or IT staff may have specific instructions on how to implement this feature.

For more information on wire-fraud scams or to report an incident, please refer to the following links:

Federal Bureau of Investigation:
<http://www.fbi.gov>

Internet Crime Complaint Center:
<http://www.ic3.gov>

Fidelity National Title Company

4210 Riverwalk Parkway, Suite 200
 Riverside, CA 92505
 Phone: (951) 710-5912 • Fax:

Notice of Available Discounts

Pursuant to Section 2355.3 in Title 10 of the California Code of Regulations Fidelity National Financial, Inc. and its subsidiaries ("FNF") must deliver a notice of each discount available under our current rate filing along with the delivery of escrow instructions, a preliminary report or commitment. Please be aware that the provision of this notice does not constitute a waiver of the consumer's right to be charged the filed rate. As such, your transaction may not qualify for the below discounts.

You are encouraged to discuss the applicability of one or more of the below discounts with a Company representative. These discounts are generally described below; consult the rate manual for a full description of the terms, conditions and requirements for such discount. These discounts only apply to transactions involving services rendered by the FNF Family of Companies. This notice only applies to transactions involving property improved with a one-to-four family residential dwelling.

Not all discounts are offered by every FNF Company. The discount will only be applicable to the FNF Company as indicated by the named discount.

FNF Underwritten Title Company

CTC – Chicago Title company
 CLTC – Commonwealth Land Title Company
 FNTC – Fidelity National Title Company of California
 FNTCCA - Fidelity National Title Company of California
 TICOR – Ticor Title Company of California
 LTC – Lawyer's Title Company
 SLTC – ServiceLink Title Company

Underwritten by FNF Underwriters

CTIC – Chicago Title Insurance Company
 CLTIC - Commonwealth Land Title Insurance Company
 FNTIC – Fidelity National Title Insurance Company
 FNTIC - Fidelity National Title Insurance Company
 CTIC – Chicago Title Insurance Company
 CLTIC – Commonwealth Land Title Insurance Company
 CTIC – Chicago Title Insurance Company

Available Discounts

DISASTER LOANS (CTIC, CLTIC, FNTIC)

The charge for a Lender's Policy (Standard or Extended coverage) covering the financing or refinancing by an owner of record, within twenty-four (24) months of the date of a declaration of a disaster area by the government of the United States or the State of California on any land located in said area, which was partially or totally destroyed in the disaster, will be fifty percent (50%) of the appropriate title insurance rate.

CHURCHES OR CHARITABLE NON-PROFIT ORGANIZATIONS (CTIC, FNTIC)

On properties used as a church or for charitable purposes within the scope of the normal activities of such entities, provided said charge is normally the church's obligation the charge for an owner's policy shall be fifty percent (50%) to seventy percent (70%) of the appropriate title insurance rate, depending on the type of coverage selected. The charge for a lender's policy shall be forty (40%) to fifty percent (50%) of the appropriate title insurance rate, depending on the type of coverage selected.

FIDELITY NATIONAL FINANCIAL, INC. PRIVACY NOTICE

Effective April 9, 2020

Fidelity National Financial, Inc. and its majority-owned subsidiary companies (collectively, “FNF,” “our,” or “we”) respect and are committed to protecting your privacy. This Privacy Notice explains how we collect, use, and protect personal information, when and to whom we disclose such information, and the choices you have about the use and disclosure of that information.

A limited number of FNF subsidiaries have their own privacy notices. If a subsidiary has its own privacy notice, the privacy notice will be available on the subsidiary’s website and this Privacy Notice does not apply.

Collection of Personal Information

FNF may collect the following categories of Personal Information:

- contact information (e.g., name, address, phone number, email address);
- demographic information (e.g., date of birth, gender, marital status);
- identity information (e.g. Social Security Number, driver’s license, passport, or other government ID number);
- financial account information (e.g. loan or bank account information); and
- other personal information necessary to provide products or services to you.

We may collect Personal Information about you from:

- information we receive from you or your agent;
- information about your transactions with FNF, our affiliates, or others; and
- information we receive from consumer reporting agencies and/or governmental entities, either directly from these entities or through others.

Collection of Browsing Information

FNF automatically collects the following types of Browsing Information when you access an FNF website, online service, or application (each an “FNF Website”) from your Internet browser, computer, and/or device:

- Internet Protocol (IP) address and operating system;
- browser version, language, and type;
- domain name system requests; and
- browsing history on the FNF Website, such as date and time of your visit to the FNF Website and visits to the pages within the FNF Website.

Like most websites, our servers automatically log each visitor to the FNF Website and may collect the Browsing Information described above. We use Browsing Information for system administration, troubleshooting, fraud investigation, and to improve our websites. Browsing Information generally does not reveal anything personal about you, though if you have created a user account for an FNF Website and are logged into that account, the FNF Website may be able to link certain browsing activity to your user account.

Other Online Specifics

Cookies. When you visit an FNF Website, a “cookie” may be sent to your computer. A cookie is a small piece of data that is sent to your Internet browser from a web server and stored on your computer’s hard drive. Information gathered using cookies helps us improve your user experience. For example, a cookie can help the website load properly or can customize the display page based on your browser type and user preferences. You can choose whether or not to accept cookies by changing your Internet browser settings. Be aware that doing so may impair or limit some functionality of the FNF Website.

Web Beacons. We use web beacons to determine when and how many times a page has been viewed. This information is used to improve our websites.

Do Not Track. Currently our FNF Websites do not respond to “Do Not Track” features enabled through your browser.

Links to Other Sites. FNF Websites may contain links to unaffiliated third-party websites. FNF is not responsible for the privacy practices or content of those websites. We recommend that you read the privacy policy of every website you visit.

Use of Personal Information

FNF uses Personal Information for three main purposes:

- To provide products and services to you or in connection with a transaction involving you.
- To improve our products and services.
- To communicate with you about our, our affiliates’, and others’ products and services, jointly or independently.

When Information Is Disclosed

We may disclose your Personal Information and Browsing Information in the following circumstances:

- to enable us to detect or prevent criminal activity, fraud, material misrepresentation, or nondisclosure;
- to nonaffiliated service providers who provide or perform services or functions on our behalf and who agree to use the information only to provide such services or functions;

- to nonaffiliated third party service providers with whom we perform joint marketing, pursuant to an agreement with them to jointly market financial products or services to you;
- to law enforcement or authorities in connection with an investigation, or in response to a subpoena or court order; or
- in the good-faith belief that such disclosure is necessary to comply with legal process or applicable laws, or to protect the rights, property, or safety of FNF, its customers, or the public.

The law does not require your prior authorization and does not allow you to restrict the disclosures described above. Additionally, we may disclose your information to third parties for whom you have given us authorization or consent to make such disclosure. We do not otherwise share your Personal Information or Browsing Information with nonaffiliated third parties, except as required or permitted by law. We may share your Personal Information with affiliates (other companies owned by FNF) to directly market to you. Please see "Choices with Your Information" to learn how to restrict that sharing.

We reserve the right to transfer your Personal Information, Browsing Information, and any other information, in connection with the sale or other disposition of all or part of the FNF business and/or assets, or in the event of bankruptcy, reorganization, insolvency, receivership, or an assignment for the benefit of creditors. By submitting Personal Information and/or Browsing Information to FNF, you expressly agree and consent to the use and/or transfer of the foregoing information in connection with any of the above described proceedings.

Security of Your Information

We maintain physical, electronic, and procedural safeguards to protect your Personal Information.

Choices With Your Information

If you do not want FNF to share your information among our affiliates to directly market to you, you may send an "opt out" request by email, phone, or physical mail as directed at the end of this Privacy Notice. We do not share your Personal Information with nonaffiliates for their use to direct market to you without your consent.

Whether you submit Personal Information or Browsing Information to FNF is entirely up to you. If you decide not to submit Personal Information or Browsing Information, FNF may not be able to provide certain services or products to you.

For California Residents: We will not share your Personal Information or Browsing Information with nonaffiliated third parties, except as permitted by California law. For additional information about your California privacy rights, please visit the "California Privacy" link on our website (<https://fnf.com/pages/californiaprivacy.aspx>) or call (888) 413-1748.

For Nevada Residents: You may be placed on our internal Do Not Call List by calling (888) 934-3354 or by contacting us via the information set forth at the end of this Privacy Notice. Nevada law requires that we also provide you with the following contact information: Bureau of Consumer Protection, Office of the Nevada Attorney General, 555 E. Washington St., Suite 3900, Las Vegas, NV 89101; Phone number: (702) 486-3132; email: BCPINFO@ag.state.nv.us.

For Oregon Residents: We will not share your Personal Information or Browsing Information with nonaffiliated third parties for marketing purposes, except after you have been informed by us of such sharing and had an opportunity to indicate that you do not want a disclosure made for marketing purposes.

For Vermont Residents: We will not disclose information about your creditworthiness to our affiliates and will not disclose your personal information, financial information, credit report, or health information to nonaffiliated third parties to market to you, other than as permitted by Vermont law, unless you authorize us to make those disclosures.

Information From Children

The FNF Websites are not intended or designed to attract persons under the age of eighteen (18). We do not collect Personal Information from any person that we know to be under the age of thirteen (13) without permission from a parent or guardian.

International Users

FNF's headquarters is located within the United States. If you reside outside the United States and choose to provide Personal Information or Browsing Information to us, please note that we may transfer that information outside of your country of residence. By providing FNF with your Personal Information and/or Browsing Information, you consent to our collection, transfer, and use of such information in accordance with this Privacy Notice.

FNF Website Services for Mortgage Loans

Certain FNF companies provide services to mortgage loan servicers, including hosting websites that collect customer information on behalf of mortgage loan servicers (the "Service Websites"). The Service Websites may contain links to both this Privacy Notice and the mortgage loan servicer or lender's privacy notice. The sections of this Privacy Notice titled When Information is Disclosed, Choices with Your Information, and Accessing and Correcting Information do not apply to the Service Websites. The mortgage loan servicer or lender's privacy notice governs use, disclosure, and access to your Personal Information. FNF does not share Personal Information collected through the Service Websites, except as required or authorized by contract with the mortgage loan servicer or lender, or as required by law or in the good-faith belief that such disclosure is necessary: to comply with a legal process or applicable law, to enforce this Privacy Notice, or to protect the rights, property, or safety of FNF or the public.

Your Consent To This Privacy Notice; Notice Changes; Use of Comments or Feedback

By submitting Personal Information and/or Browsing Information to FNF, you consent to the collection and use of the information in accordance with this Privacy Notice. We may change this Privacy Notice at any time. The Privacy Notice's effective date will show the last date changes were made. If you provide information to us following any change of the Privacy Notice, that signifies your assent to and acceptance of the changes to the Privacy Notice. We may use comments or feedback that you submit to us in any manner without notice or compensation to you.

Accessing and Correcting Information; Contact Us

If you have questions, would like to correct your Personal Information, or want to opt-out of information sharing for affiliate marketing, send your requests to privacy@fnf.com, by phone to (888) 934-3354, or by mail to:

Fidelity National Financial, Inc.
601 Riverside Avenue
Jacksonville, Florida 32204
Attn: Chief Privacy Officer

ATTACHMENT ONE (Revised 05-06-16)

CALIFORNIA LAND TITLE ASSOCIATION STANDARD COVERAGE POLICY – 1990

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
- (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
 - (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
 - (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
 - (c) resulting in no loss or damage to the insured claimant;
 - (d) attaching or created subsequent to Date of Policy; or
 - (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

CLTA HOMEOWNER'S POLICY OF TITLE INSURANCE (12-02-13) ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE

EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of those portions of any law or government regulation concerning:
 - a. building;
 - b. zoning;
 - c. land use;
 - d. improvements on the Land;
 - e. land division; and
 - f. environmental protection.This Exclusion does not limit the coverage described in Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23 or 27.
2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit the coverage described in Covered Risk 14 or 15.
3. The right to take the Land by condemning it. This Exclusion does not limit the coverage described in Covered Risk 17.
4. Risks:
 - a. that are created, allowed, or agreed to by You, whether or not they are recorded in the Public Records;
 - b. that are Known to You at the Policy Date, but not to Us, unless they are recorded in the Public Records at the Policy Date;

- c. that result in no loss to You; or
 - d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.e., 25, 26, 27 or 28.
5. Failure to pay value for Your Title.
 6. Lack of a right:
 - a. to any land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
 - b. in streets, alleys, or waterways that touch the Land.
 This Exclusion does not limit the coverage described in Covered Risk 11 or 21.
 7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditors' rights laws.
 8. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
 9. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:

- For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	Your Deductible Amount	Our Maximum Dollar Limit of Liability
Covered Risk 16:	1.00% of Policy Amount Shown in Schedule A or \$2,500.00 (whichever is less)	\$ 10,000.00
Covered Risk 18:	1.00% of Policy Amount Shown in Schedule A or \$5,000.00 (whichever is less)	\$ 25,000.00
Covered Risk 19:	1.00% of Policy Amount Shown in Schedule A or \$5,000.00 (whichever is less)	\$ 25,000.00
Covered Risk 21:	1.00% of Policy Amount Shown in Schedule A or \$2,500.00 (whichever is less)	\$ 5,000.00

2006 ALTA LOAN POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (i) the occupancy, use, or enjoyment of the Land;
 - (ii) the character, dimensions, or location of any improvement erected on the Land;
 - (iii) the subdivision of land; or
 - (iv) environmental protection;
 or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
- (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
 - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
 - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
 - (c) resulting in no loss or damage to the Insured Claimant;
 - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13 or 14); or
 - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
 - (a) a fraudulent conveyance or fraudulent transfer, or
 - (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

{Except as provided in Schedule B - Part II, {t{or T}his policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

{PART I

{The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.}

PART II

In addition to the matters set forth in Part I of this Schedule, the Title is subject to the following matters, and the Company insures against loss or damage sustained in the event that they are not subordinate to the lien of the Insured Mortgage:}

2006 ALTA OWNER'S POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (i) the occupancy, use, or enjoyment of the Land;
 - (ii) the character, dimensions, or location of any improvement erected on the Land;
 - (iii) the subdivision of land; or
 - (iv) environmental protection;or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
- (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
 - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
 - (b) not known to the Company, not recorded in the Public Records at Date of Policy, but known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
 - (c) resulting in no loss or damage to the Insured Claimant;
 - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
 - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
 - (a) a fraudulent conveyance or fraudulent transfer; or
 - (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

{The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown in the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and that are not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records. }
7. {Variable exceptions such as taxes, easements, CC&R's, etc. shown here.}

ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY – ASSESSMENTS PRIORITY (04-02-15)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

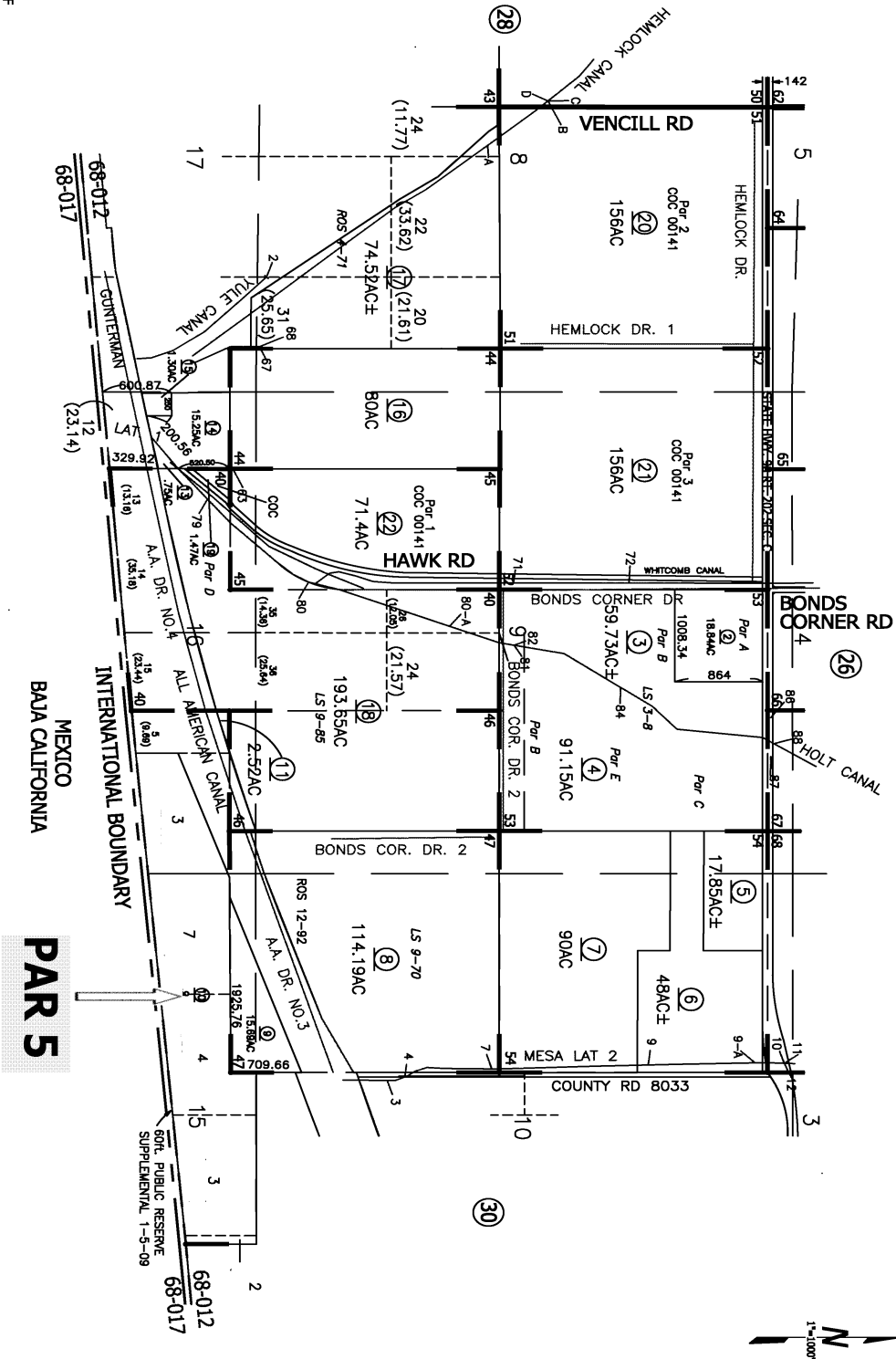
1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (i) the occupancy, use, or enjoyment of the Land;
 - (ii) the character, dimensions, or location of any improvement erected on the Land;
 - (iii) the subdivision of land; or
 - (iv) environmental protection;or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
- (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
 - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
 - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
 - (c) resulting in no loss or damage to the Insured Claimant;
 - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27 or 28); or
 - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury, or any consumer credit protection or truth-in-lending law. This Exclusion does not modify or limit the coverage provided in Covered Risk 26.
6. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to Advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching subsequent to Date of Policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11(b) or 25.
8. The failure of the residential structure, or any portion of it, to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This Exclusion does not modify or limit the coverage provided in Covered Risk 5 or 6.
9. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
 - (a) a fraudulent conveyance or fraudulent transfer, or
 - (b) a preferential transfer for any reason not stated in Covered Risk 27(b) of this policy.
10. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
11. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

This map/plat is being furnished as an aid in locating the herein described Land in relation to adjoining streets, natural boundaries and other land, and is not a survey of the land depicted. Except to the extent a policy of title insurance is expressly modified by endorsement, if any, the Company does not insure dimensions, distances, location of easements, acreage or other matters shown thereon.

TRACT 40,44,45,46,47,51,52,53 & 54
 POR. SEC. 8,9,10,15,16 & 17 T17S R16E

Tax Area Code
 68-012
 68-017

59-29



PAR 5

MEXICO
 BAJA CALIFORNIA

68-012
 68-017

- 9-9-09 MF
- 8-17-09 MF
- 7-1-04 AR
- 04-26-93 DP
- 01-02-92 RM
- 03-25-80 LJ
- 01-18-78 LS
- From 57-51

DISCLAIMER:
 THIS IS NOT AN OFFICIAL MAP
 THIS MAP WAS CREATED FOR THE IMPERIAL COUNTY
 ASSESSOR, FOR THE SOLE PURPOSE OF AIDING IN
 THE PERFORMANCE OF THE DUTIES OF THE ASSESSOR.
 ANY ERRORS OR OMISSIONS IN THIS MAP ARE NOT
 THE RESPONSIBILITY OF THE COUNTY OF IMPERIAL
 OR THE ASSESSOR. (REV. & TAX CODE SEC.327)



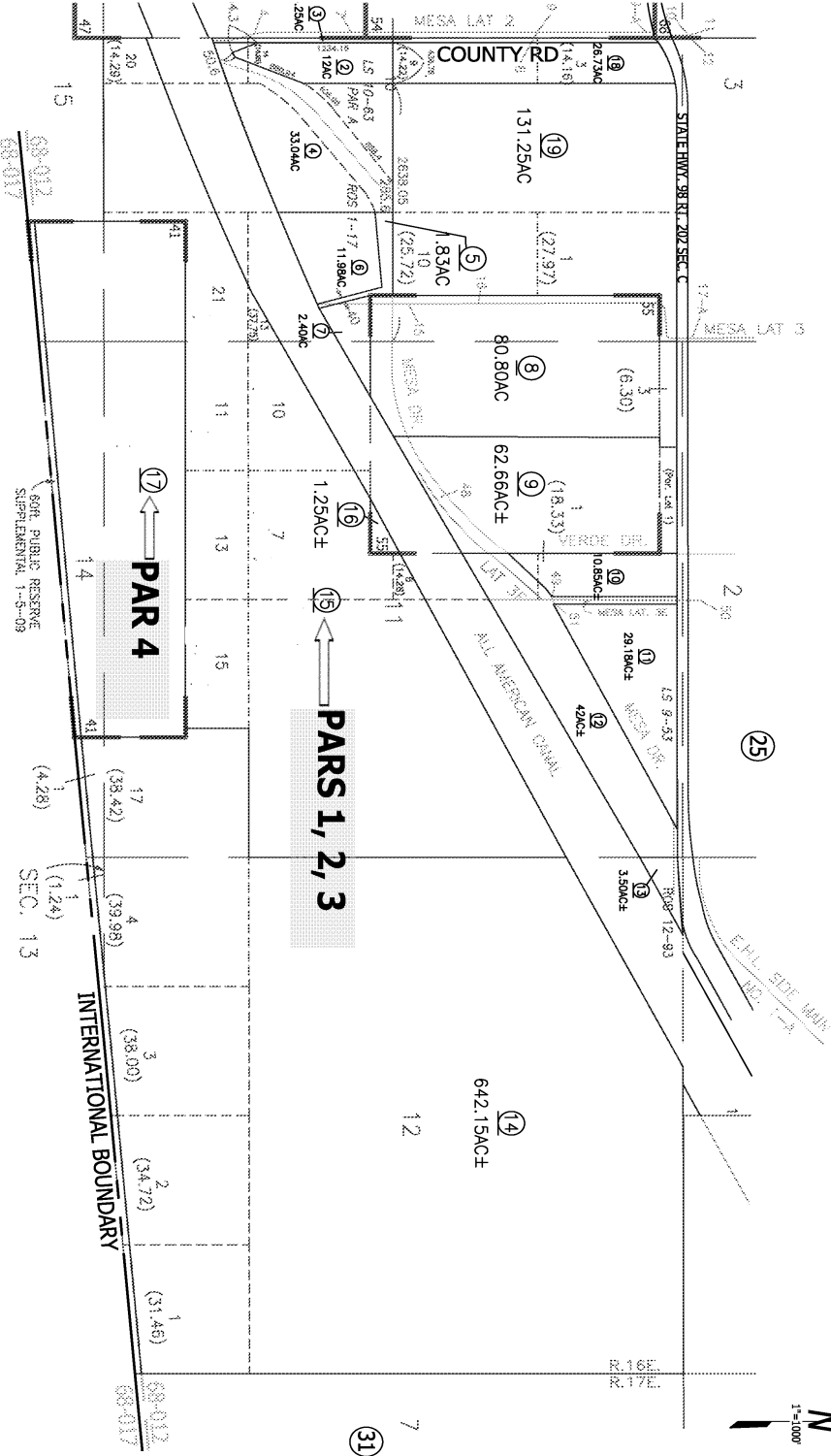
Assessor's Map Bk.59-Pg.29
 County of Imperial, Calif.

This map/plat is being furnished as an aid in locating the herein described Land in relation to adjoining streets, natural boundaries and other land, and is not a survey of the land depicted. Except to the extent a policy of title insurance is expressly modified by endorsement, if any, the Company does not insure dimensions, distances, location of easements, acreage or other matters shown thereon.

TRACT 41 & 55
 SEC. 11 & 12 POR, SEC. 1, 10, 13, 14 & 15
 T.17S, R.16E, S.B.B. & M.

Tax Area Code
 68-012
 68-017

59-30



10-25-10 MF
 1-14-10 MF
 9-05-07 MF
 3-25-80 JJ
 1-18-78 JJ
 From 57-52

DISCLAIMER:
 THIS IS NOT AN OFFICIAL MAP.
 THIS MAP WAS CREATED FOR THE IMPERIAL COUNTY
 ASSESSOR, FOR THE SOLE PURPOSE OF AIDING IN
 THE PERFORMANCE OF THE DUTIES OF THE ASSESSOR.
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Date	By	Revision
10-18-52	R.M.	Blow-up & Revision of Bk.57 Pg.44-Portion Sheet 6 of 6 Sheets

MEXICO
 BAJA CALIFORNIA



Assessor's Map Bk.59-Pg.30
 County of Imperial, Calif.

