

**LESA ASSESSMENT
VEGA SES LLC SOLAR PROJECT
(T16S, R12E, S35 & S36; T16-1/2S, R12E, S1, SBB&M)**

IMPERIAL COUNTY, CALIFORNIA

October 2017

EMA Report No. 2371-01 (Revised)

Prepared for:

Vega SES LLC
750 W. Main Street
El Centro, CA 92243



ENVIRONMENTAL MANAGEMENT ASSOCIATES

LAND EVALUATION AND SITE ASSESSMENT MODEL

VEGA SES LLC SOLAR PROJECT (T16S, R12E, S35 & S36; T16-1/2S, R12E, S1, SBB&M) IMPERIAL COUNTY, CALIFORNIA

The Land Evaluation and Site Assessment (LESA) model is an approach for rating the relative quality of land resources based upon specific measurable features. The LESA model was first developed by the federal Natural Resources Conservation Service (NRCS) in 1981. It was subsequently adapted in 1990 by the California Department of Conservation to evaluate land use decisions that affect the conversion of agriculture lands in California. The formulation of the California LESA Model is intended to provide lead agencies under the California Environmental Quality Act (CEQA) with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process.

For determining the potential CEQA significance resulting from the conversion of agricultural lands to some other purpose, the California Agricultural LESA Model has developed Scoring Thresholds which are used to compare the Final LESA Score and the Weighted Factor Scores for the Project with suggested Scoring Decisions. These LESA Scores do not take into consideration any proposed mitigation measures or other factors that might affect a lead agency's determination of the significance of the agricultural lands conversion impact under CEQA.

The information provided on the following pages present documentation of the LESA assessment prepared using the California Agricultural LESA Model for the Vega SES LLC Solar Project (Project) (APNs 051-360-021-000, 051-360-031-000, 051-390-004-000, 051-390-012-000, 051-390-013-000). The proposed Vega SES LLC Solar Project would be constructed on approximately 574 acres of privately owned land located east of the Westside Main Canal, south of West Wixom Road, west of Drew Road (S29), and north of Lyons Road (Figure 1 and Figure 2).