RECORDING REQUESTED BY
Fidelity National Title Company
WHEN RECORDED MAIL TO:
=addressee=

ORDER NO.: 30053824-997-ML6

SPACE ABOVE THIS LINE FOR RECORDER'S USE

CERTIFICATION OF TRUST
California Probate Code Section 18100.5

The undersigned declare(s) under penalty of perjury under the laws of the State of California that the following is true and correct:

1. The Trust known as _____,
executed on _____, is a valid and existing trust.
2. The name(s) of the settlor(s) of the Trust is (are): _____

3. The name(s) of the currently acting trustee(s) is (are): _____

4. The trustee(s) of the Trust have the following powers (initial applicable line(s)):
_____ Power to acquire additional property.
_____ Power to sell and execute deeds.
_____ Power to encumber, and execute deeds of trust.
_____ Other: _____
5. The Trust is (check one): _____ Revocable _____ Irrevocable
The name of the person who may revoke the Trust is: _____
6. The number of trustees who must sign documents in order to exercise the powers of the Trust is (are): _____,
whose name(s) is (are): _____
7. Title to Trust assets is to be taken as follows: _____
8. The Trust has not been revoked, modified or amended in any manner which would cause the representations
contained herein to be incorrect.
9. I (we) am (are) all of the currently acting trustees.
10. I (we) understand that I (we) may be required to provide copies of excerpts from the original Trust documents
which designate the trustees and confer the power to act in the pending transaction.

Dated: _____

(Acknowledgement must be attached)

CERTIFICATE OF ACKNOWLEDGEMENT OF NOTARY PUBLIC

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA
COUNTY OF

} SS:

On _____ before me,
a Notary Public, personally appeared _____,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies) and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

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Signature _____

RECORDING REQUESTED BY
Fidelity National Title Company
WHEN RECORDED MAIL TO:
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4. The trustee(s) of the Trust have the following powers (initial applicable line(s)):
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_____ Power to sell and execute deeds.
_____ Power to encumber, and execute deeds of trust.
_____ Other: _____
5. The Trust is (check one): _____ Revocable _____ Irrevocable
The name of the person who may revoke the Trust is: _____
6. The number of trustees who must sign documents in order to exercise the powers of the Trust is (are): _____,
whose name(s) is (are): _____
7. Title to Trust assets is to be taken as follows: _____
8. The Trust has not been revoked, modified or amended in any manner which would cause the representations
contained herein to be incorrect.
9. I (we) am (are) all of the currently acting trustees.
10. I (we) understand that I (we) may be required to provide copies of excerpts from the original Trust documents
which designate the trustees and confer the power to act in the pending transaction.

Dated: _____

(Acknowledgement must be attached)

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STATE OF CALIFORNIA
COUNTY OF

} SS:

On _____ before me,

a Notary Public, personally appeared _____

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies) and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

CERTIFICATE OF ACKNOWLEDGEMENT OF NOTARY PUBLIC

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COUNTY OF

} SS:

On _____ before me,

a Notary Public, personally appeared _____

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I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

OWNER'S DECLARATION

Escrow No.: 30053824-997-MAT-ML6
Property Address: APN'S #059-300-015-000, 059-300-017-000 and 059-290-010-000
County of Imperial, CA

The undersigned hereby declares as follows:

- 1. (Fill in the applicable paragraph and strike the other)
 - a. Declarant ("Owner") is the owner or lessee, as the case may be, of certain premises located at APN'S #059-300-015-000, 059-300-017-000 and 059-290-010-000, County of Imperial, CA, further described as follows: See Preliminary Report/Commitment No. for full legal description (the "Land").
 - b. Declarant is the _____ of _____ ("Owner"), which is the owner or lessee, as the case may be, of certain premises located at APN'S #059-300-015-000, 059-300-017-000 and 059-290-010-000, County of Imperial, CA, further described as follows: See Preliminary Report/Commitment No. for full legal description (the "Land").
- 2. (Fill in the applicable paragraph and strike the other)
 - a. During the period of six months immediately preceding the date of this declaration no work has been done, no surveys or architectural or engineering plans have been prepared, and no materials have been furnished in connection with the erection, equipment, repair, protection or removal of any building or other structure on the Land or in connection with the improvement of the Land in any manner whatsoever.
 - b. During the period of six months immediately preceding the date of this declaration certain work has been done and materials furnished in connection with _____ upon the Land in the approximate total sum of \$_____, but no work whatever remains to be done and no materials remain to be furnished to complete the construction in full compliance with the plans and specifications, nor are there any unpaid bills incurred for labor and materials used in making such improvements or repairs upon the Land, or for the services of architects, surveyors or engineers, except as follows: _____, Owner, by the undersigned Declarant, agrees to and does hereby indemnify and hold harmless Fidelity National Title Company against any and all claims arising therefrom.
- 3. Owner has not previously conveyed the Land; is not a debtor in bankruptcy (and if a partnership, the general partner thereof is not a debtor in bankruptcy); and has not received notice of any pending court action affecting the title to the Land.
- 4. Except as shown in the above-referenced Preliminary Report/Commitment, there are no unpaid or unsatisfied mortgages, deeds of trust, Uniform Commercial Code financing statements, regular assessments, special assessments, periodic assessments or any assessment from any source, claims of lien, special assessments, or taxes that constitute a lien against the Land or that affect the Land but have not been recorded in the public records. There are no violations of the covenants, conditions and restrictions as shown in the above-referenced Preliminary Report/Commitment.
- 5. The Land is currently in use as _____; _____ occupy/occupies the Land; and the following are all of the leases or other occupancy rights affecting the Land:

- 6. There are no other persons or entities that assert an ownership interest in the Land, nor are there unrecorded easements, claims of easement, or boundary disputes that affect the Land.
- 7. There are no outstanding options to purchase or rights of first refusal affecting the Land.
- 8. Between the most recent Effective Date of the above-referenced Preliminary Report/Commitment and the date of recording of the Insured Instrument(s), Owner has not taken or allowed, and will not take or allow, any action or inaction to encumber or otherwise affect title to the Land.

This declaration is made with the intention that Fidelity National Title Company (the "Company") and its policy issuing agents will rely upon it in issuing their title insurance policies and endorsements. Owner, by the undersigned Declarant, agrees to indemnify the Company against loss or damage (including attorneys fees, expenses, and costs) incurred by the Company as a result of any untrue statement made herein.

I declare under penalty of perjury that the foregoing is true and correct and that this declaration was executed on _____ at _____.

Signature: _____

APPENDIX H



780 N. 4th Street
El Centro, CA 92243
(760) 337-1100

Phase I Environmental Site Assessment (ESA) User Questionnaire

- 1) **Environmental liens that are filed or recorded against the *property*.**
Did a search of *recorded land title records* (or judicial records where appropriate) identify any environmental liens filed or recorded against the *property* under federal, tribal, state, or local law?

Not to our knowledge.

- 2) **Activity and use limitations that are in place on the *property* or that have been filed or recorded against the *property*.**
Did a search of *recorded land title records* (or judicial records where appropriate) identify any AULs, such as *engineering controls*, land use restrictions or *institutional controls* that are in place at the property and/or have been filed or recorded against the *property* under federal, tribal, state or local law?

Not to our knowledge.

- 3) **Specialized knowledge or experience of the person seeking to qualify for the LLP.**
Do you have any specialized knowledge or experience related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the *property* or an *adjoining property* so that you would have specialized knowledge of the chemicals and processes used by this type of business?

No.

4) **Relationship of the purchase price to the fair market value of the *property* if it were not contaminated.**

Does the purchase price being paid for this *property* reasonable reflect the fair market value of the *property*? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the *property*?

Yes.

5) **Commonly known or *reasonably ascertainable* information about the *property*.**

Are you aware of commonly known or *reasonably ascertainable* information about the *property* that would help the *environmental professional* to identify conditions indicative of releases or threatened releases? For example,

- a. Do you know the past uses of the *property*?

Vacant Land

- b. Do you know of specific chemicals or oils that are present or once were present at the *property*?

None that we know of or suspect.

- c. Do you know of spills or other chemical releases that have taken place at the *property*?

None that we know of or suspect.

- d. Do you know of any environmental cleanups that have taken place at the *property*?

None that we know of or suspect.

6) **The degree of obviousness of the presence or likely presence of contamination at the *property*, and the ability to detect the contamination by appropriate investigation.**

Based on your knowledge and experience related to the *property* are there any *obvious* indicators that point to the presence or likely presence of releases at the *property*?

None that we know of or suspect.

Additional Information

1) Reason why Phase I ESA is required:

Conditional Use Permit for proposed development project.

2) Type of Property:

Commercial
Industrial
Residential
Vacant/Undeveloped
Other Fallowed farmland

Type of Transaction:

Purchase
Financing
Sale
Lease
Other _____

3) Complete and correct address for the property:

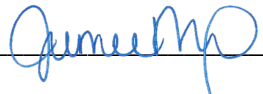
No situs. APN's 059-300-015-000, 059-300-017-000 and 059-290-010-000

4) Are there any existing environmental report, documents, correspondence, etc. available for review?

None.

User Name/Company: Jamie Nagel/Apex Energy Solutions, LLC

Address: 604 Sutter Street, Suite 250
Folsom, CA 95630

User Signature: 

Date: 12/10/2020

5 DD9 B8 ± ' =



Steven K. Williams, CEG
Senior Engineering Geologist

Education

M.S. Geology
University of Utah, 1993
B.S. Geology
University of Utah, 1989

Registration

Registered Geologist
Arizona 3759
California 6975
Certified Engineering Geologist
California 2261

Professional Experience

2000 – Present Project Geologist
GS Lyon Consultants, Inc.
1994 - 2000 Staff Geologist
GS Lyon Consultants, Inc.
1994 Field Geologist
Bureau of Land Management
1991 - 1992 Exploration Geologist
Kennecott Corporation

Summary of Experience

Mr. Williams has performed geotechnical investigations in southern California and southwestern Arizona. His field experience includes logging of soil borings and exploratory trenches, collection and documentation of soil samples, collection of field geotechnical data, and monitoring pile driving operations. Mr. Williams is also responsible for preparing computer generated data and figures, drafting and subsequent writing of geotechnical reports for a variety of projects including road improvements, fault studies, liquefaction potential evaluation, foundation preparation, seepage studies, structural distress, and soil investigations. He has performed geotechnical, geologic, and environmental studies for a wide variety of projects including correctional facilities, water and wastewater facilities, schools, residential subdivisions, commercial developments, and landfills throughout southern California and southwestern Arizona.

Mr. Williams also performs Phase I Environmental Site Assessments throughout the Imperial and Coachella Valleys. The scope of work for these projects typically include a site reconnaissance, review of government records pertaining to previous site uses, and preparation of a report identifying potential environmental risks.

He also conducts investigations for the potential of asbestos-containing materials and lead-based paint in old building projects and potential for soil contamination by hydrocarbons, pesticides, and other hazardous materials.

Professional Affiliations

Geological Society of America, Member

Selected Project Experience

- **El Centro Seniors Apartments, El Centro, CA**
Performed Phase I and Phase II environmental site assessments for apartment complex at old school district office site with underground storage tanks.
- **Central Main Canal Seepage Study, Imperial, CA**
Conducted 6-month groundwater seepage study for Imperial Irrigation District to evaluate high groundwater levels in Sandalwood Glen Subdivision
- **Gateway to the Americas, Calexico, CA**
Conducted Phase I ESA, geologic hazards study and geotechnical investigation including liquefaction evaluation for 1,700 acre development associated with new Port of Entry east of Calexico
- **El Centro Magistrate Court, El Centro, CA**
Conducted geotechnical investigation and Phase I ESA for new Federal Magistrate Court building at site with soft soil conditions requiring foundation settlement analysis
- **El Centro Regional Medical Center, El Centro, CA**
Conducted Phase I ESA and geotechnical investigation for 50,000 sf, 2-story addition to the medical center's emergency room, operating rooms, and recovery rooms.
- **Brawley Union High School, Brawley, CA**
Conducted Phase II investigation for PCB and lead contamination of surficial soil and hydrocarbon contamination of subsurface soil of a property proposed for purchase.
- **EW Corporation Site, Westmorland, CA**
Conducted Phase II investigation for hydrocarbon contamination of subsurface soil of a service station site with leaking underground storage tanks prior to property purchase
- **Various Apartment Complexes, Imperial County, CA**
Conducted Phase I environmental investigation at numerous proposed apartment complex site within the Imperial Valley
- **Oasis Elementary School, Mecca, CA**
Conducted PEA environmental investigation for the new Oasis Elementary School prior to construction of school

Vega SES 4 Solar Energy Storage Project

TRAFFIC IMPACT STUDY
IMPERIAL COUNTY, CALIFORNIA

Prepared By:



February, 2021

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1.0 Introduction

This traffic impact analysis (TIA) has been prepared to identify the potential traffic impacts associated with developing the Vega SES 4 Solar Energy Storage (Projects) in Imperial County. The study was completed following the guidelines described in the County of Imperial Department of Public Works *Traffic Study and Report Policy* dated March 12, 2007, revised June 29, 2007 and approved by the Board of Supervisors of the County of Imperial on August 7, 2007 ("Traffic Study and Report Policy").

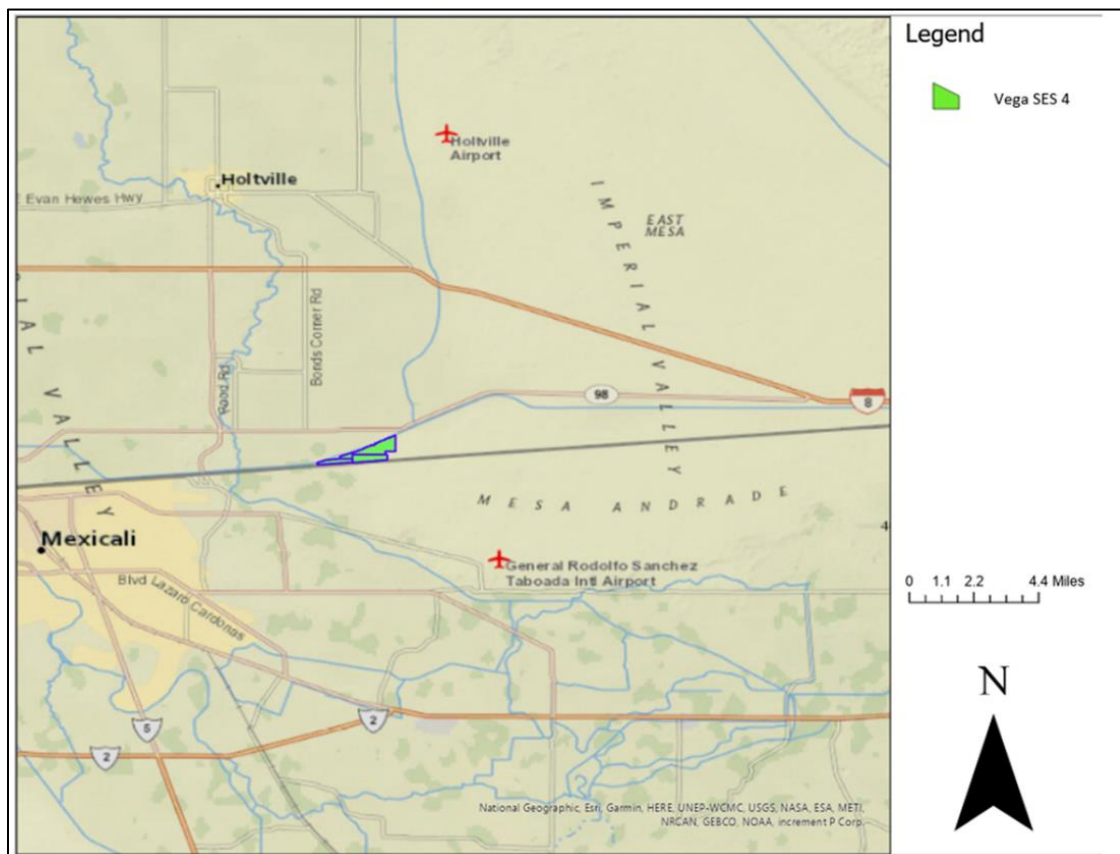
KOA has coordinated with the County's Engineering Department on the scope of the traffic analysis, including the study area and future year analysis assumptions. As necessary, if required, projects will be identified to offset or reduce significant impacts. Based on discussions with City staff, current and future traffic conditions at select intersections in close proximity to the proposed project have been evaluated for the purposes of this TIA.

This report describes the existing roadway network in the vicinity of the project site. It includes a review of the existing and proposed traffic activities for weekday peak AM and PM periods and daily traffic conditions.

Project Location

The project location is shown in Figure 1.1.

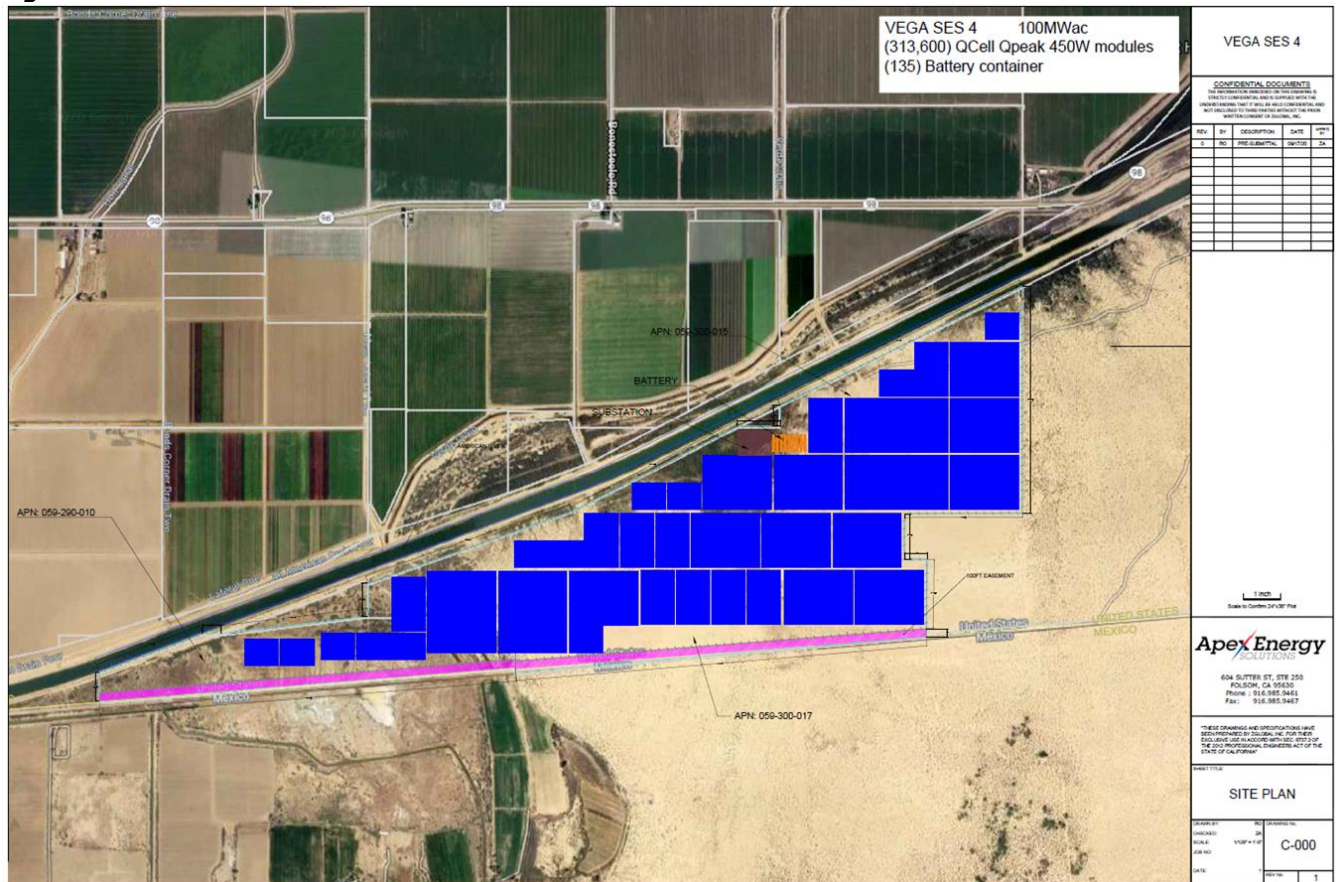
Figure 1.1 Study Area



Project Description

Vega SES 4 LLC. is proposing to develop the Vega SES 4 Solar Energy Storage Project (Projects). The project is a 100-megawatt alternating current (MWAC) solar photovoltaic (PV) energy generation project with an integrated 100 MW battery storage project on approximately 531.53 acres of land in the County of Imperial, California. The Project would be located between the California/Mexico border and the All-American Canal, on the California side. It is approximately 10 miles east of Calexico. The construction of the site is estimated to take 12-18 months and would begin in 2022. The project opening is anticipated to be 2023. The project site plan is shown in Figure 1.2.

Figure 1.2 Site Plan



Construction Activities

The construction of the site to include site preparation and construction is estimated to take 12-18 months and would begin in 2022. The number of on-site construction workers for the solar project facilities is not expected to exceed 150 workers at any one time. The number of on-site construction workers for the battery storage facility and the substation is not expected to exceed 100 workers at any one time.

Construction of the Projects will include the following activities:

- Site preparation
- Grading and earthwork
- Concrete foundations
- Structural steel work
- Electrical/instrumentation work
- Collector line installation
- Architecture and landscaping

2.0 Capacity Analysis Methodologies

This section presents a brief overview of traffic analysis methodologies and concepts used in this study. Street system operating conditions are typically described in terms of "level of service (LOS)" to compare without project and with project alternatives. LOS is a report-card scale used to indicate the quality of traffic flow on roadway segments and at intersections. The levels of service range from Level A (free flow, little congestion) to Level F (forced flow, higher congestion).

Study Area Criteria

The study area is determined based on the County of Imperial Department of Public Works *Traffic Study and Report Policy* dated March 12, 2007, revised June 29, 2007 and approved by the Board of Supervisors of the County of Imperial on August 7, 2007 ("Traffic Study and Report Policy"). "Any project that has the potential to degrade an existing road section, an existing signalized intersection, or an existing unsignalized intersection to below the existing level of service or to cause it to be lower than a level of service (LOS) "C" during any peak hour, using the HCM Methods of analysis on any individual, existing traffic movement." Traffic Study and Report Policy, 4-5.

The study area for this project includes those locations that likely will be affected by this project. The project study area was determined based on similar solar projects. The specific study area consists of the following intersections:

1. Site driveway and SR-98
2. Bonds Corner Road and SR-98
3. SR-98 and SR-7
4. SR-7 and Heber Road
5. SR-7 and south ramp
6. SR-7 and north ramp

The study area also includes the following study segments:

1. SR-98 from the project to the east
2. SR-98 from the project to Bonds Corner Road
3. SR-98 from Bonds Corner Road to SR-7
4. SR-7 from SR-98 to I-8
5. I-8 from SR-7 to SR-111

Scenario Criteria

The proposed project's traffic impacts were analyzed in three scenarios as listed below. The traffic analysis included intersections and roadway segments within Imperial County and Caltrans District 11 in the following scenarios to determine the potential impacts.

- Existing Year (2020) Conditions
- Construction Year (2023) Baseline Conditions
- Construction Year (2023) + Project Construction Conditions

Peak Hour Intersection Level of Service Standards

Traffic conditions on most roadway facilities are analyzed using the principles of the specific analysis methods contained in the latest version (2010) of the *Highway Capacity Manual (HCM)*, a publication of the Transportation Research Board, a research agency affiliated with the Federal Government. Chapter 18 of the *HCM 2010* is devoted to analysis of signalized intersections. The methodology in the *HCM 2010* for signalized intersections is based upon measurements or forecasts of control delay for traffic utilizing all approaches to the intersection.

Unsignalized intersections, including two-way and all-way stop controlled intersections were analyzed using the 2010 Highway Capacity Manual unsignalized intersection analysis methodology. The LOS for a two-way stop controlled (TWSC) intersection is determined by the computed or measured control delay and is defined for each minor movement. The analysis of peak hour intersection conditions was conducted using the Synchro 10 software program developed by Trafficware. Results are displayed in terms of control delay (seconds per vehicle) and an equivalent LOS as shown in Table 2.1.

Table 2.1: HCM Level of Service Definitions for Intersections

LOS	Signalized Intersection Delay (Seconds per Vehicle)	Unsignalized Intersection Average Stop Delay (Seconds)
A	<10	<10
B	>10 and <20	>10 and <15
C	>20 and <35	>15 and <25
D	>35 and <55	>25 and <35
E	>55 and <80	>35 and <50
F	>80	>50

Source: Highway Capacity Manual, 2010.

Roadway Segment Level of Service Standards

Roadway segment LOS standards and thresholds provide the basis for analysis of roadway segment performance. The analysis of roadway segment LOS is based on the functional classification of the roadway, the maximum capacity, roadway geometrics, and existing or forecast Average Daily Traffic (ADT) volumes.

The County of Imperial level of service analysis was performed by utilizing the *Circulation and Scenic Highways Element, January 2008*. The thresholds for each facility type are presented in Table 2.2.

Table 2.2 County of Imperial ADT Level of Service Volumes by Roadway Type

Road		Level of Service (LOS)				
Class	X-Section	A	B	C	D	E
Expressway	154/210	30,000	42,000	60,000	70,000	80,000
Prime Arterial	106/136	22,200	37,000	44,600	50,000	57,000
Minor Arterial	82/102	14,800	24,700	29,600	33,400	37,000
Major Collector	64/84	13,700	22,800	27,400	30,800	34,200
Minor (Local) Collector	40/70	1,900	4,100	7,100	10,900	16,200
<p>* Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.</p> <p>Source: <i>Imperial County Circulation and Scenic Highways Element 2008 and Imperial County Long Range Transportation Plan 2013 Update</i></p>						

Freeway Segments

Freeway level of service analysis is based upon procedures developed by Caltrans. The procedure for calculating freeway level of service involves calculating a peak hour volume to capacity (V/C) ratio. Peak hour volumes are calculated from Average Daily Traffic (ADT) volumes by applying design hour ("K"), directional ("D") and truck ("T") factors. The base capacities for Interstate 8 freeway lanes determined from the Highway Capacity Manual as assumed to be 2,350 passenger-car per hour per main lane (pc/h/ln).

The resulting V/C ratio is then compared to acceptable ranges of V/C values corresponding to the various levels of service for each facility classification, as shown in Table 2.3. The corresponding level of service represents an approximation of freeway operating conditions in the peak direction of travel during the peak hour. Constant with Caltrans requirements, LOS D or better is used in this study as the threshold for acceptable freeway operations.

Table 2.3 CALTRANS Level of Service Facility Classification

CALTRANS FREEWAY SEGMENT LEVEL OF SERVICE DEFINITIONS			
LOS	Maximum V/C	Congestion/Delay	Traffic Description
A	≤ 0.30	None	Free flow.
B	> 0.30 - 0.50	None	Free to stable flow, light to moderate volumes.
C	> 0.50 - 0.71	None to minimal	Stable flow, moderate volumes, freedom to maneuver noticeably restricted.
D	> 0.71 - 0.89	Minimal to substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver.
E	> 0.89 - 1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor.
F	> 1.00	Considerable	Forced or breakdown flow. Delay measured in average travel speed (MPH). Signalized segments experience delays >60.0 seconds/vehicle.

Source: Caltrans Guide for the Preparation of Traffic Impact Studies, 2002.

Analysis of Significance

Imperial County

The significance criteria for traffic impacts are based on the Imperial County Planning & Development Services Department LOS standard as outlined in the "Circulation Element". The County's goal for an acceptable traffic service standard on an Average Daily Traffic (ADT) basis and during AM and PM peak periods for all County-Maintained Roads shall be LOS C for all street segment links and intersections.

- Strive to maintain LOS "C" or better on arterial and collector streets, at all intersections, and on principal arterials during the hour of highest volume during the AM hours and also during the PM hours. Imperial County has established LOS "C" as the general threshold for acceptable overall traffic operations for both signalized and un-signalized intersections.
- Accept LOS "D" after finding that there is no practical and feasible way to mitigate to LOS "C;" and the development causing the lower level of service provides a clear, overall public benefit.
- For segments that operate at LOS D or lower, an incremental increase in v/c of greater than 0.02 is considered to be a significant impact. For intersections that operate at LOS D or lower, an incremental increase in vehicle delay of 2.0 seconds or greater is considered to be a significant impact.

Caltrans

- For segments that operate at LOS D or lower, an incremental increase in v/c of greater than 0.02 is considered to be a significant impact. For intersections that operate at LOS D or lower, an incremental increase in vehicle delay of 2.0 seconds or greater is considered to be a significant impact.
- For freeway segments that operate at LOS D or lower, an incremental increase in v/c of greater than 0.01 is considered to be a significant impact.

3.0 Existing Conditions

This section documents the Existing Year Conditions in the study area. The Existing Year is taken to be 2020 for analysis purposes based on existing traffic counts taken in December, 2020. The discussion presented here is limited to segments and intersections in the project's vicinity.

Existing Roadways

Each of the key roadways, as well as associated study intersections within the study area, are discussed below.

Roadway Facilities

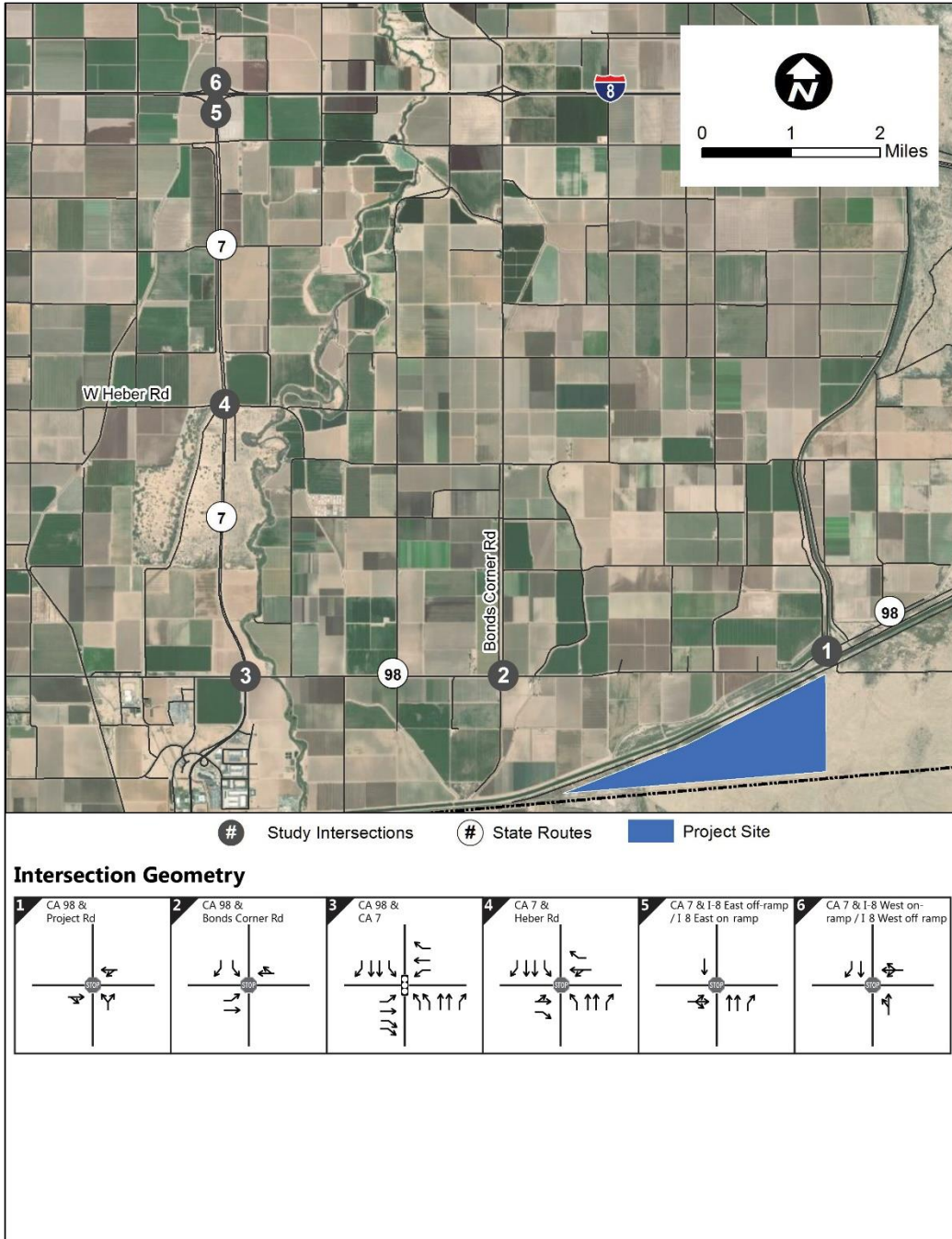
State Route 98 (SR-98) is a two-lane highway with no median and a posted speed limit of 65 mph.

State Route 7 (SR-7) is a four-lane highway with median and a posted speed limit of 65 mph between SR-98 and I-8.

Interstate 8 (I-8) is a four-lane divided freeway with two (2) lanes in each direction with a posted speed limit of 70 mph.

Figure 3.1 displays the existing intersection geometrics for study area intersections.

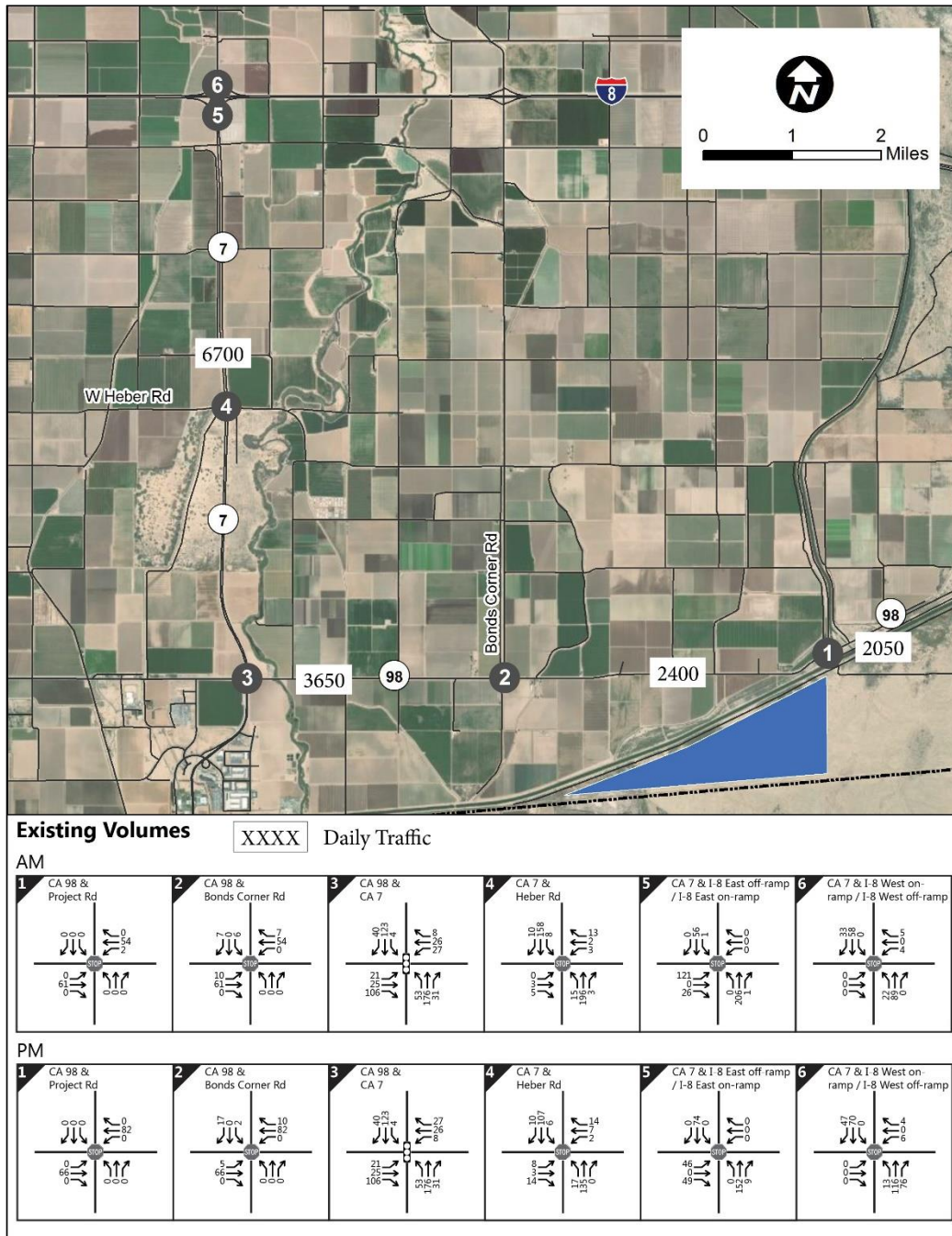
Figure 3.1. Intersection Geometrics



Traffic Volumes

Existing turning movement counts at the study intersections were conducted on Tuesday, December 8, 2020. The existing condition reflects those land uses that were built and occupied at the time of the traffic counts and represent a typical weekday commute period. Intersection turning movement counts are provided in Appendix A. Existing average daily traffic (ADT) segment counts were obtained from the Caltrans for the year 2019. The ADT and weekday a.m. and p.m. peak hour traffic volumes are shown on Figure 3.2.

Figure 3.2. Existing Volumes



Existing Year Conditions

This section documents the existing traffic conditions of study area segments and intersections.

Segments

Roadway segment analysis was conducted for the study area's specified segments. Using average daily traffic (ADT) counts, KOA was able to determine the existing level of service for the designated roadway segments. Table 3.1 below displays these levels of service.

Table 3.1 Existing Year Conditions Roadway Segment Analysis

Roadway Segment	From/ To	Lanes/ Class	LOS E Capacity	Existing		
				ADT	V/C	LOS
SR-98	Project to east	Minor Arterial 2 Lane	18,500	2,050	0.11	A
SR-98	Project to Bonds Corner	Minor Arterial 2 Lane	18,500	2,400	0.13	A
SR 98	Bonds Corner to SR-7	Minor Arterial 2 Lane	18,500	3,650	0.20	A
SR-7	SR-98 to I-8	Principal Arterial 4 Lane	57,000	6,700	0.12	A

Intersections

An intersection LOS analysis was prepared for the existing condition and is summarized in Table 3.2 which indicates that there are two study area intersections. Detailed LOS worksheets are included in Appendix B.

Table 3.2: Existing Year Conditions Peak Hour Intersection Analysis

#	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Site Driveway/ SR-98	NB Stop	0	A	0	A
2	SR-98 / Bonds Corner	SB Stop	8.9	A	8.9	A
3	SR-98 / SR-7	Signal	8.6	A	8.6	A
4	SR-7 / Heber Road	EB/WB Stop	10.1	B	9.6	A
5	SR -7 / I-8 So. Ramps	EB Stop	10.3	B	9.5	A
6	SR-7 / I-8 North Ramps	WB Stop	9.3	A	9.9	A

Delay is in seconds/vehicle. LOS = Level of Service

Freeway Segment Analysis

Table 3.3 displays the freeway segment level of service analysis results under existing conditions.

Table 3.3 Existing Freeway Level of Service

Freeway	Segment	ADT (a)	Peak Direction	# of Lanes	Capacity (b)	D	K	HVF	PK Vol	V/C	LOS
I-8	SR-7 to SR-111	19,700	EB (AM)	2	4,700	11	57	23	1,519	0.32	B
			WB (PM)	2	4700	11	59	23	1,563	0.33	B

- Traffic volumes provided by Caltrans (2019)
- The capacity is calculated as 2,350 per hour/ per main lane
- D = Directional split. | K = Peak hour %
- HVF = Heavy vehicle %. These values were obtained from Caltrans peak hour volume data (2019)
- PK Vol – highest hourly directional volume

4.0 Trip Generation/Trip Distribution

Project Trip Generation

The project trip generation consists of a construction phase and operations phase. Once constructed, the site will not require personnel to be present on-site and will not result in daily trip generation. For this reason, only the trip generation for the construction phase was analyzed.

The construction of the site is estimated to take 12-18 months and would begin in 2022. The number of on-site construction workers for the solar project facilities is not expected to exceed 150 workers at any one time. The number of on-site construction workers for the battery storage facility and the substation is not expected to exceed 100 workers at any one time. The trip generation was estimated if the construction phases were to overlap, so both are included. Delivery trucks are expected to follow the same routes as the construction workers. An estimated two trucks would arrive at the project site each day during the first few weeks of construction of the solar generating facility. Truck trips have been converted into passenger equivalent volumes (PCE) using a PCE factor of 2.5.

Work hours will be between the hours of 8:00 a.m. and 5:00 p.m. Monday through Saturday. The trips generated during the construction phase of construction are shown in Table 4.1.

Table 4.1 Construction Trip Generation – Construction Phase

	Intensity	Unit	Daily Rate (1)	Daily Trips		AM Peak Hour			PM Peak Hour		
						Total	In	Out	Total	In	Out
Solar Construction Workers	150.0	Employee	2	300	Rate	1.00	100%	0%	1.00	0%	100%
					Trips	150	150	0	150	0	150
Battery Storage Workers	100.0	Employee	2	200	Rate	1.00	100%	0%	1.00	0%	100%
					Trips	100	100	0	100	0	100
Equipment Deliveries and Construction Truck Trips (PCE)	4.0	trucks	2.5	10	Rate	0.13	75%	25%	0.13	25%	75%
					Trips	1	1	0	1	0	1
Total				510	Trips	251	251	0	251	0	251

Trip Distribution and Assignment

Trip distribution and assignment is the process of identifying the probable destinations, directions and traffic routes that project related traffic will likely affect. Trip distribution and assignment information can be estimated from observed traffic patterns, experience or through use of a computerized travel forecast model. Once the proposed developments trips have been estimated, they are assigned to the study area street network. The trip distribution was estimated based on using logical travel paths between the project and local origins. The trip distribution for the project-related trips is shown in Figure 4.1.

Figure 4.1 Trip Distribution



5.0 Construction Year Conditions

This section documents the analysis for the Project Completion Year conditions. This scenario considers the traffic conditions at the time that the proposed development is constructed by increasing the existing traffic counts by an ambient growth rate to reflect cumulative projects. Projected project only volumes are then added to create the 2023 Baseline with Project Scenario. It is anticipated that the project will be completed in Year 2023. An annual ambient growth of 1.8% was utilized to account for traffic growth between 2020 and 2023.

The growth rate is based on the California Economic Forecast *California County-Level Economic Forecast 2017-2050*, dated September 2017 documents an average annual growth factor of 1.8 percent from 2020 to 2025 for Imperial County. Year 2021 traffic data was obtained by factoring the 2019 traffic counts by the application of the 1.8 percent annual growth (5.4 percent for 2020-23). Figure 5.1 illustrates the Project Construction Year background volumes. Figure 5.2 shows the *Construction Year with Project* traffic volumes in the study area.

This section documents the construction year traffic conditions of study area segments and intersections with and without the project.

Figure 5.1 Construction Year Volumes

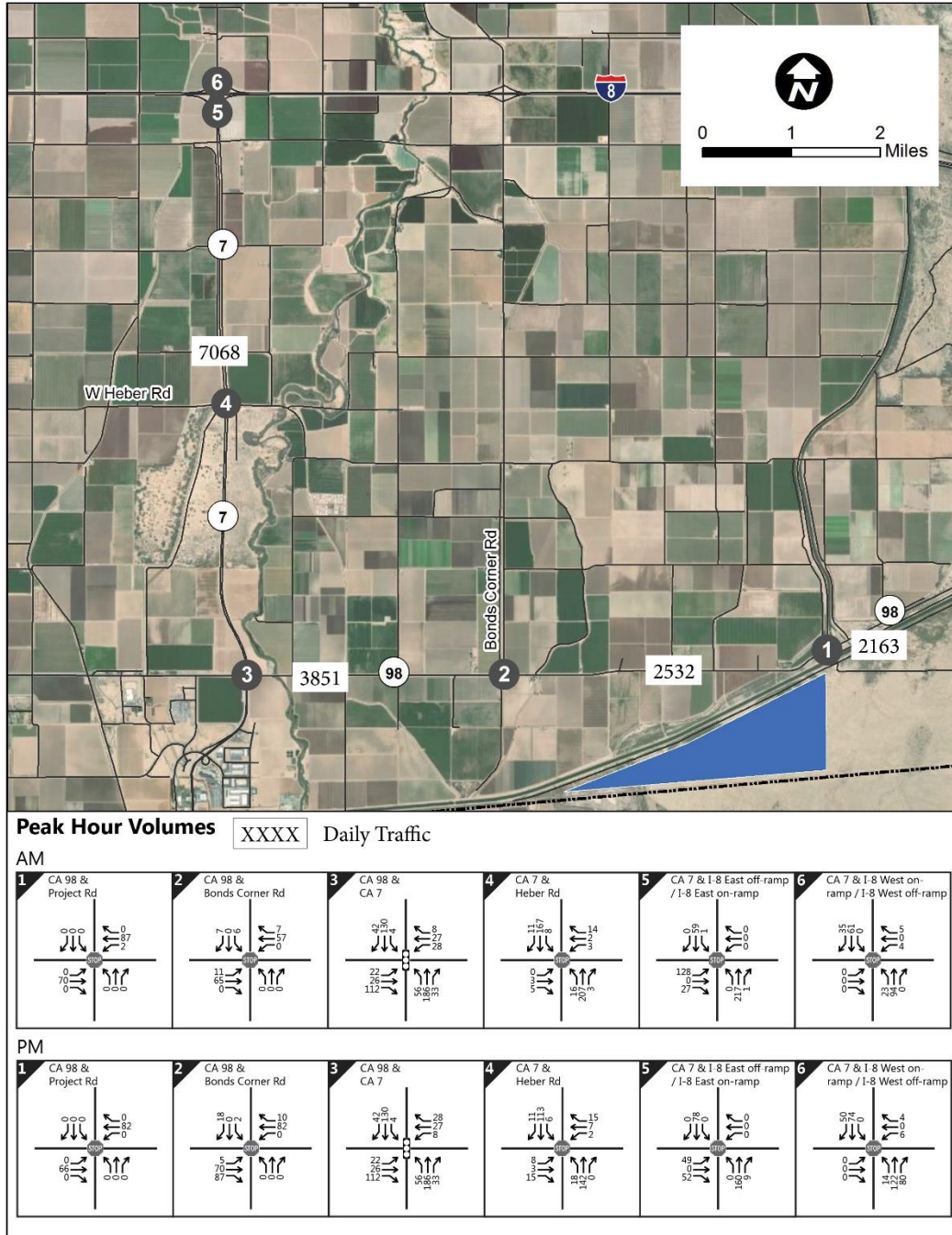
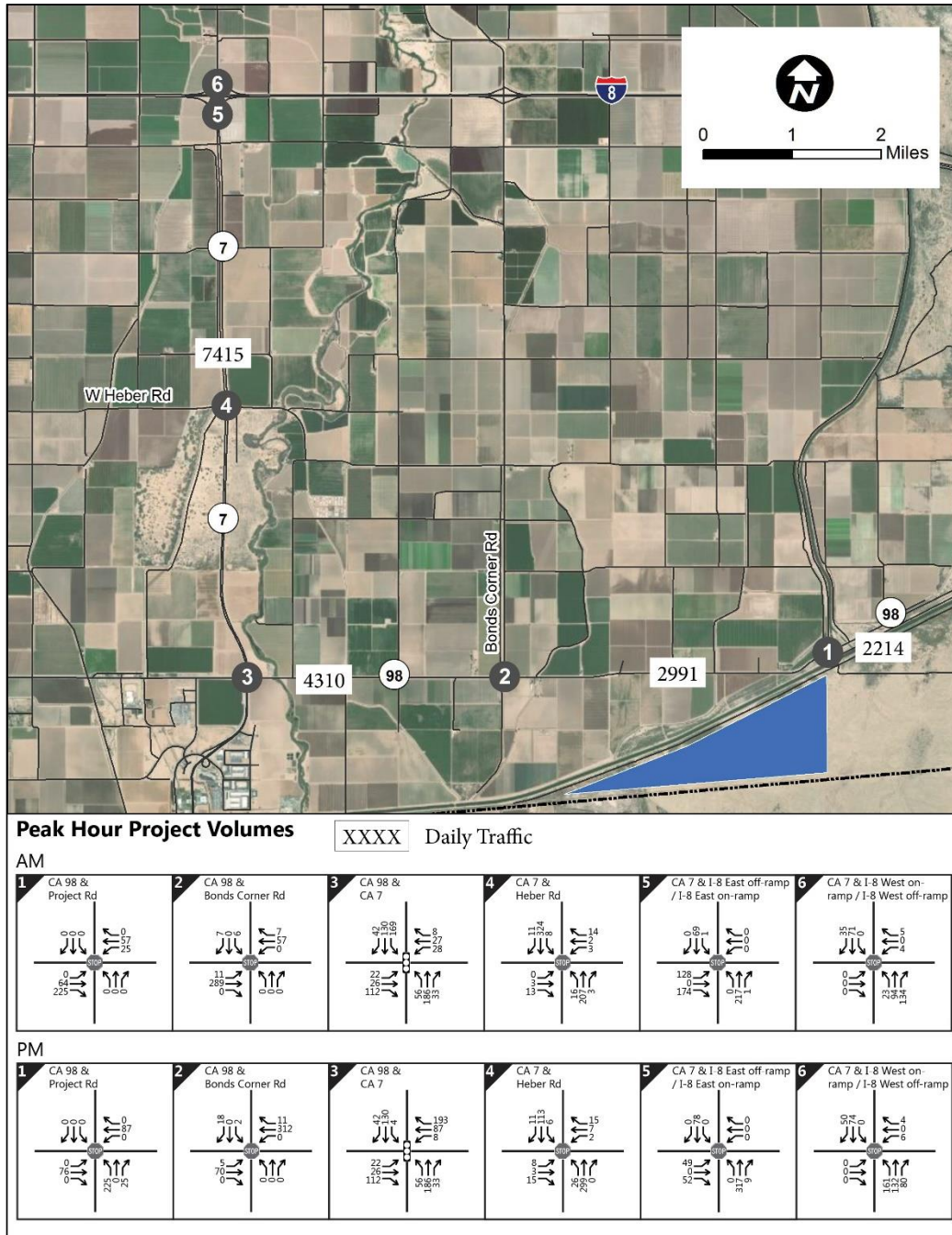


Figure 5.2 Construction Year Plus Project Year Volumes



Segments

Roadway segment analysis was conducted for the study area's specified segments. Using average daily traffic (ADT) counts, KOA determined the opening year level of service for the designated roadway segments.

Summarized in Table 5.1 are Construction Year and Construction Year plus Project roadway segment average daily traffic volumes and their associated LOS on route segments without and with the project under the near term condition. All roadway segments would operate at LOS B or better with and without the project. Therefore, the project would not result in any significant impacts to any segments within the project study area under the construction year condition.