LESA ASSESSMENT
VEGA SES LLC SOLAR PROJECT
IMPERIAL COUNTY, CALIFORNIA

TABLE OF CONTENTS

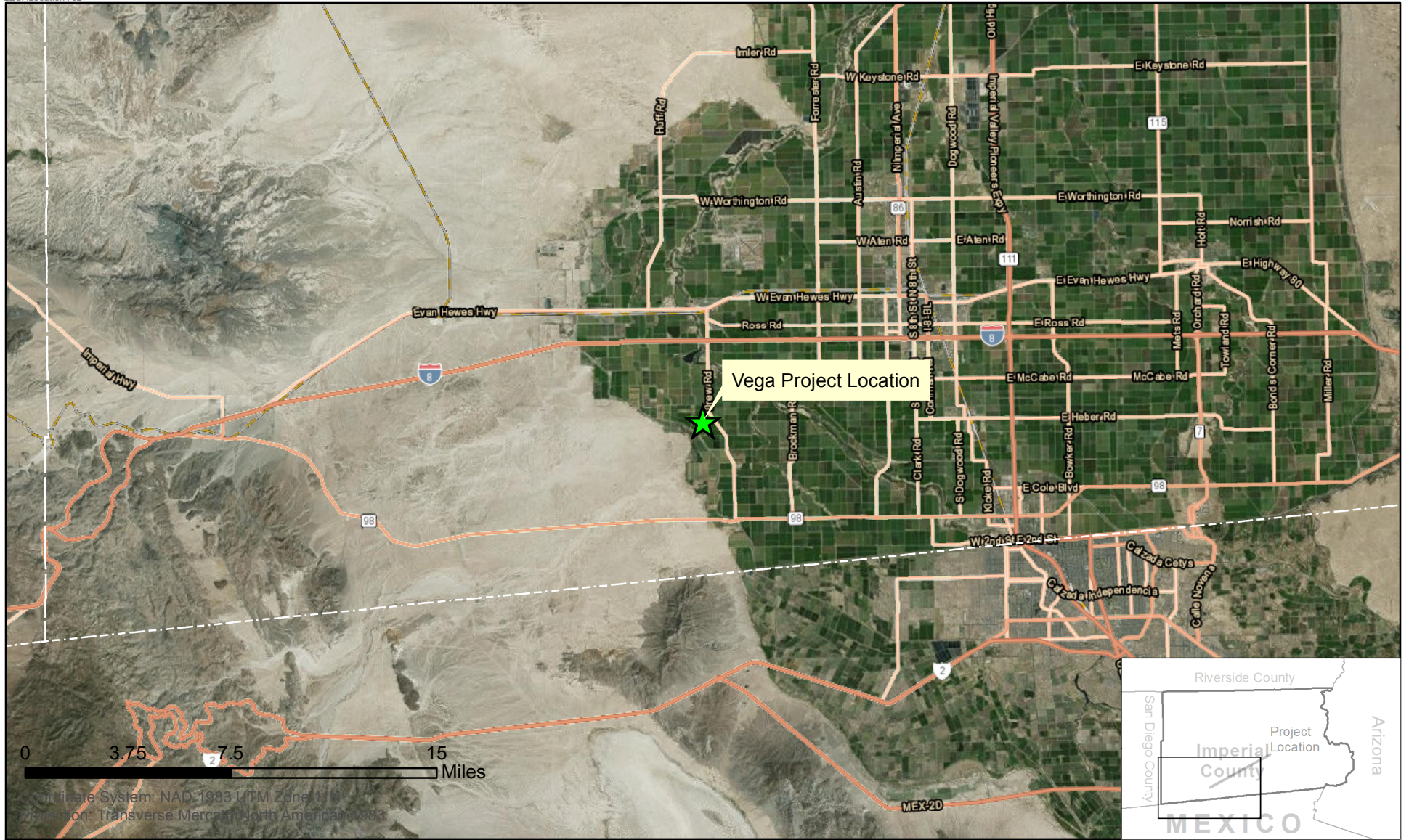
| | <u>Page</u> |
|---|-------------|
| SUMMARY | i |
| LIST OF FIGURES | ii |
| LIST OF APPENDICES | ii |
| 1. CALIFORNIA LAND EVALUATION AND SITE ASSESSMENT MODEL | 3 |
| A LAND CAPABILITY CLASSIFICATION (“LCC”) | 3 |
| B STORIE INDEX RATING | 3 |
| C PROJECT SIZE RATING | 5 |
| D WATER RESOURCES AVAILABILITY RATING | 6 |
| E SURROUNDING AGRICULTURAL LAND RATING | 7 |
| F SURROUNDING PROTECTED RESOURCE LAND RATING | 7 |
| G WEIGHTING OF FACTORS AND FINAL LESA SCORE | 9 |

LIST OF FIGURES

| | <u>Page</u> |
|---|-------------|
| Figure 1: Location Map | 1 |
| Figure 2: Development Area Map on an Aerial Photographic Base | 2 |
| Figure 3: Development Area Soils Map | 4 |
| Figure 4: Zone of Influence | 8 |

LIST OF APPENDICES

APPENDIX A: VEGA SES LLC SOLAR PROJECT SOILS DETAILS



Date: 10/4/2017
 Author: Carey, D.