Table 5.1 Construction Year Roadway Segment Analysis

No.	Route	From/To	Lanes/Class	LOS E Capacity	Project Volumes	Construction Year			Construction Year + Project			Comparison	
						Volume	V/C	LOS	Volume	V/C	LOS	Δ V/C	Sig?
1	SR-98	Project to east	Minor Arterial 2 Lane	18,500	51	2,163	0.12	A	2,214	0.12	A	0.00	No
2	SR-98	Project to Bonds Corner	Minor Arterial 2 Lane	18,500	459	2,532	0.14	A	2,991	0.16	A	0.02	No
3	SR 98	Bonds Corner to SR-7	Minor Arterial 2 Lane	18,500	459	3,851	0.21	A	4,310	0.23	A	0.02	No
4	SR-7	SR-98 to I-8	Principal Arterial 4 Lane	57,000	347	7,068	0.12	A	7,415	0.13	A	0.01	No

Intersections

Table 5.2 summarizes the LOS at each intersection during the AM and PM peak hours under the construction year condition in 2022, without and with the project volumes. The estimated change in project delay associated with the project is also reported. All intersections would operate at a LOS C or better during both AM and PM peak hours with and without the project. Therefore, the project would not result in any significant impacts to any intersections within the project study area under the construction year condition. Detailed LOS worksheets for the Construction Year are included in Appendix C and for the Construction Year plus Project in Appendix D.

Table 5.2 Construction Year Peak Hour Intersection Analysis

No.	Intersection	Control	Construction Year		Construction Year + Project		Change Delay	Significant
			Delay	LOS	Delay	LOS		
AM Peak Hour between 7:00 to 9:00 a.m.								
1	Site Driveway/ SR-98	NB Stop	n/a	A	0.0	A	n/a	N
2	SR-98 / Bonds Corner	SB Stop	9.0	A	9.8	A	0.8	N
3	SR-98 / SR-7	Signal	8.7	A	9.4	A	0.7	N
4	SR-7 / Heber Road	EB/WB Stop	10.2	B	10.3	B	0.1	N
5	SR -7 / I-8 So. Ramps	EB Stop	10.5	B	11.4	B	0.9	N
6	SR-7 / I-8 North Ramps	WB Stop	9.8	A	9.8	A	0.0	N
PM Peak Hour between 4:00 to 6:00 p.m.								
1	Site Driveway/ SR-98	NB Stop	n/a	A	11.4	A	n/a	N
2	SR-98 / Bonds Corner	SB Stop	9.0	A	10.4	A	1.4	N
3	SR-98 / SR-7	Signal	8.7	A	9.2	A	0.5	N
4	SR-7 / Heber Road	EB/WB Stop	9.6	A	10.8	A	1.2	N
5	SR -7 / I-8 So. Ramps	EB Stop	10.0	B	10.0	B	0.0	N
6	SR-7 / I-8 North Ramps	WB Stop	12.6	B	12.6	B	0.0	N

Delay is in seconds/vehicle. LOS = Level of Service

Freeway Segment Analysis

Table 5.3 displays the freeway segment level of service analysis results for the Construction Year and for Construction Year plus Project. This freeway segment would operate at LOS B or better with and without the project. Therefore, the project would not result in any significant impacts to any segments within the project study area under the construction year condition.

Table 5.3 Construction Year Freeway Level of Service

Freeway	Segment	Peak Direction	V/C		Construction Year + Proj		Change V/C	Sig?
			V/C	LOS	V/C	LOS		
I-8	SR-7 to SR-111	EB (AM)	0.34	B	0.39	B	0.05	N
		WB (PM)	0.35	B	0.40	B	0.05	N

6.0 Circulation

The following section discusses the proposed project's access and circulation characteristics.

Project Access and Circulation

Access to and from the site will be provided from an existing driveway along SR 98. This will be the primary driveways serving the site. The volumes associated with the development are such that peak hour volumes do not warrant the need for additional storage lanes or storage length for entrances along SR 98. Vehicle storage for vehicles exiting the property will be on-site.

Parking

The existing parking demand for up to 250 vehicles and for construction equipment will be provided on site.

7.0 Impacts and Mitigation

This traffic impact analysis (TIA) has been prepared to identify the potential traffic impacts associated with constructing a solar photovoltaic (PV) energy generation project and utility-scale battery energy storage system (BESS).

The construction of the project is estimated to take 12-18 months and would begin in 2022. During the construction phase, at peak construction, for the time when both the PV and BESS project phases are being constructed as the same time, the project is anticipated to generate a maximum of 510 trip ends per day with 251 AM peak hour trips and 251 PM peak hour trips. Following construction, the project will not generate additional daily or peak hour trips beyond occasional maintenance. The project opening is anticipated to be 2023.

The project is not expected to create significant impacts at study intersections or study segments, therefore no mitigation measures are required. All study intersections and segments were found to operate at LOS C or better for all of the traffic scenarios analyzed.

APPENDIX A: TRAFFIC COUNT DATA

County of Imperial
 N/S: Bonds Corner Road
 E/W: SR-98
 Weather: Clear

File Name : 01_CIM_Bonds Corner_SR98 AM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 1

Groups Printed- Total Volume

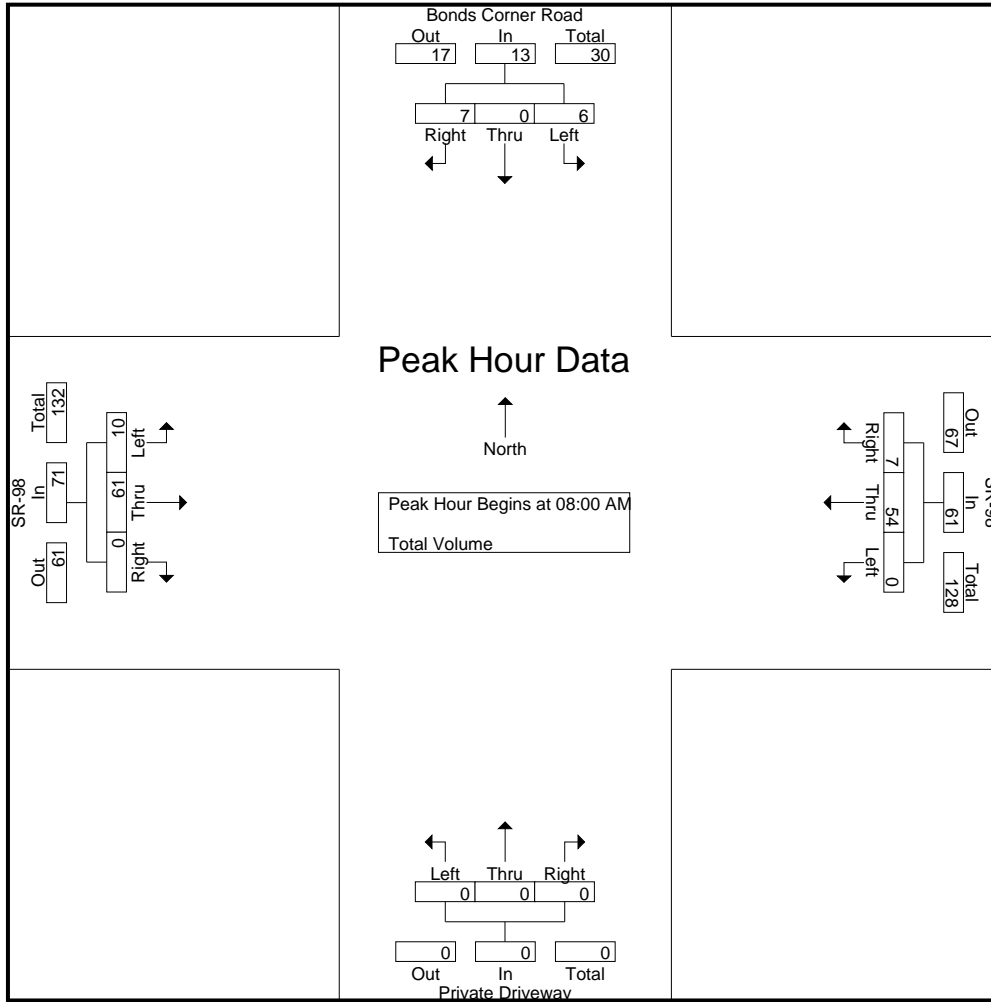
Start Time	Bonds Corner Road Southbound				SR-98 Westbound				Private Driveway Northbound				SR-98 Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	4	0	2	6	0	16	1	17	0	0	0	0	0	12	0	12	35
07:15 AM	0	0	1	1	0	14	2	16	0	0	0	0	0	10	0	10	27
07:30 AM	2	0	2	4	0	11	2	13	0	0	1	1	0	9	0	9	27
07:45 AM	1	0	0	1	0	16	1	17	0	0	0	0	1	11	0	12	30
Total	7	0	5	12	0	57	6	63	0	0	1	1	1	42	0	43	119
08:00 AM	1	0	4	5	0	11	2	13	0	0	0	0	2	15	0	17	35
08:15 AM	1	0	1	2	0	13	1	14	0	0	0	0	1	15	0	16	32
08:30 AM	1	0	2	3	0	17	3	20	0	0	0	0	2	11	0	13	36
08:45 AM	3	0	0	3	0	13	1	14	0	0	0	0	5	20	0	25	42
Total	6	0	7	13	0	54	7	61	0	0	0	0	10	61	0	71	145
Grand Total	13	0	12	25	0	111	13	124	0	0	1	1	11	103	0	114	264
Apprch %	52	0	48		0	89.5	10.5		0	0	100		9.6	90.4	0		
Total %	4.9	0	4.5	9.5	0	42	4.9	47	0	0	0.4	0.4	4.2	39	0	43.2	

Start Time	Bonds Corner Road Southbound				SR-98 Westbound				Private Driveway Northbound				SR-98 Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
08:00 AM	1	0	4	5	0	11	2	13	0	0	0	0	2	15	0	17	35
08:15 AM	1	0	1	2	0	13	1	14	0	0	0	0	1	15	0	16	32
08:30 AM	1	0	2	3	0	17	3	20	0	0	0	0	2	11	0	13	36
08:45 AM	3	0	0	3	0	13	1	14	0	0	0	0	5	20	0	25	42
Total Volume	6	0	7	13	0	54	7	61	0	0	0	0	10	61	0	71	145
% App. Total	46.2	0	53.8		0	88.5	11.5		0	0	0		14.1	85.9	0		
PHF	.500	.000	.438	.650	.000	.794	.583	.763	.000	.000	.000	.000	.500	.763	.000	.710	.863

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 08:00 AM

County of Imperial
 N/S: Bonds Corner Road
 E/W: SR-98
 Weather: Clear

File Name : 01_CIM_Bonds Corner_SR98 AM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	08:00 AM				07:45 AM				07:00 AM				08:00 AM			
+0 mins.	1	0	4	5	0	16	1	17	0	0	0	0	2	15	0	17
+15 mins.	1	0	1	2	0	11	2	13	0	0	0	0	1	15	0	16
+30 mins.	1	0	2	3	0	13	1	14	0	0	1	1	2	11	0	13
+45 mins.	3	0	0	3	0	17	3	20	0	0	0	0	5	20	0	25
Total Volume	6	0	7	13	0	57	7	64	0	0	1	1	10	61	0	71
% App. Total	46.2	0	53.8		0	89.1	10.9		0	0	100		14.1	85.9	0	
PHF	.500	.000	.438	.650	.000	.838	.583	.800	.000	.000	.250	.250	.500	.763	.000	.710

County of Imperial
 N/S: Bonds Corner Road
 E/W: SR-98
 Weather: Clear

File Name : 01_CIM_Bonds Corner_SR98 PM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 1

Groups Printed- Total Volume

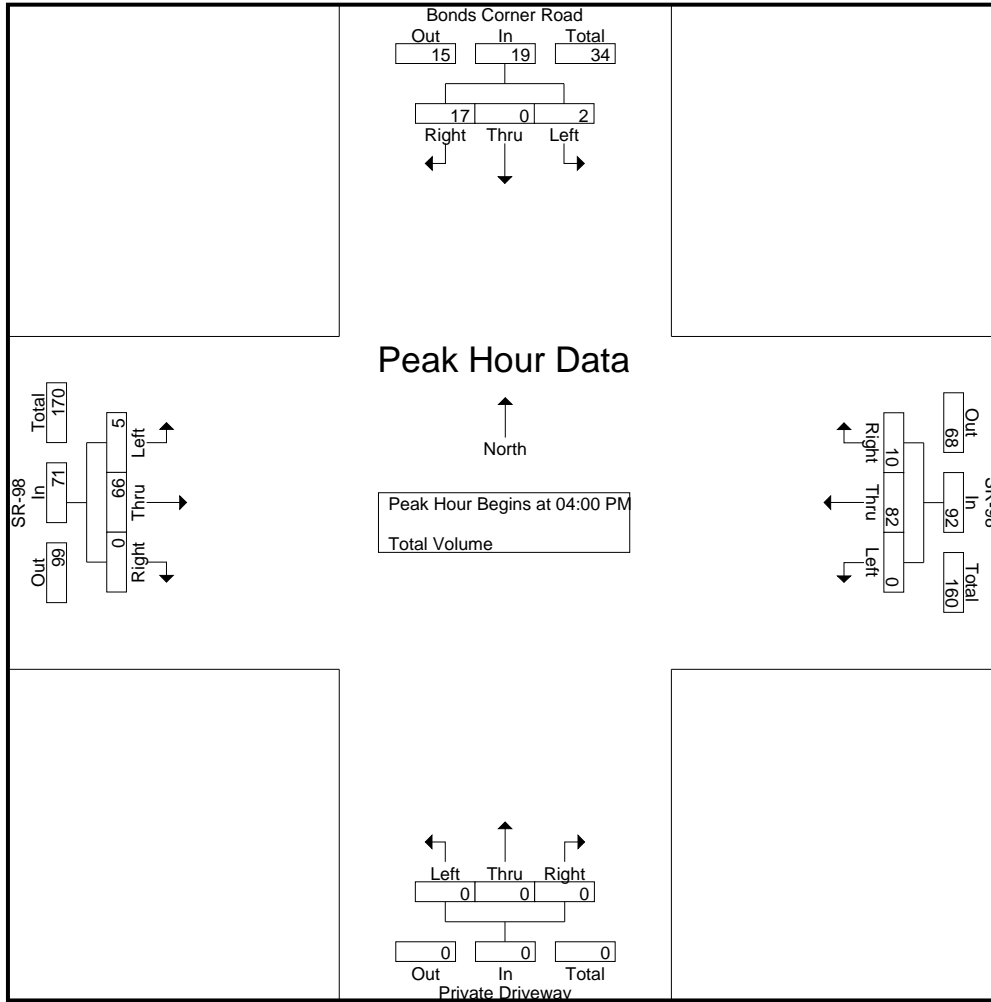
Start Time	Bonds Corner Road Southbound				SR-98 Westbound				Private Driveway Northbound				SR-98 Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	1	0	7	8	0	30	2	32	0	0	0	0	1	25	0	26	66
04:15 PM	0	0	6	6	0	13	2	15	0	0	0	0	1	12	0	13	34
04:30 PM	0	0	3	3	0	23	4	27	0	0	0	0	1	13	0	14	44
04:45 PM	1	0	1	2	0	16	2	18	0	0	0	0	2	16	0	18	38
Total	2	0	17	19	0	82	10	92	0	0	0	0	5	66	0	71	182
05:00 PM	0	0	2	2	0	27	0	27	0	0	0	0	0	13	0	13	42
05:15 PM	1	0	1	2	0	16	0	16	0	0	0	0	0	14	0	14	32
05:30 PM	0	0	2	2	0	25	1	26	0	0	0	0	0	27	0	27	55
05:45 PM	0	0	3	3	0	28	0	28	0	0	0	0	0	9	0	9	40
Total	1	0	8	9	0	96	1	97	0	0	0	0	0	63	0	63	169
Grand Total	3	0	25	28	0	178	11	189	0	0	0	0	5	129	0	134	351
Apprch %	10.7	0	89.3		0	94.2	5.8		0	0	0		3.7	96.3	0		
Total %	0.9	0	7.1	8	0	50.7	3.1	53.8	0	0	0	0	1.4	36.8	0	38.2	

Start Time	Bonds Corner Road Southbound				SR-98 Westbound				Private Driveway Northbound				SR-98 Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	1	0	7	8	0	30	2	32	0	0	0	0	1	25	0	26	66
04:15 PM	0	0	6	6	0	13	2	15	0	0	0	0	1	12	0	13	34
04:30 PM	0	0	3	3	0	23	4	27	0	0	0	0	1	13	0	14	44
04:45 PM	1	0	1	2	0	16	2	18	0	0	0	0	2	16	0	18	38
Total Volume	2	0	17	19	0	82	10	92	0	0	0	0	5	66	0	71	182
% App. Total	10.5	0	89.5		0	89.1	10.9		0	0	0		7	93	0		
PHF	.500	.000	.607	.594	.000	.683	.625	.719	.000	.000	.000	.000	.625	.660	.000	.683	.689

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:00 PM

County of Imperial
 N/S: Bonds Corner Road
 E/W: SR-98
 Weather: Clear

File Name : 01_CIM_Bonds Corner_SR98 PM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:00 PM				05:00 PM				04:00 PM				04:45 PM			
+0 mins.	1	0	7	8	0	27	0	27	0	0	0	0	2	16	0	18
+15 mins.	0	0	6	6	0	16	0	16	0	0	0	0	0	13	0	13
+30 mins.	0	0	3	3	0	25	1	26	0	0	0	0	0	14	0	14
+45 mins.	1	0	1	2	0	28	0	28	0	0	0	0	0	27	0	27
Total Volume	2	0	17	19	0	96	1	97	0	0	0	0	2	70	0	72
% App. Total	10.5	0	89.5		0	99	1		0	0	0		2.8	97.2	0	
PHF	.500	.000	.607	.594	.000	.857	.250	.866	.000	.000	.000	.000	.250	.648	.000	.667

County of Imperial
 N/S: SR-7
 E/W: SR-98
 Weather: Clear

File Name : 02_CIM_SR-7_SR98 AM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 1

Groups Printed- Total Volume

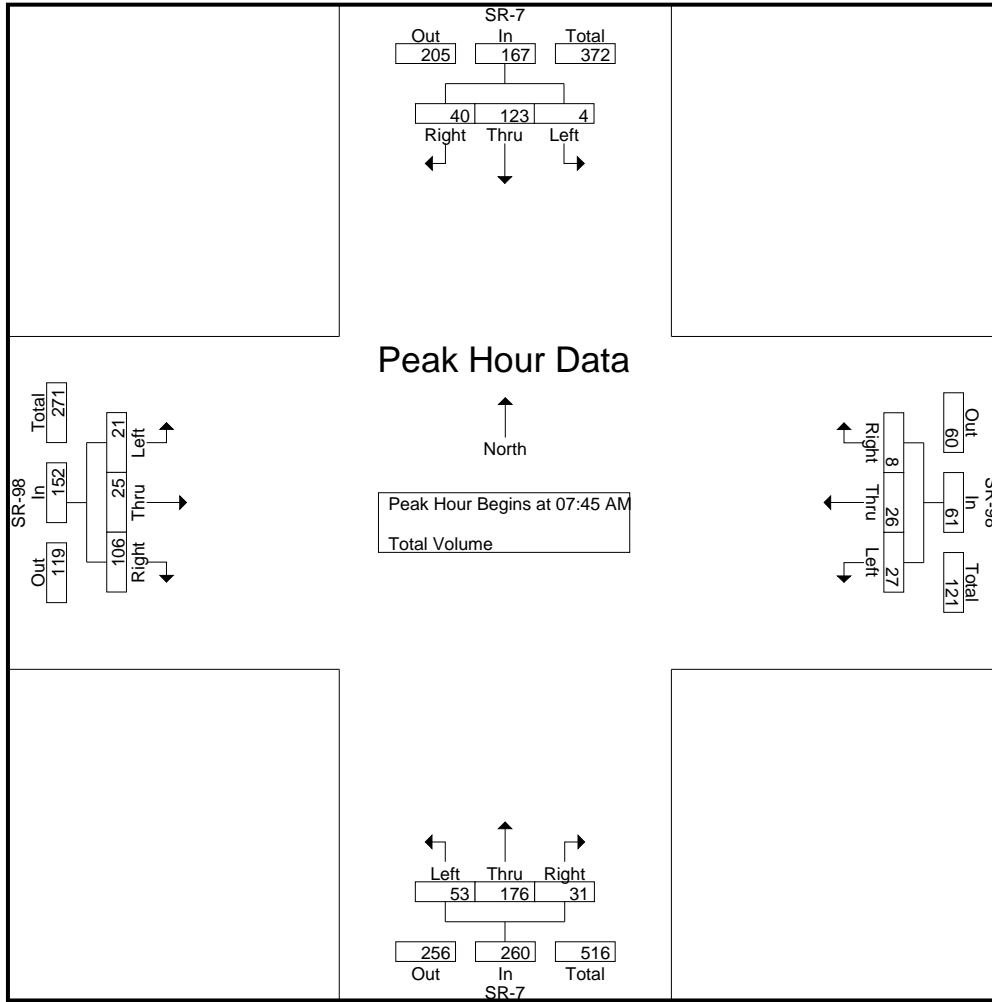
Start Time	SR-7 Southbound				SR-98 Westbound				SR-7 Northbound				SR-98 Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	15	9	24	3	12	1	16	10	56	2	68	9	7	12	28	136
07:15 AM	2	27	4	33	4	13	0	17	12	48	7	67	6	4	11	21	138
07:30 AM	5	32	5	42	6	5	1	12	21	43	4	68	7	4	12	23	145
07:45 AM	0	38	15	53	6	7	1	14	13	53	7	73	5	7	34	46	186
Total	7	112	33	152	19	37	3	59	56	200	20	276	27	22	69	118	605
08:00 AM	1	33	8	42	5	6	3	14	9	49	8	66	4	7	34	45	167
08:15 AM	2	20	9	31	7	5	1	13	17	37	8	62	6	5	20	31	137
08:30 AM	1	32	8	41	9	8	3	20	14	37	8	59	6	6	18	30	150
08:45 AM	0	26	8	34	7	5	1	13	8	36	15	59	5	7	20	32	138
Total	4	111	33	148	28	24	8	60	48	159	39	246	21	25	92	138	592
Grand Total	11	223	66	300	47	61	11	119	104	359	59	522	48	47	161	256	1197
Apprch %	3.7	74.3	22		39.5	51.3	9.2		19.9	68.8	11.3		18.8	18.4	62.9		
Total %	0.9	18.6	5.5	25.1	3.9	5.1	0.9	9.9	8.7	30	4.9	43.6	4	3.9	13.5	21.4	

Start Time	SR-7 Southbound				SR-98 Westbound				SR-7 Northbound				SR-98 Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:45 AM	0	38	15	53	6	7	1	14	13	53	7	73	5	7	34	46	186
08:00 AM	1	33	8	42	5	6	3	14	9	49	8	66	4	7	34	45	167
08:15 AM	2	20	9	31	7	5	1	13	17	37	8	62	6	5	20	31	137
08:30 AM	1	32	8	41	9	8	3	20	14	37	8	59	6	6	18	30	150
Total Volume	4	123	40	167	27	26	8	61	53	176	31	260	21	25	106	152	640
% App. Total	2.4	73.7	24		44.3	42.6	13.1		20.4	67.7	11.9		13.8	16.4	69.7		
PHF	.500	.809	.667	.788	.750	.813	.667	.763	.779	.830	.969	.890	.875	.893	.779	.826	.860

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:45 AM

County of Imperial
 N/S: SR-7
 E/W: SR-98
 Weather: Clear

File Name : 02_CIM_SR-7_SR98 AM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM				07:45 AM				07:00 AM				07:45 AM			
+0 mins.	2	27	4	33	6	7	1	14	10	56	2	68	5	7	34	46
+15 mins.	5	32	5	42	5	6	3	14	12	48	7	67	4	7	34	45
+30 mins.	0	38	15	53	7	5	1	13	21	43	4	68	6	5	20	31
+45 mins.	1	33	8	42	9	8	3	20	13	53	7	73	6	6	18	30
Total Volume	8	130	32	170	27	26	8	61	56	200	20	276	21	25	106	152
% App. Total	4.7	76.5	18.8		44.3	42.6	13.1		20.3	72.5	7.2		13.8	16.4	69.7	
PHF	.400	.855	.533	.802	.750	.813	.667	.763	.667	.893	.714	.945	.875	.893	.779	.826

County of Imperial
 N/S: SR-7
 E/W: SR-98
 Weather: Clear

File Name : 02_CIM_SR-7_SR98 PM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 1

Groups Printed- Total Volume

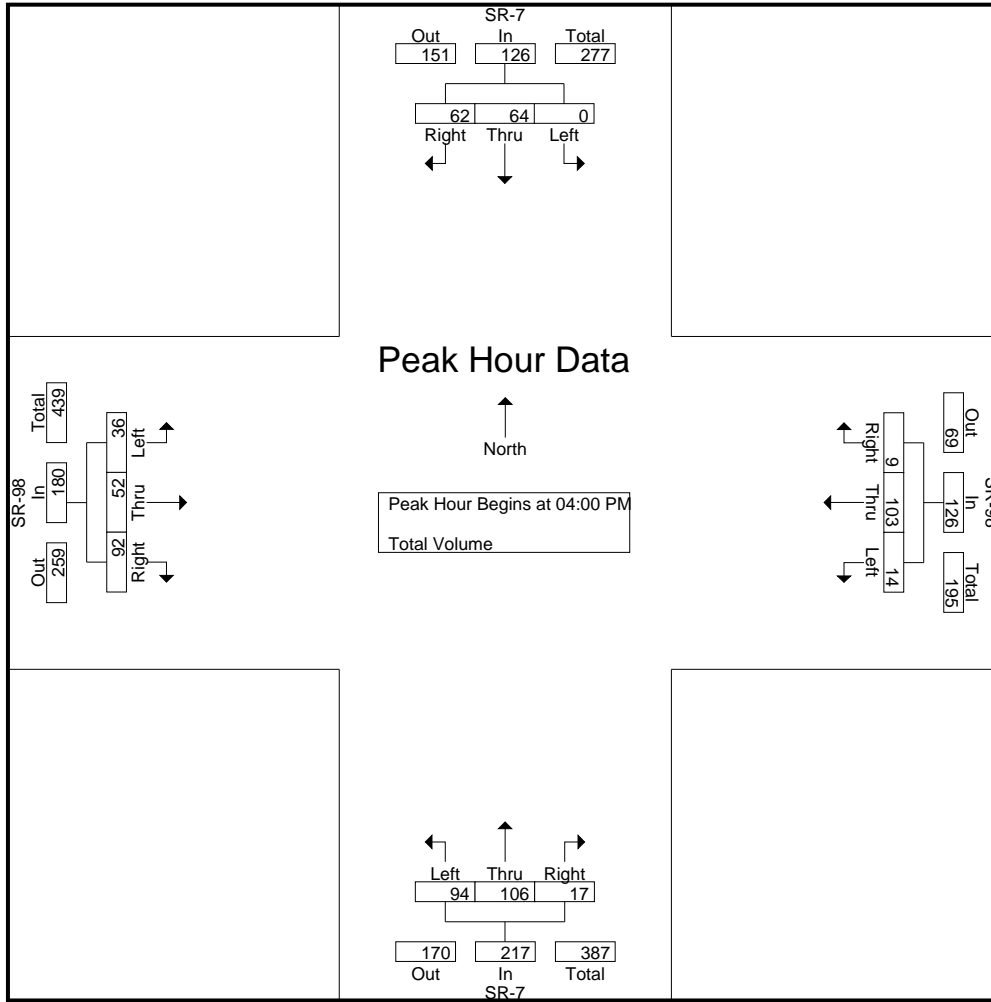
Start Time	SR-7 Southbound				SR-98 Westbound				SR-7 Northbound				SR-98 Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	19	21	40	4	43	2	49	23	34	8	65	13	16	23	52	206
04:15 PM	0	19	8	27	3	23	2	28	36	34	3	73	11	10	25	46	174
04:30 PM	0	11	21	32	4	13	3	20	25	18	4	47	5	11	30	46	145
04:45 PM	0	15	12	27	3	24	2	29	10	20	2	32	7	15	14	36	124
Total	0	64	62	126	14	103	9	126	94	106	17	217	36	52	92	180	649
05:00 PM	1	13	7	21	4	25	0	29	71	26	2	99	7	9	22	38	187
05:15 PM	1	10	18	29	7	16	0	23	30	17	2	49	7	17	23	47	148
05:30 PM	0	16	8	24	2	22	0	24	24	19	4	47	3	13	15	31	126
05:45 PM	0	17	9	26	7	23	1	31	13	7	1	21	11	13	13	37	115
Total	2	56	42	100	20	86	1	107	138	69	9	216	28	52	73	153	576
Grand Total	2	120	104	226	34	189	10	233	232	175	26	433	64	104	165	333	1225
Apprch %	0.9	53.1	46		14.6	81.1	4.3		53.6	40.4	6		19.2	31.2	49.5		
Total %	0.2	9.8	8.5	18.4	2.8	15.4	0.8	19	18.9	14.3	2.1	35.3	5.2	8.5	13.5	27.2	

Start Time	SR-7 Southbound				SR-98 Westbound				SR-7 Northbound				SR-98 Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	19	21	40	4	43	2	49	23	34	8	65	13	16	23	52	206
04:15 PM	0	19	8	27	3	23	2	28	36	34	3	73	11	10	25	46	174
04:30 PM	0	11	21	32	4	13	3	20	25	18	4	47	5	11	30	46	145
04:45 PM	0	15	12	27	3	24	2	29	10	20	2	32	7	15	14	36	124
Total Volume	0	64	62	126	14	103	9	126	94	106	17	217	36	52	92	180	649
% App. Total	0	50.8	49.2		11.1	81.7	7.1		43.3	48.8	7.8		20	28.9	51.1		
PHF	.000	.842	.738	.788	.875	.599	.750	.643	.653	.779	.531	.743	.692	.813	.767	.865	.788

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:00 PM

County of Imperial
 N/S: SR-7
 E/W: SR-98
 Weather: Clear

File Name : 02_CIM_SR-7_SR98 PM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:15 PM				04:00 PM			
+0 mins.	0	19	21	40	4	43	2	49	36	34	3	73	13	16	23	52
+15 mins.	0	19	8	27	3	23	2	28	25	18	4	47	11	10	25	46
+30 mins.	0	11	21	32	4	13	3	20	10	20	2	32	5	11	30	46
+45 mins.	0	15	12	27	3	24	2	29	71	26	2	99	7	15	14	36
Total Volume	0	64	62	126	14	103	9	126	142	98	11	251	36	52	92	180
% App. Total	0	50.8	49.2		11.1	81.7	7.1		56.6	39	4.4		20	28.9	51.1	
PHF	.000	.842	.738	.788	.875	.599	.750	.643	.500	.721	.688	.634	.692	.813	.767	.865

County of Imperial
 N/S: SR-7
 E/W: Herber Road
 Weather: Clear

File Name : 03_CIM_SR-7_Herber AM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 1

Groups Printed- Total Volume

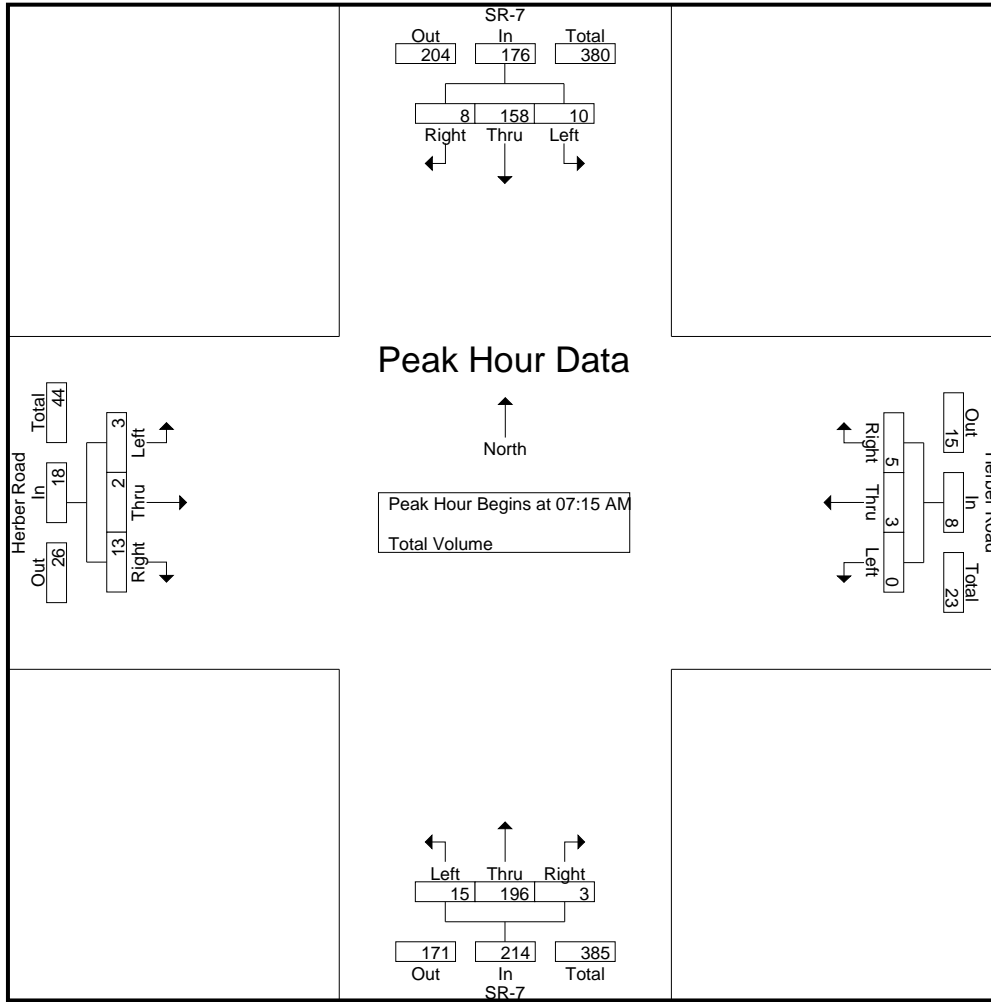
Start Time	SR-7 Southbound				Herber Road Westbound				SR-7 Northbound				Herber Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	31	2	33	0	1	2	3	0	57	0	57	0	0	0	0	93
07:15 AM	0	32	2	34	0	1	2	3	2	49	1	52	1	0	4	5	94
07:30 AM	4	43	0	47	0	2	1	3	5	44	1	50	1	1	4	6	106
07:45 AM	2	48	5	55	0	0	0	0	4	52	1	57	0	0	3	3	115
Total	6	154	9	169	0	4	5	9	11	202	3	216	2	1	11	14	408
08:00 AM	4	35	1	40	0	0	2	2	4	51	0	55	1	1	2	4	101
08:15 AM	4	32	0	36	0	3	1	4	4	41	0	45	5	3	1	9	94
08:30 AM	2	35	5	42	0	1	5	6	1	43	0	44	1	2	3	6	98
08:45 AM	2	38	1	41	0	1	2	3	4	39	0	43	1	0	0	1	88
Total	12	140	7	159	0	5	10	15	13	174	0	187	8	6	6	20	381
Grand Total	18	294	16	328	0	9	15	24	24	376	3	403	10	7	17	34	789
Apprch %	5.5	89.6	4.9		0	37.5	62.5		6	93.3	0.7		29.4	20.6	50		
Total %	2.3	37.3	2	41.6	0	1.1	1.9	3	3	47.7	0.4	51.1	1.3	0.9	2.2	4.3	

Start Time	SR-7 Southbound				Herber Road Westbound				SR-7 Northbound				Herber Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:15 AM	0	32	2	34	0	1	2	3	2	49	1	52	1	0	4	5	94
07:30 AM	4	43	0	47	0	2	1	3	5	44	1	50	1	1	4	6	106
07:45 AM	2	48	5	55	0	0	0	0	4	52	1	57	0	0	3	3	115
08:00 AM	4	35	1	40	0	0	2	2	4	51	0	55	1	1	2	4	101
Total Volume	10	158	8	176	0	3	5	8	15	196	3	214	3	2	13	18	416
% App. Total	5.7	89.8	4.5		0	37.5	62.5		7	91.6	1.4		16.7	11.1	72.2		
PHF	.625	.823	.400	.800	.000	.375	.625	.667	.750	.942	.750	.939	.750	.500	.813	.750	.904

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM

County of Imperial
 N/S: SR-7
 E/W: Herber Road
 Weather: Clear

File Name : 03_CIM_SR-7_Herber AM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM				08:00 AM				07:00 AM				07:30 AM			
+0 mins.	4	43	0	47	0	0	2	2	0	57	0	57	1	1	4	6
+15 mins.	2	48	5	55	0	3	1	4	2	49	1	52	0	0	3	3
+30 mins.	4	35	1	40	0	1	5	6	5	44	1	50	1	1	2	4
+45 mins.	4	32	0	36	0	1	2	3	4	52	1	57	5	3	1	9
Total Volume	14	158	6	178	0	5	10	15	11	202	3	216	7	5	10	22
% App. Total	7.9	88.8	3.4		0	33.3	66.7		5.1	93.5	1.4		31.8	22.7	45.5	
PHF	.875	.823	.300	.809	.000	.417	.500	.625	.550	.886	.750	.947	.350	.417	.625	.611

County of Imperial
 N/S: SR-7
 E/W: Herber Road
 Weather: Clear

File Name : 03_CIM_SR-7_Herber PM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 1

Groups Printed- Total Volume

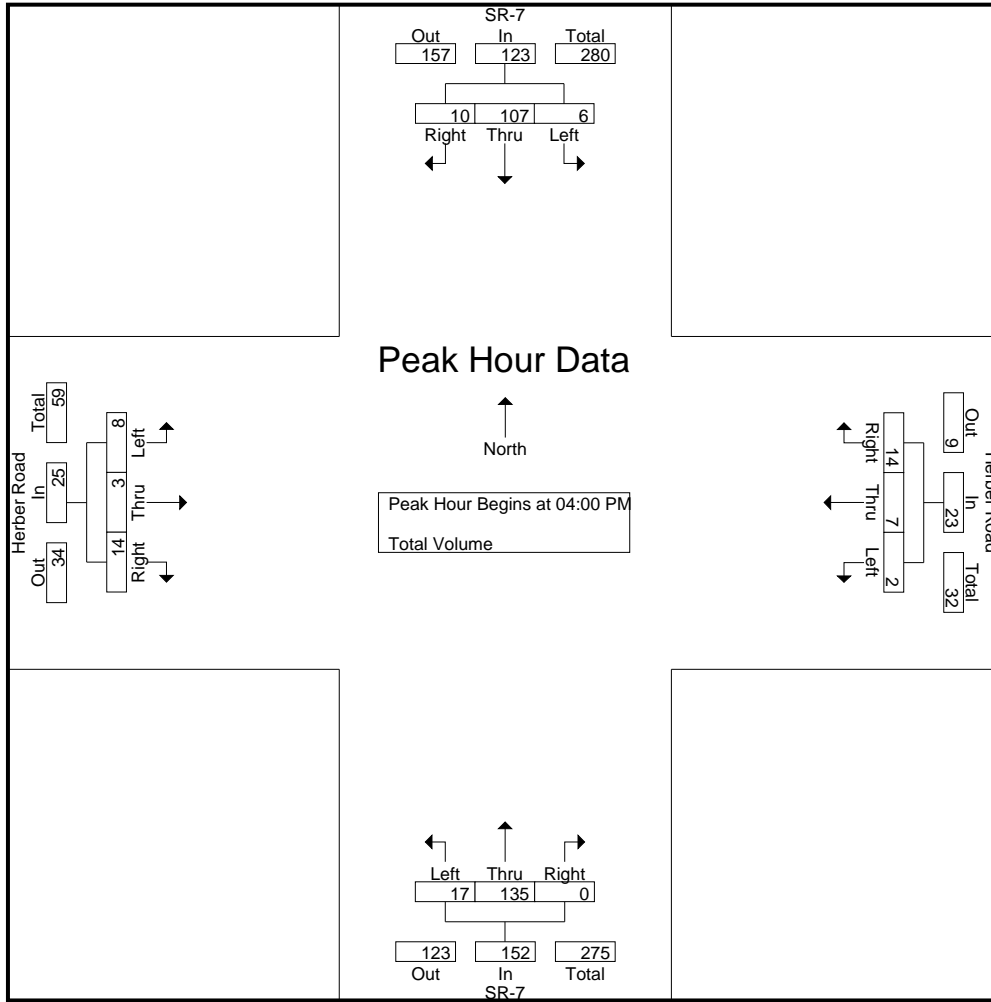
Start Time	SR-7 Southbound				Herber Road Westbound				SR-7 Northbound				Herber Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	3	31	3	37	1	3	9	13	5	39	0	44	4	0	2	6	100
04:15 PM	3	25	2	30	1	0	2	3	3	48	0	51	2	1	4	7	91
04:30 PM	0	30	3	33	0	3	0	3	5	22	0	27	2	2	4	8	71
04:45 PM	0	21	2	23	0	1	3	4	4	26	0	30	0	0	4	4	61
Total	6	107	10	123	2	7	14	23	17	135	0	152	8	3	14	25	323
05:00 PM	0	18	3	21	0	0	1	1	5	24	0	29	3	2	4	9	60
05:15 PM	1	29	3	33	0	1	2	3	4	22	0	26	0	0	1	1	63
05:30 PM	1	24	0	25	0	0	0	0	3	21	0	24	4	0	3	7	56
05:45 PM	1	19	1	21	0	1	1	2	0	18	0	18	1	0	4	5	46
Total	3	90	7	100	0	2	4	6	12	85	0	97	8	2	12	22	225
Grand Total	9	197	17	223	2	9	18	29	29	220	0	249	16	5	26	47	548
Apprch %	4	88.3	7.6		6.9	31	62.1		11.6	88.4	0		34	10.6	55.3		
Total %	1.6	35.9	3.1	40.7	0.4	1.6	3.3	5.3	5.3	40.1	0	45.4	2.9	0.9	4.7	8.6	

Start Time	SR-7 Southbound				Herber Road Westbound				SR-7 Northbound				Herber Road Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	3	31	3	37	1	3	9	13	5	39	0	44	4	0	2	6	100
04:15 PM	3	25	2	30	1	0	2	3	3	48	0	51	2	1	4	7	91
04:30 PM	0	30	3	33	0	3	0	3	5	22	0	27	2	2	4	8	71
04:45 PM	0	21	2	23	0	1	3	4	4	26	0	30	0	0	4	4	61
Total Volume	6	107	10	123	2	7	14	23	17	135	0	152	8	3	14	25	323
% App. Total	4.9	87	8.1		8.7	30.4	60.9		11.2	88.8	0		32	12	56		
PHF	.500	.863	.833	.831	.500	.583	.389	.442	.850	.703	.000	.745	.500	.375	.875	.781	.808

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:00 PM

County of Imperial
 N/S: SR-7
 E/W: Herber Road
 Weather: Clear

File Name : 03_CIM_SR-7_Herber PM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				04:15 PM			
+0 mins.	3	31	3	37	1	3	9	13	5	39	0	44	2	1	4	7
+15 mins.	3	25	2	30	1	0	2	3	3	48	0	51	2	2	4	8
+30 mins.	0	30	3	33	0	3	0	3	5	22	0	27	0	0	4	4
+45 mins.	0	21	2	23	0	1	3	4	4	26	0	30	3	2	4	9
Total Volume	6	107	10	123	2	7	14	23	17	135	0	152	7	5	16	28
% App. Total	4.9	87	8.1		8.7	30.4	60.9		11.2	88.8	0		25	17.9	57.1	
PHF	.500	.863	.833	.831	.500	.583	.389	.442	.850	.703	.000	.745	.583	.625	1.000	.778

County of Imperial
 N/S: SR-7
 E/W: I-8 Eastbound Ramps
 Weather: Clear

File Name : 04_CIM_SR-7_I-8E AM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 1

Groups Printed- Total Volume

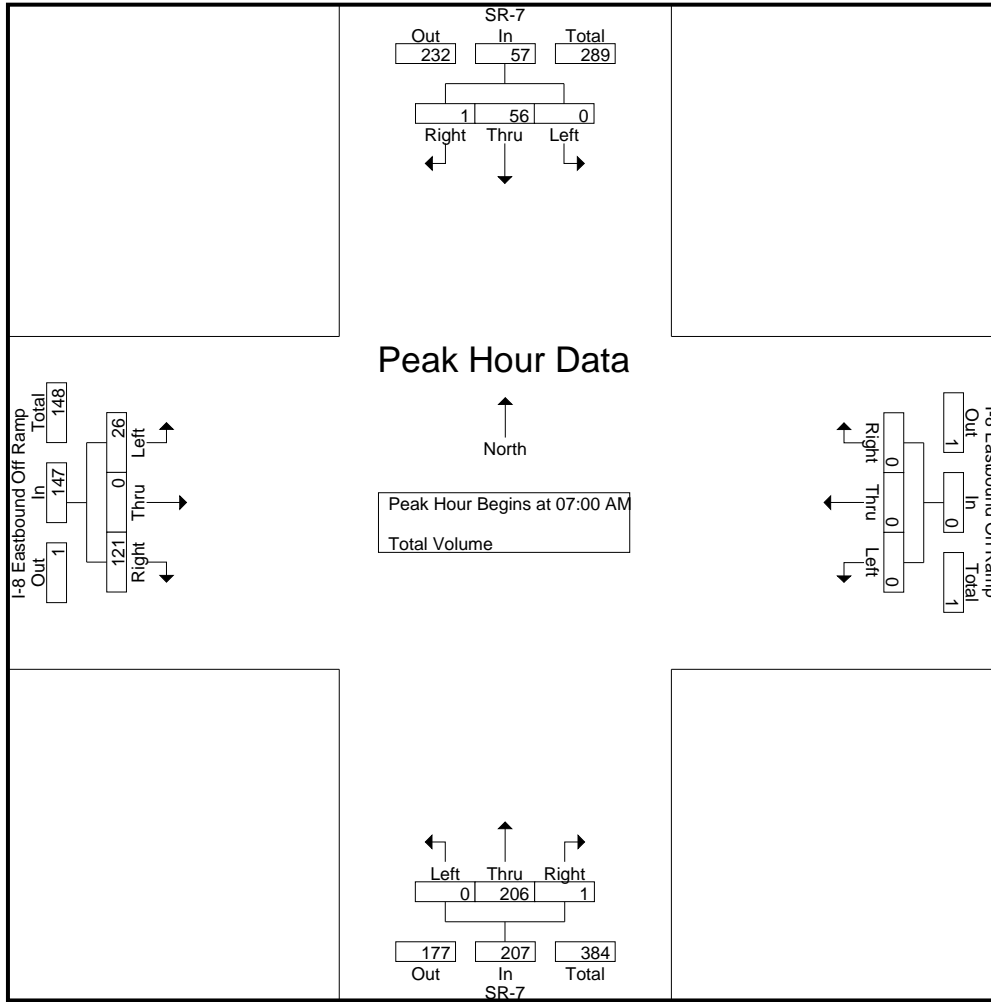
Start Time	SR-7 Southbound				I-8 Eastbound On Ramp Westbound				SR-7 Northbound				I-8 Eastbound Off Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	13	1	14	0	0	0	0	0	61	1	62	6	0	34	40	116
07:15 AM	0	7	0	7	0	0	0	0	0	55	0	55	7	0	17	24	86
07:30 AM	0	20	0	20	0	0	0	0	0	45	0	45	6	0	36	42	107
07:45 AM	0	16	0	16	0	0	0	0	0	45	0	45	7	0	34	41	102
Total	0	56	1	57	0	0	0	0	0	206	1	207	26	0	121	147	411
08:00 AM	0	10	0	10	0	0	0	0	0	52	2	54	6	0	17	23	87
08:15 AM	0	13	0	13	0	0	0	0	0	36	3	39	6	0	24	30	82
08:30 AM	0	21	1	22	0	0	0	0	0	40	2	42	4	0	24	28	92
08:45 AM	0	15	1	16	0	0	0	0	0	47	1	48	8	0	28	36	100
Total	0	59	2	61	0	0	0	0	0	175	8	183	24	0	93	117	361
Grand Total	0	115	3	118	0	0	0	0	0	381	9	390	50	0	214	264	772
Apprch %	0	97.5	2.5		0	0	0		0	97.7	2.3		18.9	0	81.1		
Total %	0	14.9	0.4	15.3	0	0	0		0	49.4	1.2	50.5	6.5	0	27.7	34.2	

Start Time	SR-7 Southbound				I-8 Eastbound On Ramp Westbound				SR-7 Northbound				I-8 Eastbound Off Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	13	1	14	0	0	0	0	0	61	1	62	6	0	34	40	116
07:15 AM	0	7	0	7	0	0	0	0	0	55	0	55	7	0	17	24	86
07:30 AM	0	20	0	20	0	0	0	0	0	45	0	45	6	0	36	42	107
07:45 AM	0	16	0	16	0	0	0	0	0	45	0	45	7	0	34	41	102
Total Volume	0	56	1	57	0	0	0	0	0	206	1	207	26	0	121	147	411
% App. Total	0	98.2	1.8		0	0	0		0	99.5	0.5		17.7	0	82.3		
PHF	.000	.700	.250	.713	.000	.000	.000	.000	.000	.844	.250	.835	.929	.000	.840	.875	.886

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:00 AM

County of Imperial
 N/S: SR-7
 E/W: I-8 Eastbound Ramps
 Weather: Clear

File Name : 04_CIM_SR-7_I-8E AM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:45 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	16	0	16	0	0	0	0	0	61	1	62	6	0	34	40
+15 mins.	0	10	0	10	0	0	0	0	0	55	0	55	7	0	17	24
+30 mins.	0	13	0	13	0	0	0	0	0	45	0	45	6	0	36	42
+45 mins.	0	21	1	22	0	0	0	0	0	45	0	45	7	0	34	41
Total Volume	0	60	1	61	0	0	0	0	0	206	1	207	26	0	121	147
% App. Total	0	98.4	1.6		0	0	0		0	99.5	0.5		17.7	0	82.3	
PHF	.000	.714	.250	.693	.000	.000	.000	.000	.000	.844	.250	.835	.929	.000	.840	.875

County of Imperial
 N/S: SR-7
 E/W: I-8 Eastbound Ramps
 Weather: Clear

File Name : 04_CIM_SR-7_I-8E PM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 1