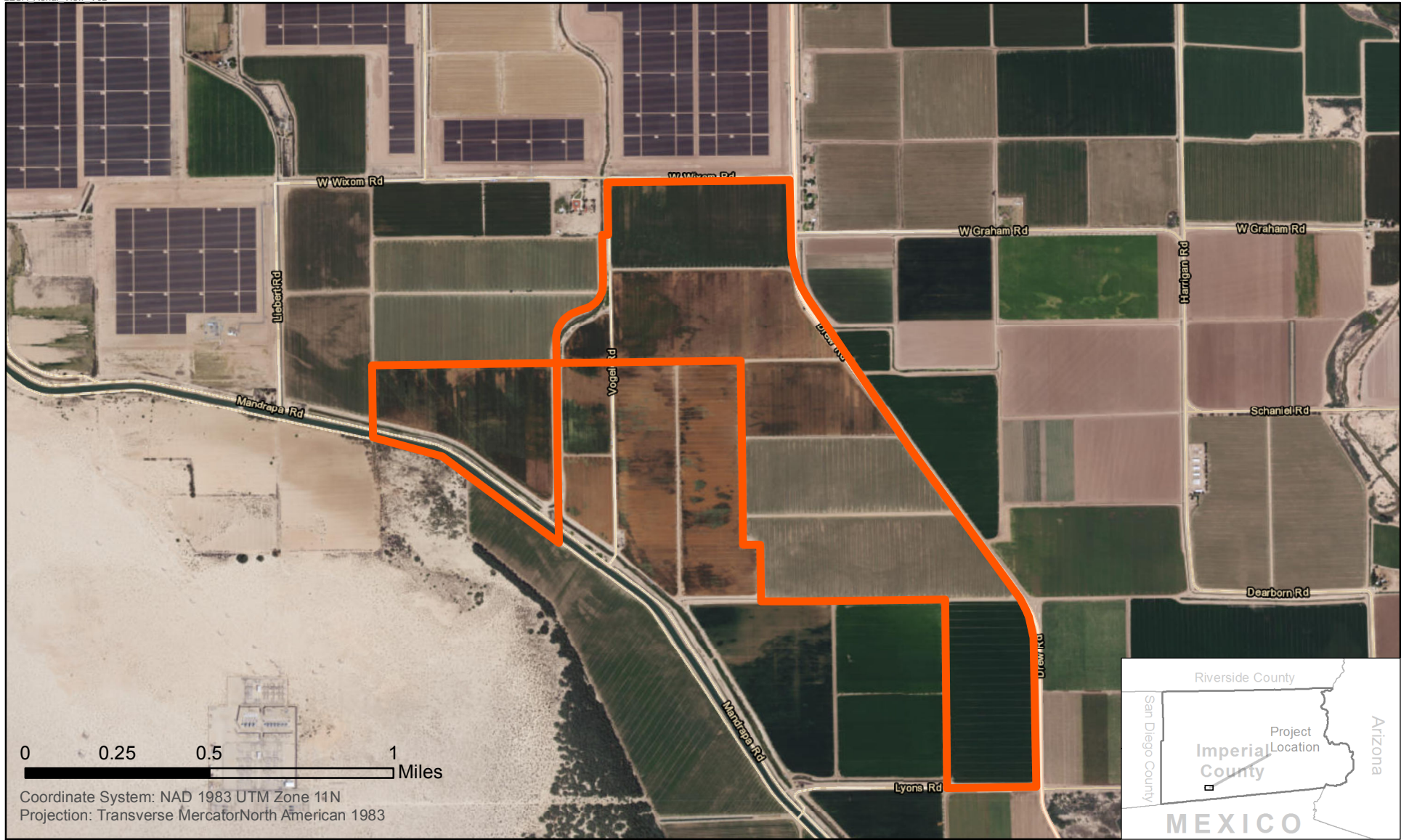



Vega SES LLC Solar Project
 Location Map



Project Location

Figure 1: Location Map



Date: 10/4/2017
Author: Carey, D.