Groups Printed- Total Volume

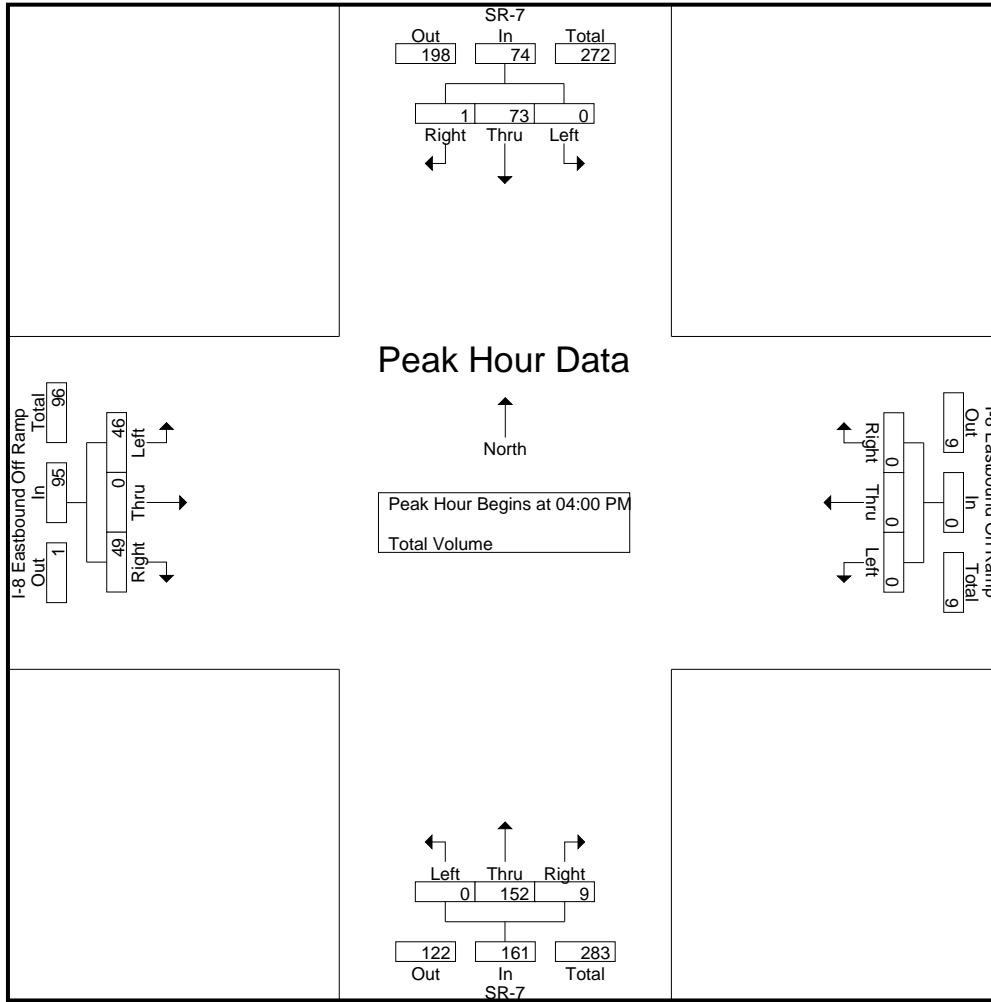
Start Time	SR-7 Southbound				I-8 Eastbound On Ramp Westbound				SR-7 Northbound				I-8 Eastbound Off Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	23	0	23	0	0	0	0	0	49	2	51	6	0	14	20	94
04:15 PM	0	17	0	17	0	0	0	0	0	49	4	53	14	0	12	26	96
04:30 PM	0	22	1	23	0	0	0	0	0	25	1	26	18	0	12	30	79
04:45 PM	0	11	0	11	0	0	0	0	0	29	2	31	8	0	11	19	61
Total	0	73	1	74	0	0	0	0	0	152	9	161	46	0	49	95	330
05:00 PM	0	18	2	20	0	0	0	0	0	27	2	29	18	0	9	27	76
05:15 PM	0	14	3	17	0	0	0	0	0	20	1	21	18	0	15	33	71
05:30 PM	0	15	1	16	0	0	0	0	0	24	0	24	23	0	10	33	73
05:45 PM	0	13	0	13	0	0	0	0	0	21	2	23	14	0	9	23	59
Total	0	60	6	66	0	0	0	0	0	92	5	97	73	0	43	116	279
Grand Total	0	133	7	140	0	0	0	0	0	244	14	258	119	0	92	211	609
Apprch %	0	95	5		0	0	0		0	94.6	5.4		56.4	0	43.6		
Total %	0	21.8	1.1	23	0	0	0	0	0	40.1	2.3	42.4	19.5	0	15.1	34.6	

Start Time	SR-7 Southbound				I-8 Eastbound On Ramp Westbound				SR-7 Northbound				I-8 Eastbound Off Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	23	0	23	0	0	0	0	0	49	2	51	6	0	14	20	94
04:15 PM	0	17	0	17	0	0	0	0	0	49	4	53	14	0	12	26	96
04:30 PM	0	22	1	23	0	0	0	0	0	25	1	26	18	0	12	30	79
04:45 PM	0	11	0	11	0	0	0	0	0	29	2	31	8	0	11	19	61
Total Volume	0	73	1	74	0	0	0	0	0	152	9	161	46	0	49	95	330
% App. Total	0	98.6	1.4		0	0	0		0	94.4	5.6		48.4	0	51.6		
PHF	.000	.793	.250	.804	.000	.000	.000	.000	.000	.776	.563	.759	.639	.000	.875	.792	.859

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:00 PM

County of Imperial
 N/S: SR-7
 E/W: I-8 Eastbound Ramps
 Weather: Clear

File Name : 04_CIM_SR-7_I-8E PM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM				05:00 PM			
+0 mins.	0	23	0	23	0	0	0	0	0	49	2	51	18	0	9	27
+15 mins.	0	17	0	17	0	0	0	0	0	49	4	53	18	0	15	33
+30 mins.	0	22	1	23	0	0	0	0	0	25	1	26	23	0	10	33
+45 mins.	0	11	0	11	0	0	0	0	0	29	2	31	14	0	9	23
Total Volume	0	73	1	74	0	0	0	0	0	152	9	161	73	0	43	116
% App. Total	0	98.6	1.4		0	0	0		0	94.4	5.6		62.9	0	37.1	
PHF	.000	.793	.250	.804	.000	.000	.000	.000	.000	.776	.563	.759	.793	.000	.717	.879

County of Imperial
 N/S: Orchard Road/SR-7
 E/W: I-8 Westbound Ramps
 Weather: Clear

File Name : 05_CIM_Orchard_I-8E AM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 1

Groups Printed- Total Volume

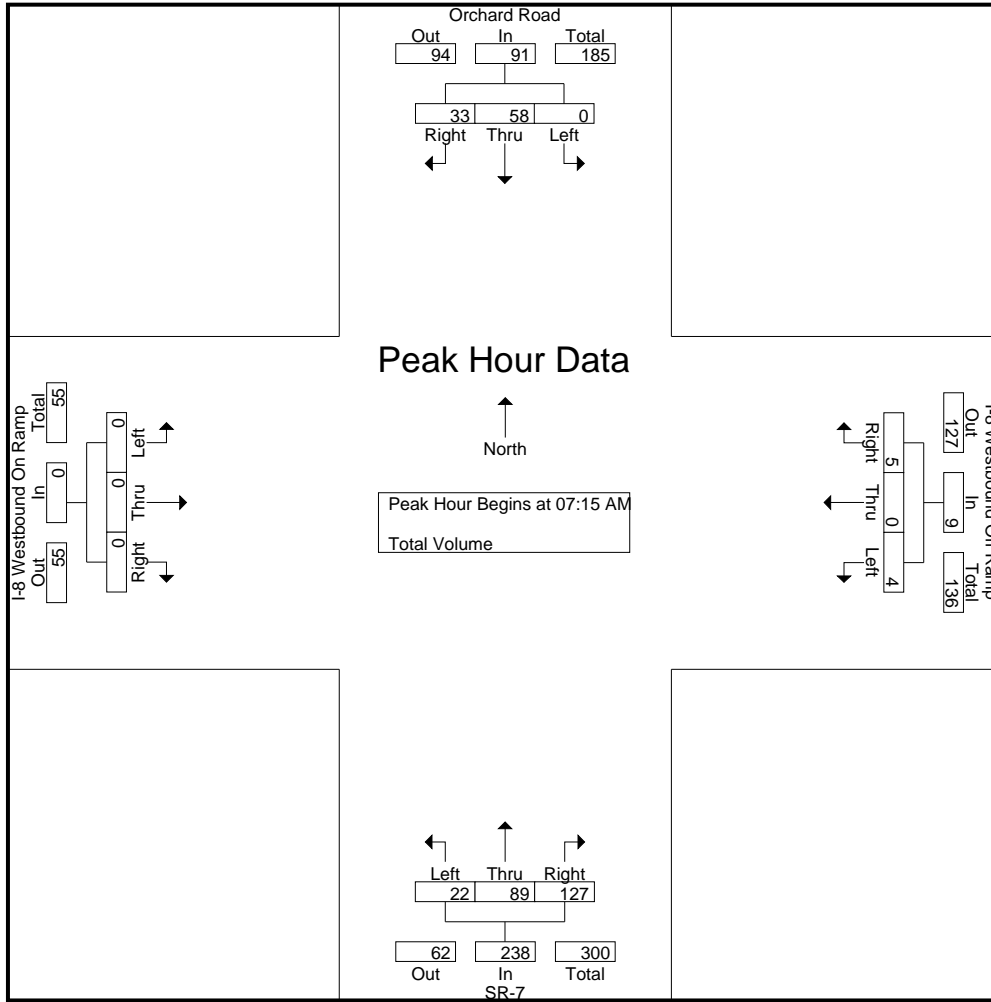
Start Time	Orchard Road Southbound				I-8 Westbound Off Ramp Westbound				SR-7 Northbound				I-8 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	0	10	7	17	0	0	1	1	4	26	28	58	0	0	0	0	76
07:15 AM	0	9	6	15	1	0	0	1	9	27	32	68	0	0	0	0	84
07:30 AM	0	19	10	29	1	0	1	2	3	20	25	48	0	0	0	0	79
07:45 AM	0	19	13	32	1	0	2	3	7	24	30	61	0	0	0	0	96
Total	0	57	36	93	3	0	4	7	23	97	115	235	0	0	0	0	335
08:00 AM	0	11	4	15	1	0	2	3	3	18	40	61	0	0	0	0	79
08:15 AM	0	16	9	25	0	0	0	0	0	21	22	43	0	0	0	0	68
08:30 AM	0	18	6	24	3	0	0	3	5	17	27	49	0	0	0	0	76
08:45 AM	0	15	11	26	0	0	2	2	6	21	28	55	0	0	0	0	83
Total	0	60	30	90	4	0	4	8	14	77	117	208	0	0	0	0	306
Grand Total	0	117	66	183	7	0	8	15	37	174	232	443	0	0	0	0	641
Apprch %	0	63.9	36.1		46.7	0	53.3		8.4	39.3	52.4		0	0	0		
Total %	0	18.3	10.3	28.5	1.1	0	1.2	2.3	5.8	27.1	36.2	69.1	0	0	0	0	

Start Time	Orchard Road Southbound				I-8 Westbound Off Ramp Westbound				SR-7 Northbound				I-8 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:15 AM	0	9	6	15	1	0	0	1	9	27	32	68	0	0	0	0	84
07:30 AM	0	19	10	29	1	0	1	2	3	20	25	48	0	0	0	0	79
07:45 AM	0	19	13	32	1	0	2	3	7	24	30	61	0	0	0	0	96
08:00 AM	0	11	4	15	1	0	2	3	3	18	40	61	0	0	0	0	79
Total Volume	0	58	33	91	4	0	5	9	22	89	127	238	0	0	0	0	338
% App. Total	0	63.7	36.3		44.4	0	55.6		9.2	37.4	53.4		0	0	0		
PHF	.000	.763	.635	.711	1.00	.000	.625	.750	.611	.824	.794	.875	.000	.000	.000	.000	.880

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM

County of Imperial
 N/S: Orchard Road/SR-7
 E/W: I-8 Westbound Ramps
 Weather: Clear

File Name : 05_CIM_Orchard_I-8E AM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM				07:15 AM				07:15 AM				07:00 AM			
+0 mins.	0	19	10	29	1	0	0	1	9	27	32	68	0	0	0	0
+15 mins.	0	19	13	32	1	0	1	2	3	20	25	48	0	0	0	0
+30 mins.	0	11	4	15	1	0	2	3	7	24	30	61	0	0	0	0
+45 mins.	0	16	9	25	1	0	2	3	3	18	40	61	0	0	0	0
Total Volume	0	65	36	101	4	0	5	9	22	89	127	238	0	0	0	0
% App. Total	0	64.4	35.6		44.4	0	55.6		9.2	37.4	53.4		0	0	0	
PHF	.000	.855	.692	.789	1.000	.000	.625	.750	.611	.824	.794	.875	.000	.000	.000	.000

County of Imperial
 N/S: Orchard Road/SR-7
 E/W: I-8 Westbound Ramps
 Weather: Clear

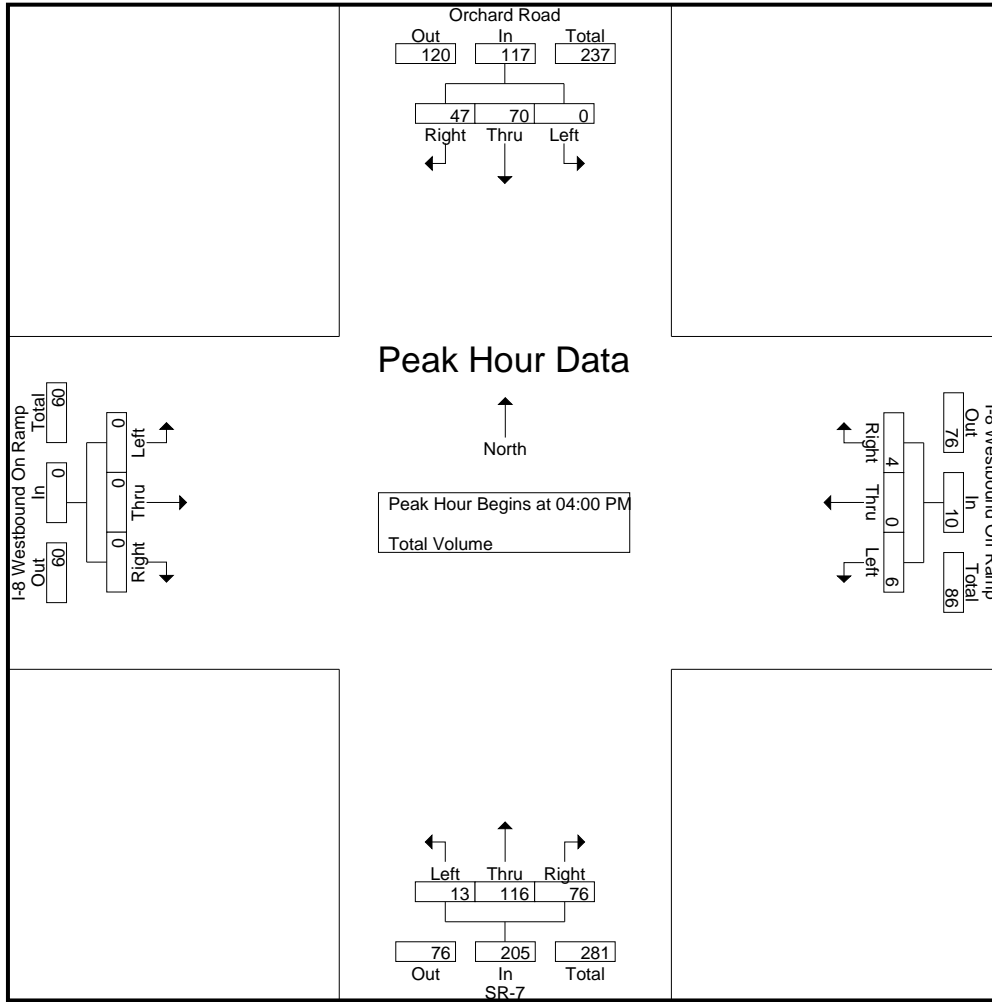
File Name : 05_CIM_Orchard_I-8E PM
 Site Code : 04120461
 Start Date : 12/8/2020
 Page No : 1

Groups Printed- Total Volume

Start Time	Orchard Road Southbound				I-8 Westbound Off Ramp Westbound				SR-7 Northbound				I-8 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	21	11	32	3	0	1	4	4	24	26	54	0	0	0	0	90
04:15 PM	0	16	10	26	3	0	2	5	3	41	25	69	0	0	0	0	100
04:30 PM	0	21	11	32	0	0	0	0	1	28	8	37	0	0	0	0	69
04:45 PM	0	12	15	27	0	0	1	1	5	23	17	45	0	0	0	0	73
Total	0	70	47	117	6	0	4	10	13	116	76	205	0	0	0	0	332
05:00 PM	0	13	8	21	7	0	1	8	2	23	16	41	0	0	0	0	70
05:15 PM	0	16	4	20	2	0	0	2	1	24	12	37	0	0	0	0	59
05:30 PM	0	14	10	24	1	0	2	3	1	31	17	49	0	0	0	0	76
05:45 PM	0	7	7	14	5	0	1	6	0	21	14	35	0	0	0	0	55
Total	0	50	29	79	15	0	4	19	4	99	59	162	0	0	0	0	260
Grand Total	0	120	76	196	21	0	8	29	17	215	135	367	0	0	0	0	592
Apprch %	0	61.2	38.8		72.4	0	27.6		4.6	58.6	36.8		0	0	0		
Total %	0	20.3	12.8	33.1	3.5	0	1.4	4.9	2.9	36.3	22.8	62	0	0	0	0	

Start Time	Orchard Road Southbound				I-8 Westbound Off Ramp Westbound				SR-7 Northbound				I-8 Westbound On Ramp Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
04:00 PM	0	21	11	32	3	0	1	4	4	24	26	54	0	0	0	0	90
04:15 PM	0	16	10	26	3	0	2	5	3	41	25	69	0	0	0	0	100
04:30 PM	0	21	11	32	0	0	0	0	1	28	8	37	0	0	0	0	69
04:45 PM	0	12	15	27	0	0	1	1	5	23	17	45	0	0	0	0	73
Total Volume	0	70	47	117	6	0	4	10	13	116	76	205	0	0	0	0	332
% App. Total	0	59.8	40.2		60	0	40		6.3	56.6	37.1		0	0	0		
PHF	.000	.833	.783	.914	.500	.000	.500	.500	.650	.707	.731	.743	.000	.000	.000	.000	.830

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:00 PM



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:00 PM				05:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	21	11	32	7	0	1	8	4	24	26	54	0	0	0	0
+15 mins.	0	16	10	26	2	0	0	2	3	41	25	69	0	0	0	0
+30 mins.	0	21	11	32	1	0	2	3	1	28	8	37	0	0	0	0
+45 mins.	0	12	15	27	5	0	1	6	5	23	17	45	0	0	0	0
Total Volume	0	70	47	117	15	0	4	19	13	116	76	205	0	0	0	0
% App. Total	0	59.8	40.2		78.9	0	21.1		6.3	56.6	37.1		0	0	0	
PHF	.000	.833	.783	.914	.536	.000	.500	.594	.650	.707	.731	.743	.000	.000	.000	.000

APPENDIX B : EXISTING YEAR CONDITIONS ANALYSIS WORKSHEETS

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	61	0	0	54	0	0
Future Vol, veh/h	61	0	0	54	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	66	0	0	59	0	0

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	66	0	125
Stage 1	-	-	-	-	66
Stage 2	-	-	-	-	59
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1536	-	870
Stage 1	-	-	-	-	957
Stage 2	-	-	-	-	964
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1536	-	870
Mov Cap-2 Maneuver	-	-	-	-	870
Stage 1	-	-	-	-	957
Stage 2	-	-	-	-	964

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1536	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	66	0	0	82	0	0
Future Vol, veh/h	66	0	0	82	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	0	0	89	0	0

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	72	0	161
Stage 1	-	-	-	-	72
Stage 2	-	-	-	-	89
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1528	-	830
Stage 1	-	-	-	-	951
Stage 2	-	-	-	-	934
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1528	-	830
Mov Cap-2 Maneuver	-	-	-	-	830
Stage 1	-	-	-	-	951
Stage 2	-	-	-	-	934

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1528	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↑	↔		↔	↔
Traffic Vol, veh/h	10	61	54	7	6	7
Future Vol, veh/h	10	61	54	7	6	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	66	59	8	7	8

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	67	0	-	0	151
Stage 1	-	-	-	-	63
Stage 2	-	-	-	-	88
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1535	-	-	-	841
Stage 1	-	-	-	-	960
Stage 2	-	-	-	-	935
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1535	-	-	-	835
Mov Cap-2 Maneuver	-	-	-	-	835
Stage 1	-	-	-	-	953
Stage 2	-	-	-	-	935

Approach	EB	WB	SB
HCM Control Delay, s	1	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1535	-	-	-	835	1002
HCM Lane V/C Ratio	0.007	-	-	-	0.008	0.008
HCM Control Delay (s)	7.4	-	-	-	9.3	8.6
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑	↘		↙	↘
Traffic Vol, veh/h	5	66	82	10	2	17
Future Vol, veh/h	5	66	82	10	2	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	72	89	11	2	18

























Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	100	0	-	0	177 95
Stage 1	-	-	-	-	95 -
Stage 2	-	-	-	-	82 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1493	-	-	-	813 962
Stage 1	-	-	-	-	929 -
Stage 2	-	-	-	-	941 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1493	-	-	-	811 962
Mov Cap-2 Maneuver	-	-	-	-	811 -
Stage 1	-	-	-	-	926 -
Stage 2	-	-	-	-	941 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1493	-	-	-	811	962
HCM Lane V/C Ratio	0.004	-	-	-	0.003	0.019
HCM Control Delay (s)	7.4	-	-	-	9.5	8.8
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0.1

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	25	106	27	26	8	53	176	31	4	123	40
Future Volume (veh/h)	21	25	106	27	26	8	53	176	31	4	123	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	23	27	115	29	28	9	58	191	34	4	134	43
Adj No. of Lanes	1	1	2	1	1	1	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	694	745	1115	646	745	633	1198	1416	633	581	1416	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Ln Grp Delay, s/veh	8.6	8.3	8.6	8.7	8.3	8.2	9.0	8.8	8.4	9.1	8.6	8.5
Ln Grp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		165			66			283			181	
Approach Delay, s/veh		8.6			8.5			8.8			8.6	
Approach LOS		A			A			A			A	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			5.0		5.0		5.0		5.0			
Phs Duration (G+Y+Rc), s			22.5		22.5		22.5		22.5			
Change Period (Y+Rc), s			4.5		4.5		4.5		4.5			
Max Green (Gmax), s			18.0		18.0		18.0		18.0			
Max Allow Headway (MAH), s			4.9		4.2		4.9		4.6			
Max Q Clear (g_c+I1), s			3.8		3.2		3.6		3.1			
Green Ext Time (g_e), s			1.3		0.5		0.7		0.2			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.00		0.00		0.00		0.00			
Left-Turn Movement Data												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			2333		1365		1151		1241			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3539		1863		3539		1863			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			1583		2787		1583		1583			
Left Lane Group Data												
Assigned Mvmt		0	5	0	7	0	1	0	3			
Lane Assignment												

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Lanes in Grp	0	2	0	1	0	1	0	1
Grp Vol (v), veh/h	0	58	0	23	0	4	0	29
Grp Sat Flow (s), veh/h/ln	0	1166	0	1365	0	1151	0	1241
Q Serve Time (g_s), s	0.0	0.7	0.0	0.5	0.0	0.1	0.0	0.7
Cycle Q Clear Time (g_c), s	0.0	1.8	0.0	0.9	0.0	1.6	0.0	1.1
Perm LT Sat Flow (s_l), veh/h/ln	0	1166	0	1365	0	1151	0	1241
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	18.0	0.0	18.0	0.0	18.0	0.0	18.0
Perm LT Serve Time (g_u), s	0.0	16.9	0.0	17.6	0.0	16.5	0.0	17.6
Perm LT Q Serve Time (g_ps), s	0.0	0.7	0.0	0.5	0.0	0.1	0.0	0.7
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	1198	0	694	0	581	0	646
V/C Ratio (X)	0.00	0.05	0.00	0.03	0.00	0.01	0.00	0.04
Avail Cap (c_a), veh/h	0	1198	0	694	0	581	0	646
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	9.0	0.0	8.5	0.0	9.1	0.0	8.5
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	9.0	0.0	8.6	0.0	9.1	0.0	8.7
1st-Term Q (Q1), veh/ln	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.2
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.2
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	1	0	2	0	1
Grp Vol (v), veh/h	0	191	0	27	0	134	0	28
Grp Sat Flow (s), veh/h/ln	0	1770	0	1863	0	1770	0	1863
Q Serve Time (g_s), s	0.0	1.5	0.0	0.4	0.0	1.1	0.0	0.4
Cycle Q Clear Time (g_c), s	0.0	1.5	0.0	0.4	0.0	1.1	0.0	0.4
Lane Grp Cap (c), veh/h	0	1416	0	745	0	1416	0	745
V/C Ratio (X)	0.00	0.13	0.00	0.04	0.00	0.09	0.00	0.04
Avail Cap (c_a), veh/h	0	1416	0	745	0	1416	0	745
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	8.6	0.0	8.2	0.0	8.4	0.0	8.2
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.8	0.0	8.3	0.0	8.6	0.0	8.3
1st-Term Q (Q1), veh/ln	0.0	0.7	0.0	0.2	0.0	0.5	0.0	0.2

Baseline

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2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.8	0.0	0.2	0.0	0.5	0.0	0.2
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

























Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R		R		R		R
Lanes in Grp	0	1	0	2	0	1	0	1
Grp Vol (v), veh/h	0	34	0	115	0	43	0	9
Grp Sat Flow (s), veh/h/ln	0	1583	0	1393	0	1583	0	1583
Q Serve Time (g_s), s	0.0	0.6	0.0	1.2	0.0	0.8	0.0	0.2
Cycle Q Clear Time (g_c), s	0.0	0.6	0.0	1.2	0.0	0.8	0.0	0.2
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	633	0	1115	0	633	0	633
V/C Ratio (X)	0.00	0.05	0.00	0.10	0.00	0.07	0.00	0.01
Avail Cap (c_a), veh/h	0	633	0	1115	0	633	0	633
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	8.3	0.0	8.4	0.0	8.3	0.0	8.1
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.2	0.0	0.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.4	0.0	8.6	0.0	8.5	0.0	8.2
1st-Term Q (Q1), veh/ln	0.0	0.3	0.0	0.4	0.0	0.3	0.0	0.1
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	0.5	0.0	0.4	0.0	0.1
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 2010 Ctrl Delay	8.6
HCM 2010 LOS	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	25	106	8	26	27	53	176	31	4	123	40
Future Volume (veh/h)	21	25	106	8	26	27	53	176	31	4	123	40
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	23	27	115	9	28	29	58	191	34	4	134	43
Adj No. of Lanes	1	1	2	1	1	1	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	684	745	1115	646	745	633	1198	1416	633	581	1416	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Ln Grp Delay, s/veh	8.6	8.3	8.6	8.4	8.3	8.4	9.0	8.8	8.4	9.1	8.6	8.5
Ln Grp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		165			66			283			181	
Approach Delay, s/veh		8.6			8.4			8.8			8.6	
Approach LOS		A			A			A			A	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			5.0		5.0		5.0		5.0			
Phs Duration (G+Y+Rc), s			22.5		22.5		22.5		22.5			
Change Period (Y+Rc), s			4.5		4.5		4.5		4.5			
Max Green (Gmax), s			18.0		18.0		18.0		18.0			
Max Allow Headway (MAH), s			4.9		4.2		4.9		4.6			
Max Q Clear (g_c+I1), s			3.8		3.2		3.6		2.6			
Green Ext Time (g_e), s			1.3		0.5		0.7		0.2			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.00		0.00		0.00		0.00			
Left-Turn Movement Data												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			2333		1341		1151		1241			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3539		1863		3539		1863			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			1583		2787		1583		1583			
Left Lane Group Data												
Assigned Mvmt		0	5	0	7	0	1	0	3			
Lane Assignment												