Vega SES LLC Solar Project

Aerial View


 Project Location

Figure 2 : Development Area on an Aerial Photographic Base

| Land Evaluation Worksheet | | | | | | | |
|--|---------------|----------------------------|-------------------|---------------------------|-------------------|---------------------------------|----------------------------|
| A | B | C | D | E | F | G | H |
| Soil Map Unit* | Project Acres | Proportion of Project Area | LCC** (irrigated) | LCC Rating (irrigated)*** | LCC Score (C x E) | Storie Index** | Storie Index Score (C x G) |
| 110 | 4.9 | 0.009 | IIw | 80 | 0.72 | 46 | 0.41 |
| 114 | 58.3 | 0.102 | IIIw | 60 | 6.10 | 36 | 3.66 |
| 122 | 57.8 | 0.101 | IIIw | 60 | 6.04 | 77 | 7.75 |
| 123 | 22.2 | 0.039 | IIIw | 60 | 2.32 | 77 | 2.97 |
| 132 | 0.4 | 0.001 | IIIs | 60 | 0.04 | 52 | 0.03 |
| 135 | 0.8 | 0.001 | IIIw | 60 | 0.06 | 55 | 0.06 |
| 142 | 303.5 | 0.528 | IIw | 80 | 42.24 | 73 | 38.54 |
| 144 | 121.6 | 0.212 | IIw | 80 | 16.96 | 77 | 16.32 |
| 145 | 5.0 | 0.009 | N/A | 0 | 0.00 | 0 | 0.00 |
| Totals | 574.5 | 1.000 | | LCC Total Score | 74.46 | Storie Index Total Score | 69.74 |
| Total Project Area (acres)= | 574.5 | | | | | | |
| * The Soil Map Unit information and acreage were determined from the current soil survey information available at the USDA Natural Resources Conservation Service website: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx (Figure 3). | | | | | | | |
| ** The Land Capability Classification and Storie Index information was obtained from the current soil survey information available at the USDA Natural Resources Conservation Service website: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx (Appendix A). | | | | | | | |
| *** The LCC Rating for irrigated land was determined from the LCC Point Rating Table 2 from the LESA Instruction Manual (California Department of Conservation 1997). | | | | | | | |



Tables — California Revised Storie Index (CA) — Summary By Map Unit

Summary by Map Unit — Imperial County, California, Imperial Valley Area (CA683)

Summary by Map Unit — Imperial County, California, Imperial Valley Area (CA683)