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Lanes in Grp	0	2	0	1	0	1	0	1
Grp Vol (v), veh/h	0	58	0	23	0	4	0	9
Grp Sat Flow (s), veh/h/ln	0	1166	0	1341	0	1151	0	1241
Q Serve Time (g_s), s	0.0	0.7	0.0	0.5	0.0	0.1	0.0	0.2
Cycle Q Clear Time (g_c), s	0.0	1.8	0.0	0.9	0.0	1.6	0.0	0.6
Perm LT Sat Flow (s_l), veh/h/ln	0	1166	0	1341	0	1151	0	1241
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	18.0	0.0	18.0	0.0	18.0	0.0	18.0
Perm LT Serve Time (g_u), s	0.0	16.9	0.0	17.6	0.0	16.5	0.0	17.6
Perm LT Q Serve Time (g_ps), s	0.0	0.7	0.0	0.5	0.0	0.1	0.0	0.2
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	1198	0	684	0	581	0	646
V/C Ratio (X)	0.00	0.05	0.00	0.03	0.00	0.01	0.00	0.01
Avail Cap (c_a), veh/h	0	1198	0	684	0	581	0	646
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	9.0	0.0	8.5	0.0	9.1	0.0	8.4
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	9.0	0.0	8.6	0.0	9.1	0.0	8.4
1st-Term Q (Q1), veh/ln	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.1
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.1
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	1	0	2	0	1
Grp Vol (v), veh/h	0	191	0	27	0	134	0	28
Grp Sat Flow (s), veh/h/ln	0	1770	0	1863	0	1770	0	1863
Q Serve Time (g_s), s	0.0	1.5	0.0	0.4	0.0	1.1	0.0	0.4
Cycle Q Clear Time (g_c), s	0.0	1.5	0.0	0.4	0.0	1.1	0.0	0.4
Lane Grp Cap (c), veh/h	0	1416	0	745	0	1416	0	745
V/C Ratio (X)	0.00	0.13	0.00	0.04	0.00	0.09	0.00	0.04
Avail Cap (c_a), veh/h	0	1416	0	745	0	1416	0	745
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	8.6	0.0	8.2	0.0	8.4	0.0	8.2
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.8	0.0	8.3	0.0	8.6	0.0	8.3
1st-Term Q (Q1), veh/ln	0.0	0.7	0.0	0.2	0.0	0.5	0.0	0.2

Baseline

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2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.8	0.0	0.2	0.0	0.5	0.0	0.2
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R		R		R		R
Lanes in Grp	0	1	0	2	0	1	0	1
Grp Vol (v), veh/h	0	34	0	115	0	43	0	29
Grp Sat Flow (s), veh/h/ln	0	1583	0	1393	0	1583	0	1583
Q Serve Time (g_s), s	0.0	0.6	0.0	1.2	0.0	0.8	0.0	0.5
Cycle Q Clear Time (g_c), s	0.0	0.6	0.0	1.2	0.0	0.8	0.0	0.5
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	633	0	1115	0	633	0	633
V/C Ratio (X)	0.00	0.05	0.00	0.10	0.00	0.07	0.00	0.05
Avail Cap (c_a), veh/h	0	633	0	1115	0	633	0	633
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	8.3	0.0	8.4	0.0	8.3	0.0	8.3
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.2	0.0	0.2	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.4	0.0	8.6	0.0	8.5	0.0	8.4
1st-Term Q (Q1), veh/ln	0.0	0.3	0.0	0.4	0.0	0.3	0.0	0.2
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	0.5	0.0	0.4	0.0	0.2
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 2010 Ctrl Delay	8.6
HCM 2010 LOS	A

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕	↕	↕↕	↕	↕	↕↕	↕
Traffic Vol, veh/h	0	3	5	3	2	13	15	196	3	8	158	10
Future Vol, veh/h	0	3	5	3	2	13	15	196	3	8	158	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3	5	3	2	14	16	213	3	9	172	11

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	330	438	86	351	446	107	183	0	0	216	0	0
Stage 1	190	190	-	245	245	-	-	-	-	-	-	-
Stage 2	140	248	-	106	201	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	599	511	956	579	506	926	1389	-	-	1351	-	-
Stage 1	794	742	-	737	702	-	-	-	-	-	-	-
Stage 2	849	700	-	888	734	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	580	501	956	565	496	926	1389	-	-	1351	-	-
Mov Cap-2 Maneuver	580	501	-	565	496	-	-	-	-	-	-	-
Stage 1	784	737	-	728	694	-	-	-	-	-	-	-
Stage 2	824	692	-	873	729	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.1		9.7		0.5		0.3	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1389	-	-	501	956	535	926	1351	-	-
HCM Lane V/C Ratio	0.012	-	-	0.007	0.006	0.01	0.015	0.006	-	-
HCM Control Delay (s)	7.6	-	-	12.2	8.8	11.8	8.9	7.7	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	0	0	-	-

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕	↖	↖	↕	↗
Traffic Vol, veh/h	8	3	14	2	7	14	17	135	0	6	107	10
Future Vol, veh/h	8	3	14	2	7	14	17	135	0	6	107	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	3	15	2	8	15	18	147	0	7	116	11

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	244	313	58	257	324	74	127	0	0	147	0	0
Stage 1	130	130	-	183	183	-	-	-	-	-	-	-
Stage 2	114	183	-	74	141	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	690	601	996	675	592	973	1457	-	-	1432	-	-
Stage 1	860	788	-	801	747	-	-	-	-	-	-	-
Stage 2	879	747	-	927	779	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	664	591	996	653	582	973	1457	-	-	1432	-	-
Mov Cap-2 Maneuver	664	591	-	653	582	-	-	-	-	-	-	-
Stage 1	850	784	-	791	738	-	-	-	-	-	-	-
Stage 2	846	738	-	905	775	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	9.6		9.7			0.8			0.4		
HCM LOS	A		A								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1457	-	-	642	996	596	973	1432	-	-
HCM Lane V/C Ratio	0.013	-	-	0.019	0.015	0.016	0.016	0.005	-	-
HCM Control Delay (s)	7.5	-	-	10.7	8.7	11.1	8.8	7.5	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.1	0	0	-	-

HCM 2010 TWSC
 26: CA 7 & I-8 East Off-ramp/I-8 East On-ramp

01/07/2021

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔						↑↑	↑		↑	
Traffic Vol, veh/h	121	0	26	0	0	0	0	206	1	1	56	0
Future Vol, veh/h	121	0	26	0	0	0	0	206	1	1	56	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	132	0	28	0	0	0	0	224	1	1	61	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	175	288	61	-	0	0	225	0	0
Stage 1	63	63	-	-	-	-	-	-	-
Stage 2	112	225	-	-	-	-	-	-	-
Critical Hdwy	6.63	6.53	6.23	-	-	-	4.13	-	-
Critical Hdwy Stg 1	5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.83	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	-	-	-	2.219	-	-
Pot Cap-1 Maneuver	806	621	1004	0	-	-	1342	-	0
Stage 1	959	842	-	0	-	-	-	-	0
Stage 2	901	717	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	805	0	1004	-	-	-	1342	-	-
Mov Cap-2 Maneuver	805	0	-	-	-	-	-	-	-
Stage 1	959	0	-	-	-	-	-	-	-
Stage 2	900	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	834	1342	-
HCM Lane V/C Ratio	-	-	0.192	0.001	-
HCM Control Delay (s)	-	-	10.3	7.7	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0	-

HCM 2010 TWSC
 26: CA 7 & I-8 East Off-ramp/I-8 East On-ramp

01/11/2021

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔						↑↑	↑		↑	
Traffic Vol, veh/h	46	0	49	0	0	0	0	152	9	0	74	0
Future Vol, veh/h	46	0	49	0	0	0	0	152	9	0	74	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	50	0	53	0	0	0	0	165	10	0	80	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	163	255	80	-	0	0	-	-	0
Stage 1	80	80	-	-	-	-	-	-	-
Stage 2	83	175	-	-	-	-	-	-	-
Critical Hdwy	6.63	6.53	6.23	-	-	-	-	-	-
Critical Hdwy Stg 1	5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.83	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	-	-	-	-	-	-
Pot Cap-1 Maneuver	820	648	980	0	-	-	0	-	0
Stage 1	943	828	-	0	-	-	0	-	0
Stage 2	931	754	-	0	-	-	0	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	820	0	980	-	-	-	-	-	-
Mov Cap-2 Maneuver	820	0	-	-	-	-	-	-	-
Stage 1	943	0	-	-	-	-	-	-	-
Stage 2	931	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBT
Capacity (veh/h)	-	-	895	-
HCM Lane V/C Ratio	-	-	0.115	-
HCM Control Delay (s)	-	-	9.5	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0.4	-

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↑	↗
Traffic Vol, veh/h	0	0	0	4	0	5	22	89	0	0	58	33
Future Vol, veh/h	0	0	0	4	0	5	22	89	0	0	58	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	4	0	5	24	97	0	0	63	36

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	226	244	97	99	0	-	0
Stage 1	145	145	-	-	-	-	-
Stage 2	81	99	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	762	658	959	1494	-	0	0
Stage 1	882	777	-	-	-	0	0
Stage 2	942	813	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	749	0	959	1494	-	-	-
Mov Cap-2 Maneuver	749	0	-	-	-	-	-
Stage 1	867	0	-	-	-	-	-
Stage 2	942	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	1494	-	853	-
HCM Lane V/C Ratio	0.016	-	0.011	-
HCM Control Delay (s)	7.4	0	9.3	-
HCM Lane LOS	A	A	A	-
HCM 95th %tile Q(veh)	0	-	0	-

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↑	↗
Traffic Vol, veh/h	0	0	0	6	0	4	13	116	76	0	70	47
Future Vol, veh/h	0	0	0	6	0	4	13	116	76	0	70	47
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	7	0	4	14	126	83	0	76	51

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	298	323	168	127	0	0	-
Stage 1	196	196	-	-	-	-	-
Stage 2	102	127	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	693	595	876	1459	-	-	0
Stage 1	837	739	-	-	-	-	0
Stage 2	922	791	-	-	-	-	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	685	0	876	1459	-	-	-
Mov Cap-2 Maneuver	685	0	-	-	-	-	-
Stage 1	828	0	-	-	-	-	-
Stage 2	922	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	NBRWBLn1	SBT	SBR
Capacity (veh/h)	1459	-	-	750	-
HCM Lane V/C Ratio	0.01	-	-	0.014	-
HCM Control Delay (s)	7.5	0	-	9.9	-
HCM Lane LOS	A	A	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

APPENDIX C : CONSTRUCTION YEAR PROJECT ANALYSIS WORKSHEETS

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	64	0	0	57	0	0
Future Vol, veh/h	64	0	0	57	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	0	0	62	0	0

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	70	0	132
Stage 1	-	-	-	-	70
Stage 2	-	-	-	-	62
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1531	-	862
Stage 1	-	-	-	-	953
Stage 2	-	-	-	-	961
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1531	-	862
Mov Cap-2 Maneuver	-	-	-	-	862
Stage 1	-	-	-	-	953
Stage 2	-	-	-	-	961

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1531	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	70	0	0	87	0	0
Future Vol, veh/h	70	0	0	87	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	76	0	0	95	0	0

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	76	0	171
Stage 1	-	-	-	-	76
Stage 2	-	-	-	-	95
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1523	-	819
Stage 1	-	-	-	-	947
Stage 2	-	-	-	-	929
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1523	-	819
Mov Cap-2 Maneuver	-	-	-	-	819
Stage 1	-	-	-	-	947
Stage 2	-	-	-	-	929

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1523	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗		↖	↗
Traffic Vol, veh/h	11	65	57	7	6	7
Future Vol, veh/h	11	65	57	7	6	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	71	62	8	7	8

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	70	0	-	0	161 66
Stage 1	-	-	-	-	66 -
Stage 2	-	-	-	-	95 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1531	-	-	-	830 998
Stage 1	-	-	-	-	957 -
Stage 2	-	-	-	-	929 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1531	-	-	-	823 998
Mov Cap-2 Maneuver	-	-	-	-	823 -
Stage 1	-	-	-	-	949 -
Stage 2	-	-	-	-	929 -

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1531	-	-	-	823	998
HCM Lane V/C Ratio	0.008	-	-	-	0.008	0.008
HCM Control Delay (s)	7.4	-	-	-	9.4	8.6
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑	↘		↙	↘
Traffic Vol, veh/h	5	70	87	11	2	18
Future Vol, veh/h	5	70	87	11	2	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	76	95	12	2	20

























Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	107	0	0 187 101
Stage 1	-	-	- 101 -
Stage 2	-	-	- 86 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1484	-	- 802 954
Stage 1	-	-	- 923 -
Stage 2	-	-	- 937 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1484	-	- 800 954
Mov Cap-2 Maneuver	-	-	- 800 -
Stage 1	-	-	- 920 -
Stage 2	-	-	- 937 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1484	-	-	-	800	954
HCM Lane V/C Ratio	0.004	-	-	-	0.003	0.021
HCM Control Delay (s)	7.4	-	-	-	9.5	8.9
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0.1

HCM 2010 Signalized Intersection Capacity Analysis
 12: CA 7 & CA 98

01/07/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	26	112	28	27	8	56	186	33	4	130	42
Future Volume (veh/h)	22	26	112	28	27	8	56	186	33	4	130	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	24	28	122	30	29	9	61	202	36	4	141	46
Adj No. of Lanes	1	1	2	1	1	1	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	693	745	1115	642	745	633	1187	1416	633	574	1416	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Ln Grp Delay, s/veh	8.6	8.3	8.7	8.7	8.3	8.2	9.1	8.8	8.5	9.2	8.6	8.6
Ln Grp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		174			68			299			191	
Approach Delay, s/veh		8.6			8.5			8.8			8.6	
Approach LOS		A			A			A			A	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			5.0		5.0		5.0		5.0			
Phs Duration (G+Y+Rc), s			22.5		22.5		22.5		22.5			
Change Period (Y+Rc), s			4.5		4.5		4.5		4.5			
Max Green (Gmax), s			18.0		18.0		18.0		18.0			
Max Allow Headway (MAH), s			4.9		4.2		4.9		4.6			
Max Q Clear (g_c+I1), s			3.9		3.2		3.7		3.1			
Green Ext Time (g_e), s			1.3		0.5		0.8		0.2			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.00		0.00		0.00		0.00			
Left-Turn Movement Data												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			2312		1364		1138		1232			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3539		1863		3539		1863			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			1583		2787		1583		1583			
Left Lane Group Data												
Assigned Mvmt		0	5	0	7	0	1	0	3			
Lane Assignment												

HCM 2010 Signalized Intersection Capacity Analysis
 12: CA 7 & CA 98

01/07/2021

Lanes in Grp	0	2	0	1	0	1	0	1
Grp Vol (v), veh/h	0	61	0	24	0	4	0	30
Grp Sat Flow (s), veh/h/ln	0	1156	0	1364	0	1138	0	1232
Q Serve Time (g_s), s	0.0	0.8	0.0	0.5	0.0	0.1	0.0	0.7
Cycle Q Clear Time (g_c), s	0.0	1.9	0.0	0.9	0.0	1.7	0.0	1.1
Perm LT Sat Flow (s_l), veh/h/ln	0	1156	0	1364	0	1138	0	1232
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	18.0	0.0	18.0	0.0	18.0	0.0	18.0
Perm LT Serve Time (g_u), s	0.0	16.9	0.0	17.6	0.0	16.4	0.0	17.6
Perm LT Q Serve Time (g_ps), s	0.0	0.8	0.0	0.5	0.0	0.1	0.0	0.7
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	1187	0	693	0	574	0	642
V/C Ratio (X)	0.00	0.05	0.00	0.03	0.00	0.01	0.00	0.05
Avail Cap (c_a), veh/h	0	1187	0	693	0	574	0	642
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	9.0	0.0	8.5	0.0	9.1	0.0	8.6
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	9.1	0.0	8.6	0.0	9.2	0.0	8.7
1st-Term Q (Q1), veh/ln	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.2
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	0.2	0.0	0.0	0.0	0.3
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	1	0	2	0	1
Grp Vol (v), veh/h	0	202	0	28	0	141	0	29
Grp Sat Flow (s), veh/h/ln	0	1770	0	1863	0	1770	0	1863
Q Serve Time (g_s), s	0.0	1.6	0.0	0.4	0.0	1.1	0.0	0.4
Cycle Q Clear Time (g_c), s	0.0	1.6	0.0	0.4	0.0	1.1	0.0	0.4
Lane Grp Cap (c), veh/h	0	1416	0	745	0	1416	0	745
V/C Ratio (X)	0.00	0.14	0.00	0.04	0.00	0.10	0.00	0.04
Avail Cap (c_a), veh/h	0	1416	0	745	0	1416	0	745
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	8.6	0.0	8.2	0.0	8.4	0.0	8.2
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.8	0.0	8.3	0.0	8.6	0.0	8.3
1st-Term Q (Q1), veh/ln	0.0	0.8	0.0	0.2	0.0	0.5	0.0	0.2

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2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.8	0.0	0.2	0.0	0.6	0.0	0.2
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

























Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R		R		R		R
Lanes in Grp	0	1	0	2	0	1	0	1
Grp Vol (v), veh/h	0	36	0	122	0	46	0	9
Grp Sat Flow (s), veh/h/ln	0	1583	0	1393	0	1583	0	1583
Q Serve Time (g_s), s	0.0	0.6	0.0	1.2	0.0	0.8	0.0	0.2
Cycle Q Clear Time (g_c), s	0.0	0.6	0.0	1.2	0.0	0.8	0.0	0.2
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	633	0	1115	0	633	0	633
V/C Ratio (X)	0.00	0.06	0.00	0.11	0.00	0.07	0.00	0.01
Avail Cap (c_a), veh/h	0	633	0	1115	0	633	0	633
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	8.3	0.0	8.5	0.0	8.3	0.0	8.1
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.2	0.0	0.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.5	0.0	8.7	0.0	8.6	0.0	8.2
1st-Term Q (Q1), veh/ln	0.0	0.3	0.0	0.5	0.0	0.3	0.0	0.1
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	0.5	0.0	0.4	0.0	0.1
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	26	112	8	27	28	56	186	33	4	130	42
Future Volume (veh/h)	22	26	112	8	27	28	56	186	33	4	130	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	24	28	122	9	29	30	61	202	36	4	141	46
Adj No. of Lanes	1	1	2	1	1	1	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	683	745	1115	642	745	633	1187	1416	633	574	1416	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Ln Grp Delay, s/veh	8.6	8.3	8.7	8.5	8.3	8.4	9.1	8.8	8.5	9.2	8.6	8.6
Ln Grp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		174			68			299			191	
Approach Delay, s/veh		8.6			8.4			8.8			8.6	
Approach LOS		A			A			A			A	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			5.0		5.0		5.0		5.0			
Phs Duration (G+Y+Rc), s			22.5		22.5		22.5		22.5			
Change Period (Y+Rc), s			4.5		4.5		4.5		4.5			
Max Green (Gmax), s			18.0		18.0		18.0		18.0			
Max Allow Headway (MAH), s			4.9		4.2		4.9		4.6			
Max Q Clear (g_c+I1), s			3.9		3.2		3.7		2.6			
Green Ext Time (g_e), s			1.3		0.5		0.8		0.2			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.00		0.00		0.00		0.00			
Left-Turn Movement Data												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			2312		1338		1138		1232			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3539		1863		3539		1863			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			1583		2787		1583		1583			
Left Lane Group Data												
Assigned Mvmt		0	5	0	7	0	1	0	3			
Lane Assignment												

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Lanes in Grp	0	2	0	1	0	1	0	1
Grp Vol (v), veh/h	0	61	0	24	0	4	0	9
Grp Sat Flow (s), veh/h/ln	0	1156	0	1338	0	1138	0	1232
Q Serve Time (g_s), s	0.0	0.8	0.0	0.5	0.0	0.1	0.0	0.2
Cycle Q Clear Time (g_c), s	0.0	1.9	0.0	0.9	0.0	1.7	0.0	0.6
Perm LT Sat Flow (s_l), veh/h/ln	0	1156	0	1338	0	1138	0	1232
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	18.0	0.0	18.0	0.0	18.0	0.0	18.0
Perm LT Serve Time (g_u), s	0.0	16.9	0.0	17.6	0.0	16.4	0.0	17.6
Perm LT Q Serve Time (g_ps), s	0.0	0.8	0.0	0.5	0.0	0.1	0.0	0.2
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	1187	0	683	0	574	0	642
V/C Ratio (X)	0.00	0.05	0.00	0.04	0.00	0.01	0.00	0.01
Avail Cap (c_a), veh/h	0	1187	0	683	0	574	0	642
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	9.0	0.0	8.5	0.0	9.1	0.0	8.4
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	9.1	0.0	8.6	0.0	9.2	0.0	8.5
1st-Term Q (Q1), veh/ln	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.1
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	0.2	0.0	0.0	0.0	0.1
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	1	0	2	0	1
Grp Vol (v), veh/h	0	202	0	28	0	141	0	29
Grp Sat Flow (s), veh/h/ln	0	1770	0	1863	0	1770	0	1863
Q Serve Time (g_s), s	0.0	1.6	0.0	0.4	0.0	1.1	0.0	0.4
Cycle Q Clear Time (g_c), s	0.0	1.6	0.0	0.4	0.0	1.1	0.0	0.4
Lane Grp Cap (c), veh/h	0	1416	0	745	0	1416	0	745
V/C Ratio (X)	0.00	0.14	0.00	0.04	0.00	0.10	0.00	0.04
Avail Cap (c_a), veh/h	0	1416	0	745	0	1416	0	745
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	8.6	0.0	8.2	0.0	8.4	0.0	8.2
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.8	0.0	8.3	0.0	8.6	0.0	8.3
1st-Term Q (Q1), veh/ln	0.0	0.8	0.0	0.2	0.0	0.5	0.0	0.2

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2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.8	0.0	0.2	0.0	0.6	0.0	0.2
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R		R		R		R
Lanes in Grp	0	1	0	2	0	1	0	1
Grp Vol (v), veh/h	0	36	0	122	0	46	0	30
Grp Sat Flow (s), veh/h/ln	0	1583	0	1393	0	1583	0	1583
Q Serve Time (g_s), s	0.0	0.6	0.0	1.2	0.0	0.8	0.0	0.5
Cycle Q Clear Time (g_c), s	0.0	0.6	0.0	1.2	0.0	0.8	0.0	0.5
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	633	0	1115	0	633	0	633
V/C Ratio (X)	0.00	0.06	0.00	0.11	0.00	0.07	0.00	0.05
Avail Cap (c_a), veh/h	0	633	0	1115	0	633	0	633
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	8.3	0.0	8.5	0.0	8.3	0.0	8.3
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.2	0.0	0.2	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.5	0.0	8.7	0.0	8.6	0.0	8.4
1st-Term Q (Q1), veh/ln	0.0	0.3	0.0	0.5	0.0	0.3	0.0	0.2
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	0.5	0.0	0.4	0.0	0.2
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕	↗	↖	↕	↗
Traffic Vol, veh/h	0	3	5	3	2	14	16	207	3	8	167	11
Future Vol, veh/h	0	3	5	3	2	14	16	207	3	8	167	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3	5	3	2	15	17	225	3	9	182	12

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	348	462	91	370	471	113	194	0	0	228	0	0
Stage 1	200	200	-	259	259	-	-	-	-	-	-	-
Stage 2	148	262	-	111	212	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	582	495	949	562	489	918	1377	-	-	1337	-	-
Stage 1	783	735	-	723	692	-	-	-	-	-	-	-
Stage 2	840	690	-	882	726	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	562	486	949	548	480	918	1377	-	-	1337	-	-
Mov Cap-2 Maneuver	562	486	-	548	480	-	-	-	-	-	-	-
Stage 1	774	730	-	714	684	-	-	-	-	-	-	-
Stage 2	813	682	-	867	721	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	10.2		9.8		0.5			0.3		
HCM LOS	B		A							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1377	-	-	486	949	519	918	1337	-	-
HCM Lane V/C Ratio	0.013	-	-	0.007	0.006	0.01	0.017	0.007	-	-
HCM Control Delay (s)	7.6	-	-	12.5	8.8	12	9	7.7	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	0.1	0	-	-

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕	↕	↕↕	↕	↕	↕↕	↕
Traffic Vol, veh/h	8	3	15	2	7	15	18	142	0	6	113	11
Future Vol, veh/h	8	3	15	2	7	15	18	142	0	6	113	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	3	16	2	8	16	20	154	0	7	123	12

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	258	331	62	271	343	77	135	0	0	154	0	0
Stage 1	137	137	-	194	194	-	-	-	-	-	-	-
Stage 2	121	194	-	77	149	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	674	587	990	660	578	968	1447	-	-	1424	-	-
Stage 1	852	782	-	789	739	-	-	-	-	-	-	-
Stage 2	870	739	-	923	773	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	646	576	990	637	567	968	1447	-	-	1424	-	-
Mov Cap-2 Maneuver	646	576	-	637	567	-	-	-	-	-	-	-
Stage 1	840	778	-	778	729	-	-	-	-	-	-	-
Stage 2	835	729	-	900	769	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.6		9.7		0.8		0.3	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1447	-	-	625	990	581	968	1424	-	-
HCM Lane V/C Ratio	0.014	-	-	0.019	0.016	0.017	0.017	0.005	-	-
HCM Control Delay (s)	7.5	-	-	10.9	8.7	11.3	8.8	7.5	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.1	0.1	0	-	-

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔						↑↑	↑		↑	
Traffic Vol, veh/h	128	0	27	0	0	0	0	217	1	1	59	0
Future Vol, veh/h	128	0	27	0	0	0	0	217	1	1	59	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	139	0	29	0	0	0	0	236	1	1	64	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	184	303	64	-	0	0	237	0	0
Stage 1	66	66	-	-	-	-	-	-	-
Stage 2	118	237	-	-	-	-	-	-	-
Critical Hdwy	6.63	6.53	6.23	-	-	-	4.13	-	-
Critical Hdwy Stg 1	5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.83	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	-	-	-	2.219	-	-
Pot Cap-1 Maneuver	797	609	1000	0	-	-	1329	-	0
Stage 1	956	840	-	0	-	-	-	-	0
Stage 2	895	708	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	796	0	1000	-	-	-	1329	-	-
Mov Cap-2 Maneuver	796	0	-	-	-	-	-	-	-
Stage 1	956	0	-	-	-	-	-	-	-
Stage 2	894	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	825	1329	-
HCM Lane V/C Ratio	-	-	0.204	0.001	-
HCM Control Delay (s)	-	-	10.5	7.7	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0	-

HCM 2010 TWSC
 26: CA 7 & I-8 East Off-ramp/I-8 East On-ramp

01/11/2021

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔						↑↑	↑		↑	
Traffic Vol, veh/h	49	0	52	0	0	0	0	160	9	0	78	0
Future Vol, veh/h	49	0	52	0	0	0	0	160	9	0	78	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	53	0	57	0	0	0	0	174	10	0	85	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	172	269	85	-	0	0	-	-	0
Stage 1	85	85	-	-	-	-	-	-	-
Stage 2	87	184	-	-	-	-	-	-	-
Critical Hdwy	6.63	6.53	6.23	-	-	-	-	-	-
Critical Hdwy Stg 1	5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.83	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	-	-	-	-	-	-
Pot Cap-1 Maneuver	810	637	973	0	-	-	0	-	0
Stage 1	938	824	-	0	-	-	0	-	0
Stage 2	927	747	-	0	-	-	0	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	810	0	973	-	-	-	-	-	-
Mov Cap-2 Maneuver	810	0	-	-	-	-	-	-	-
Stage 1	938	0	-	-	-	-	-	-	-
Stage 2	927	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBT
Capacity (veh/h)	-	-	886	-
HCM Lane V/C Ratio	-	-	0.124	-
HCM Control Delay (s)	-	-	9.6	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0.4	-

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↑	↗
Traffic Vol, veh/h	0	0	0	4	0	5	23	94	0	0	61	35
Future Vol, veh/h	0	0	0	4	0	5	23	94	0	0	61	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	4	0	5	25	102	0	0	66	38

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	237	256	102	104	0	-	0
Stage 1	152	152	-	-	-	-	-
Stage 2	85	104	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	751	648	953	1488	-	0	0
Stage 1	876	772	-	-	-	0	0
Stage 2	938	809	-	-	-	0	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	737	0	953	1488	-	-	-
Mov Cap-2 Maneuver	737	0	-	-	-	-	-
Stage 1	860	0	-	-	-	-	-
Stage 2	938	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBTWBLn1	SBT	SBR
Capacity (veh/h)	1488	-	843	-
HCM Lane V/C Ratio	0.017	-	0.012	-
HCM Control Delay (s)	7.5	0	9.3	-
HCM Lane LOS	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	0	-

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↑	↗
Traffic Vol, veh/h	0	0	0	6	0	4	14	122	80	0	74	50
Future Vol, veh/h	0	0	0	6	0	4	14	122	80	0	74	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	7	0	4	15	133	87	0	80	54

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	314	341	177	134	0	0	-
Stage 1	207	207	-	-	-	-	-
Stage 2	107	134	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	679	581	866	1451	-	-	0
Stage 1	828	731	-	-	-	-	0
Stage 2	917	785	-	-	-	-	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	671	0	866	1451	-	-	-
Mov Cap-2 Maneuver	671	0	-	-	-	-	-
Stage 1	818	0	-	-	-	-	-
Stage 2	917	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBRWBLn1	SBT	SBR
Capacity (veh/h)	1451	-	-	737	-
HCM Lane V/C Ratio	0.01	-	-	0.015	-
HCM Control Delay (s)	7.5	0	-	10	-
HCM Lane LOS	A	A	-	B	-
HCM 95th %tile Q(veh)	0	-	-	0	-

APPENDIX D : CONSTRUCTION YEAR PLUS PROJECT ANALYSIS WORKSHEETS

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	64	225	25	57	0	0
Future Vol, veh/h	64	225	25	57	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	245	27	62	0	0

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	315	0	309 193
Stage 1	-	-	-	-	193 -
Stage 2	-	-	-	-	116 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1245	-	683 849
Stage 1	-	-	-	-	840 -
Stage 2	-	-	-	-	909 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1245	-	668 849
Mov Cap-2 Maneuver	-	-	-	-	668 -
Stage 1	-	-	-	-	840 -
Stage 2	-	-	-	-	889 -

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1245	-
HCM Lane V/C Ratio	-	-	-	0.022	-
HCM Control Delay (s)	0	-	-	8	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0.1	-

Intersection						
Int Delay, s/veh	7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	70	0	0	87	225	25
Future Vol, veh/h	70	0	0	87	225	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	76	0	0	95	245	27
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	76	0	171	76
Stage 1	-	-	-	-	76	-
Stage 2	-	-	-	-	95	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1523	-	819	985
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	929	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1523	-	819	985
Mov Cap-2 Maneuver	-	-	-	-	819	-
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	929	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	0	11.4			
HCM LOS						B
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	833	-	-	1523	-	
HCM Lane V/C Ratio	0.326	-	-	-	-	
HCM Control Delay (s)	11.4	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	1.4	-	-	0	-	

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗		↖	↗
Traffic Vol, veh/h	11	289	57	7	6	7
Future Vol, veh/h	11	289	57	7	6	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	314	62	8	7	8

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	70	0	-	0	404 66
Stage 1	-	-	-	-	66 -
Stage 2	-	-	-	-	338 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1531	-	-	-	603 998
Stage 1	-	-	-	-	957 -
Stage 2	-	-	-	-	722 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1531	-	-	-	598 998
Mov Cap-2 Maneuver	-	-	-	-	598 -
Stage 1	-	-	-	-	949 -
Stage 2	-	-	-	-	722 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1531	-	-	-	598	998
HCM Lane V/C Ratio	0.008	-	-	-	0.011	0.008
HCM Control Delay (s)	7.4	-	-	-	11.1	8.6
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑	↘		↙	↘
Traffic Vol, veh/h	5	70	312	11	2	18
Future Vol, veh/h	5	70	312	11	2	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	76	339	12	2	20

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	351	0	-	0	431
Stage 1	-	-	-	-	345
Stage 2	-	-	-	-	86
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1208	-	-	-	581
Stage 1	-	-	-	-	717
Stage 2	-	-	-	-	937
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1208	-	-	-	579
Mov Cap-2 Maneuver	-	-	-	-	579
Stage 1	-	-	-	-	714
Stage 2	-	-	-	-	937

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1208	-	-	-	579	698
HCM Lane V/C Ratio	0.004	-	-	-	0.004	0.028
HCM Control Delay (s)	8	-	-	-	11.2	10.3
HCM Lane LOS	A	-	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0	0.1

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	26	112	28	27	8	56	186	33	169	130	42
Future Volume (veh/h)	22	26	112	28	27	8	56	186	33	169	130	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	24	28	122	30	29	9	61	202	36	184	141	46
Adj No. of Lanes	1	1	2	1	1	1	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	693	745	1115	642	745	633	1187	1416	633	574	1416	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Ln Grp Delay, s/veh	8.6	8.3	8.7	8.7	8.3	8.2	9.1	8.8	8.5	12.3	8.6	8.6
Ln Grp LOS	A	A	A	A	A	A	A	A	A	B	A	A
Approach Vol, veh/h		174			68			299			371	
Approach Delay, s/veh		8.6			8.5			8.8			10.4	
Approach LOS		A			A			A			B	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			5.0		5.0		5.0		5.0			
Phs Duration (G+Y+Rc), s			22.5		22.5		22.5		22.5			
Change Period (Y+Rc), s			4.5		4.5		4.5		4.5			
Max Green (Gmax), s			18.0		18.0		18.0		18.0			
Max Allow Headway (MAH), s			4.9		4.2		4.7		4.6			
Max Q Clear (g_c+I1), s			3.9		3.2		9.2		3.1			
Green Ext Time (g_e), s			1.3		0.5		1.2		0.2			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.00		0.00		0.00		0.00			
Left-Turn Movement Data												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			2312		1364		1138		1232			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3539		1863		3539		1863			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			1583		2787		1583		1583			
Left Lane Group Data												
Assigned Mvmt		0	5	0	7	0	1	0	3			
Lane Assignment												

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Lanes in Grp	0	2	0	1	0	1	0	1
Grp Vol (v), veh/h	0	61	0	24	0	184	0	30
Grp Sat Flow (s), veh/h/ln	0	1156	0	1364	0	1138	0	1232
Q Serve Time (g_s), s	0.0	0.8	0.0	0.5	0.0	5.5	0.0	0.7
Cycle Q Clear Time (g_c), s	0.0	1.9	0.0	0.9	0.0	7.2	0.0	1.1
Perm LT Sat Flow (s_l), veh/h/ln	0	1156	0	1364	0	1138	0	1232
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	18.0	0.0	18.0	0.0	18.0	0.0	18.0
Perm LT Serve Time (g_u), s	0.0	16.9	0.0	17.6	0.0	16.4	0.0	17.6
Perm LT Q Serve Time (g_ps), s	0.0	0.8	0.0	0.5	0.0	5.5	0.0	0.7
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	1187	0	693	0	574	0	642
V/C Ratio (X)	0.00	0.05	0.00	0.03	0.00	0.32	0.00	0.05
Avail Cap (c_a), veh/h	0	1187	0	693	0	574	0	642
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	9.0	0.0	8.5	0.0	10.9	0.0	8.6
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.1	0.0	1.5	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	9.1	0.0	8.6	0.0	12.3	0.0	8.7
1st-Term Q (Q1), veh/ln	0.0	0.2	0.0	0.2	0.0	1.7	0.0	0.2
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	0.2	0.0	2.0	0.0	0.3
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	1	0	2	0	1
Grp Vol (v), veh/h	0	202	0	28	0	141	0	29
Grp Sat Flow (s), veh/h/ln	0	1770	0	1863	0	1770	0	1863
Q Serve Time (g_s), s	0.0	1.6	0.0	0.4	0.0	1.1	0.0	0.4
Cycle Q Clear Time (g_c), s	0.0	1.6	0.0	0.4	0.0	1.1	0.0	0.4
Lane Grp Cap (c), veh/h	0	1416	0	745	0	1416	0	745
V/C Ratio (X)	0.00	0.14	0.00	0.04	0.00	0.10	0.00	0.04
Avail Cap (c_a), veh/h	0	1416	0	745	0	1416	0	745
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	8.6	0.0	8.2	0.0	8.4	0.0	8.2
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.8	0.0	8.3	0.0	8.6	0.0	8.3
1st-Term Q (Q1), veh/ln	0.0	0.8	0.0	0.2	0.0	0.5	0.0	0.2

Baseline

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2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.8	0.0	0.2	0.0	0.6	0.0	0.2
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

























Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R		R		R		R
Lanes in Grp	0	1	0	2	0	1	0	1
Grp Vol (v), veh/h	0	36	0	122	0	46	0	9
Grp Sat Flow (s), veh/h/ln	0	1583	0	1393	0	1583	0	1583
Q Serve Time (g_s), s	0.0	0.6	0.0	1.2	0.0	0.8	0.0	0.2
Cycle Q Clear Time (g_c), s	0.0	0.6	0.0	1.2	0.0	0.8	0.0	0.2
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	633	0	1115	0	633	0	633
V/C Ratio (X)	0.00	0.06	0.00	0.11	0.00	0.07	0.00	0.01
Avail Cap (c_a), veh/h	0	633	0	1115	0	633	0	633
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	8.3	0.0	8.5	0.0	8.3	0.0	8.1
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.2	0.0	0.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.5	0.0	8.7	0.0	8.6	0.0	8.2
1st-Term Q (Q1), veh/ln	0.0	0.3	0.0	0.5	0.0	0.3	0.0	0.1
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	0.5	0.0	0.4	0.0	0.1
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 2010 Ctrl Delay	9.4
HCM 2010 LOS	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	26	112	8	87	193	56	186	33	4	130	42
Future Volume (veh/h)	22	26	112	8	87	193	56	186	33	4	130	42
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	24	28	122	9	95	210	61	202	36	4	141	46
Adj No. of Lanes	1	1	2	1	1	1	2	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	553	745	1115	642	745	633	1187	1416	633	574	1416	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Ln Grp Delay, s/veh	9.3	8.3	8.7	8.5	8.9	10.7	9.1	8.8	8.5	9.2	8.6	8.6
Ln Grp LOS	A	A	A	A	A	B	A	A	A	A	A	A
Approach Vol, veh/h		174			314			299			191	
Approach Delay, s/veh		8.7			10.1			8.8			8.6	
Approach LOS		A			B			A			A	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			5.0		5.0		5.0		5.0			
Phs Duration (G+Y+Rc), s			22.5		22.5		22.5		22.5			
Change Period (Y+Rc), s			4.5		4.5		4.5		4.5			
Max Green (Gmax), s			18.0		18.0		18.0		18.0			
Max Allow Headway (MAH), s			4.9		4.3		4.9		4.4			
Max Q Clear (g_c+I1), s			3.9		4.1		3.7		6.1			
Green Ext Time (g_e), s			1.3		0.5		0.8		1.0			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.00		0.00		0.00		0.00			
Left-Turn Movement Data												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			2312		1070		1138		1232			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			3539		1863		3539		1863			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			1583		2787		1583		1583			
Left Lane Group Data												
Assigned Mvmt		0	5	0	7	0	1	0	3			
Lane Assignment												

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Lanes in Grp	0	2	0	1	0	1	0	1
Grp Vol (v), veh/h	0	61	0	24	0	4	0	9
Grp Sat Flow (s), veh/h/ln	0	1156	0	1070	0	1138	0	1232
Q Serve Time (g_s), s	0.0	0.8	0.0	0.7	0.0	0.1	0.0	0.2
Cycle Q Clear Time (g_c), s	0.0	1.9	0.0	2.1	0.0	1.7	0.0	0.6
Perm LT Sat Flow (s_l), veh/h/ln	0	1156	0	1070	0	1138	0	1232
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	18.0	0.0	18.0	0.0	18.0	0.0	18.0
Perm LT Serve Time (g_u), s	0.0	16.9	0.0	16.5	0.0	16.4	0.0	17.6
Perm LT Q Serve Time (g_ps), s	0.0	0.8	0.0	0.7	0.0	0.1	0.0	0.2
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	1187	0	553	0	574	0	642
V/C Ratio (X)	0.00	0.05	0.00	0.04	0.00	0.01	0.00	0.01
Avail Cap (c_a), veh/h	0	1187	0	553	0	574	0	642
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	9.0	0.0	9.2	0.0	9.1	0.0	8.4
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	9.1	0.0	9.3	0.0	9.2	0.0	8.5
1st-Term Q (Q1), veh/ln	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.1
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	0.2	0.0	0.0	0.0	0.1
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Grp	0	2	0	1	0	2	0	1
Grp Vol (v), veh/h	0	202	0	28	0	141	0	95
Grp Sat Flow (s), veh/h/ln	0	1770	0	1863	0	1770	0	1863
Q Serve Time (g_s), s	0.0	1.6	0.0	0.4	0.0	1.1	0.0	1.5
Cycle Q Clear Time (g_c), s	0.0	1.6	0.0	0.4	0.0	1.1	0.0	1.5
Lane Grp Cap (c), veh/h	0	1416	0	745	0	1416	0	745
V/C Ratio (X)	0.00	0.14	0.00	0.04	0.00	0.10	0.00	0.13
Avail Cap (c_a), veh/h	0	1416	0	745	0	1416	0	745
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	8.6	0.0	8.2	0.0	8.4	0.0	8.5
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.4
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.8	0.0	8.3	0.0	8.6	0.0	8.9
1st-Term Q (Q1), veh/ln	0.0	0.8	0.0	0.2	0.0	0.5	0.0	0.7

Baseline

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HCM 2010 Signalized Intersection Capacity Analysis
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2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.8	0.0	0.2	0.0	0.6	0.0	0.8
%ile Storage Ratio (RQ%)	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment		R		R		R		R
Lanes in Grp	0	1	0	2	0	1	0	1
Grp Vol (v), veh/h	0	36	0	122	0	46	0	210
Grp Sat Flow (s), veh/h/ln	0	1583	0	1393	0	1583	0	1583
Q Serve Time (g_s), s	0.0	0.6	0.0	1.2	0.0	0.8	0.0	4.1
Cycle Q Clear Time (g_c), s	0.0	0.6	0.0	1.2	0.0	0.8	0.0	4.1
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Lane Grp Cap (c), veh/h	0	633	0	1115	0	633	0	633
V/C Ratio (X)	0.00	0.06	0.00	0.11	0.00	0.07	0.00	0.33
Avail Cap (c_a), veh/h	0	633	0	1115	0	633	0	633
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	8.3	0.0	8.5	0.0	8.3	0.0	9.3
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.2	0.0	0.2	0.0	1.4
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.5	0.0	8.7	0.0	8.6	0.0	10.7
1st-Term Q (Q1), veh/ln	0.0	0.3	0.0	0.5	0.0	0.3	0.0	1.8
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.3	0.0	0.5	0.0	0.4	0.0	2.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 2010 Ctrl Delay	9.2
HCM 2010 LOS	A

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↖↖	↗	↖	↖↖	↗
Traffic Vol, veh/h	0	3	13	3	2	14	16	207	3	8	324	11
Future Vol, veh/h	0	3	13	3	2	14	16	207	3	8	324	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3	14	3	2	15	17	225	3	9	352	12

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	518	632	176	455	641	113	364	0	0	228	0	0
Stage 1	370	370	-	259	259	-	-	-	-	-	-	-
Stage 2	148	262	-	196	382	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	440	396	837	489	391	918	1191	-	-	1337	-	-
Stage 1	622	619	-	723	692	-	-	-	-	-	-	-
Stage 2	840	690	-	787	611	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	424	388	837	470	383	918	1191	-	-	1337	-	-
Mov Cap-2 Maneuver	424	388	-	470	383	-	-	-	-	-	-	-
Stage 1	613	615	-	713	682	-	-	-	-	-	-	-
Stage 2	812	680	-	764	607	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	10.3		10.2		0.6			0.2		
HCM LOS	B		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1191	-	-	388	837	431	918	1337	-	-
HCM Lane V/C Ratio	0.015	-	-	0.008	0.017	0.013	0.017	0.007	-	-
HCM Control Delay (s)	8.1	-	-	14.4	9.4	13.5	9	7.7	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	0.1	0	-	-

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕	↖	↖	↕	↗
Traffic Vol, veh/h	8	3	15	2	7	15	26	299	0	6	113	11
Future Vol, veh/h	8	3	15	2	7	15	26	299	0	6	113	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	3	16	2	8	16	28	325	0	7	123	12

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	360	518	62	458	530	163	135	0	0	325	0	0
Stage 1	137	137	-	381	381	-	-	-	-	-	-	-
Stage 2	223	381	-	77	149	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	571	460	990	486	453	853	1447	-	-	1231	-	-
Stage 1	852	782	-	613	612	-	-	-	-	-	-	-
Stage 2	759	612	-	923	773	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	542	449	990	466	442	853	1447	-	-	1231	-	-
Mov Cap-2 Maneuver	542	449	-	466	442	-	-	-	-	-	-	-
Stage 1	836	777	-	601	600	-	-	-	-	-	-	-
Stage 2	721	600	-	899	768	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	10.2		10.8		0.6			0.4		
HCM LOS	B		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1447	-	-	513	990	447	853	1231	-	-
HCM Lane V/C Ratio	0.02	-	-	0.023	0.016	0.022	0.019	0.005	-	-
HCM Control Delay (s)	7.5	-	-	12.2	8.7	13.2	9.3	7.9	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.1	0.1	0	-	-

HCM 2010 TWSC
 26: CA 7 & I-8 East Off-ramp/I-8 East On-ramp

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Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔						↑↑	↑		↑	
Traffic Vol, veh/h	128	0	174	0	0	0	0	217	1	1	69	0
Future Vol, veh/h	128	0	174	0	0	0	0	217	1	1	69	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	139	0	189	0	0	0	0	236	1	1	75	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	195	314	75	-	0	0	237	0	0
Stage 1	77	77	-	-	-	-	-	-	-
Stage 2	118	237	-	-	-	-	-	-	-
Critical Hdwy	6.63	6.53	6.23	-	-	-	4.13	-	-
Critical Hdwy Stg 1	5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.83	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	-	-	-	2.219	-	-
Pot Cap-1 Maneuver	785	601	986	0	-	-	1329	-	0
Stage 1	946	831	-	0	-	-	-	-	0
Stage 2	895	708	-	0	-	-	-	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	784	0	986	-	-	-	1329	-	-
Mov Cap-2 Maneuver	784	0	-	-	-	-	-	-	-
Stage 1	946	0	-	-	-	-	-	-	-
Stage 2	894	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBL	SBT
Capacity (veh/h)	-	-	889	1329	-
HCM Lane V/C Ratio	-	-	0.369	0.001	-
HCM Control Delay (s)	-	-	11.4	7.7	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	1.7	0	-

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔						↑↑	↑		↑	
Traffic Vol, veh/h	49	0	52	0	0	0	0	317	9	0	78	0
Future Vol, veh/h	49	0	52	0	0	0	0	317	9	0	78	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	53	0	57	0	0	0	0	345	10	0	85	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	258	440	85	-	0	0	-	-	0
Stage 1	85	85	-	-	-	-	-	-	-
Stage 2	173	355	-	-	-	-	-	-	-
Critical Hdwy	6.63	6.53	6.23	-	-	-	-	-	-
Critical Hdwy Stg 1	5.43	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.83	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	-	-	-	-	-	-
Pot Cap-1 Maneuver	720	510	973	0	-	-	0	-	0
Stage 1	938	824	-	0	-	-	0	-	0
Stage 2	840	629	-	0	-	-	0	-	0
Platoon blocked, %									
Mov Cap-1 Maneuver	720	0	973	-	-	-	-	-	-
Mov Cap-2 Maneuver	720	0	-	-	-	-	-	-	-
Stage 1	938	0	-	-	-	-	-	-	-
Stage 2	840	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	SBT
Capacity (veh/h)	-	-	831	-
HCM Lane V/C Ratio	-	-	0.132	-
HCM Control Delay (s)	-	-	10	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.5	-

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↑	↗
Traffic Vol, veh/h	0	0	0	4	0	5	23	94	134	0	71	35
Future Vol, veh/h	0	0	0	4	0	5	23	94	134	0	71	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	4	0	5	25	102	146	0	77	38

Major/Minor	Minor1	Major1	Major2				
Conflicting Flow All	321	340	175	115	0	0	-
Stage 1	225	225	-	-	-	-	-
Stage 2	96	115	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	673	582	868	1474	-	-	0
Stage 1	812	718	-	-	-	-	0
Stage 2	928	800	-	-	-	-	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	660	0	868	1474	-	-	-
Mov Cap-2 Maneuver	660	0	-	-	-	-	-
Stage 1	796	0	-	-	-	-	-
Stage 2	928	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	NBRWBLn1	SBT	SBR
Capacity (veh/h)	1474	-	-	761	-
HCM Lane V/C Ratio	0.017	-	-	0.013	-
HCM Control Delay (s)	7.5	0	-	9.8	-
HCM Lane LOS	A	A	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↑	↗
Traffic Vol, veh/h	0	0	0	6	0	4	161	132	80	0	74	50
Future Vol, veh/h	0	0	0	6	0	4	161	132	80	0	74	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	7	0	4	175	143	87	0	80	54

Major/Minor	Minor1		Major1		Major2		
Conflicting Flow All	644	671	187	134	0	0	-
Stage 1	537	537	-	-	-	-	-
Stage 2	107	134	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	437	378	855	1451	-	-	0
Stage 1	586	523	-	-	-	-	0
Stage 2	917	785	-	-	-	-	0
Platoon blocked, %					-	-	-
Mov Cap-1 Maneuver	376	0	855	1451	-	-	-
Mov Cap-2 Maneuver	376	0	-	-	-	-	-
Stage 1	504	0	-	-	-	-	-
Stage 2	917	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	3.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBRWBLn1	SBT	SBR
Capacity (veh/h)	1451	-	-	485	-
HCM Lane V/C Ratio	0.121	-	-	0.022	-
HCM Control Delay (s)	7.8	0	-	12.6	-
HCM Lane LOS	A	A	-	B	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-