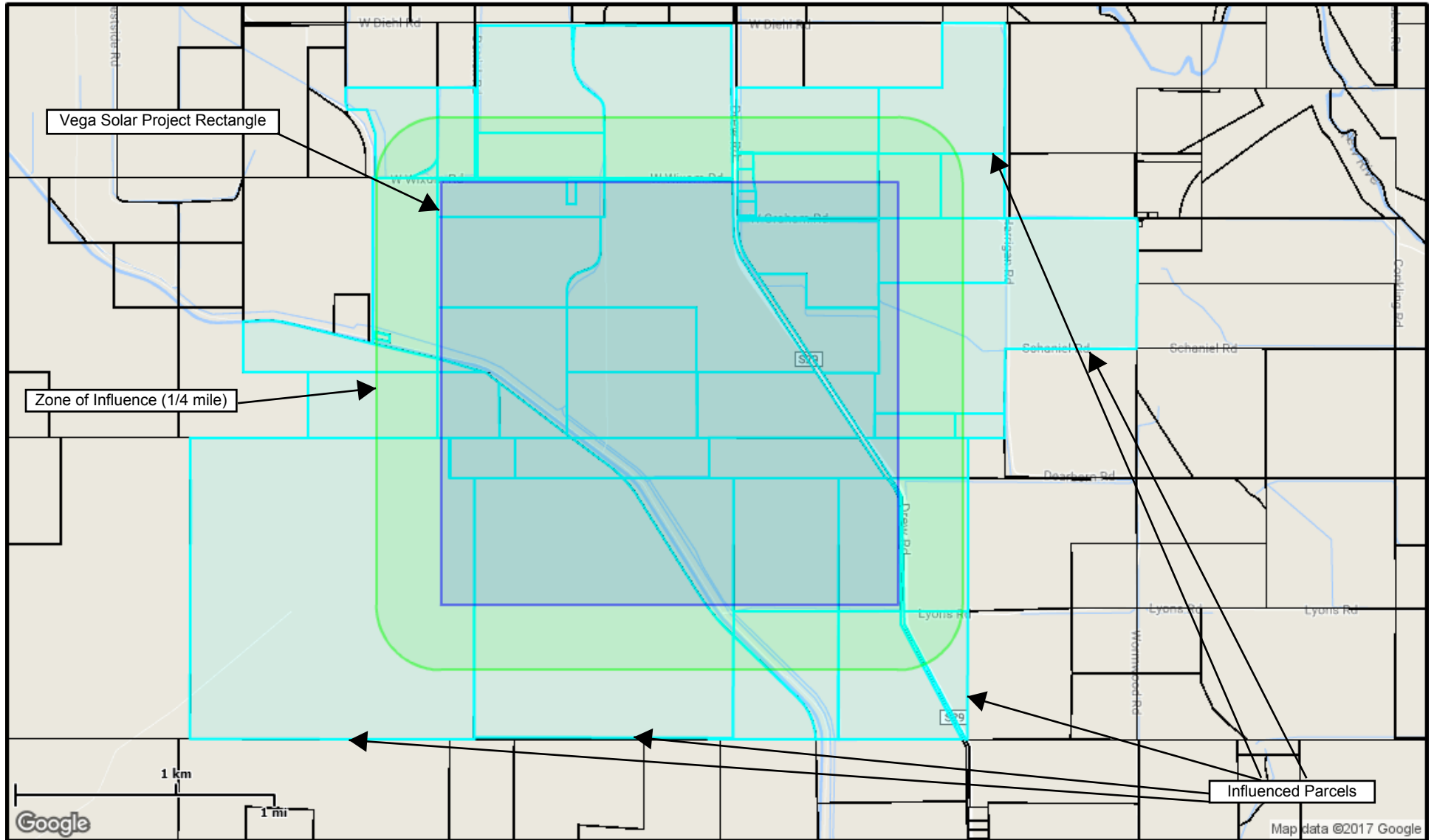
| Map unit symbol | Map unit name | Rating | Component name (percent) | Acres in AOI | Percent of AOI |
|------------------------------------|---|---------------------------------|---|--------------|----------------|
| 110 | Holtville silty clay, wet | Grade 3 - Fair | Holtville, WET (85%) | 4.9 | 0.9% |
| 114 | Imperial silty clay, wet | Grade 4 - Poor | Imperial, WET (85%) | 58.3 | 10.2% |
| 122 | Meloland very fine sandy loam, wet | Grade 2 - Good | Meloland, WET (85%) | 57.8 | 10.1% |
| 123 | Meloland and Holtville loams, wet | Grade 2 - Good | Meloland, WET (40%) Holtville, WET (40%) | 22.2 | 3.9% |
| 132 | Rositas fine sand, 0 to 2 percent slopes | Grade 3 - Fair | Rositas (85%) | 0.4 | 0.1% |
| 135 | Rositas fine sand, wet, 0 to 2 percent slopes | Grade 3 - Fair | Rositas, WET (85%) | 0.8 | 0.1% |
| 142 | Vint loamy very fine sand, wet | Grade 2 - Good | Vint, WET (90%) Meloland (5%) | 303.5 | 52.8% |
| 144 | Vint and Indio very fine sandy loams, wet | Grade 2 - Good | Vint, WET (50%) Meloland (5%) | 121.6 | 21.2% |
| 145 | Water | Not Applicable for Storie Index | Water (100%) | 5.0 | 0.9% |
| Totals for Area of Interest | | | | 574.5 | 100.0% |

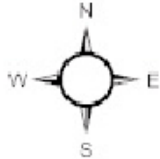

| | Site Assessment Worksheet 1 | | |
|--|-----------------------------|---------------|-------------------|
| | Project Size Score* | | |
| | I | J | K |
| | LCC Class I-II | LCC Class III | LCC Class IV-VIII |
| <i>Project Acres per LCC Class</i> | 4.9 | | |
| <i>Project Acres per LCC Class</i> | | 58.3 | |
| <i>Project Acres per LCC Class</i> | | 57.8 | |
| <i>Project Acres per LCC Class</i> | | 22.2 | |
| <i>Project Acres per LCC Class</i> | 0.4 | | |
| <i>Project Acres per LCC Class</i> | | 0.8 | |
| <i>Project Acres per LCC Class</i> | 303.5 | | |
| <i>Project Acres per LCC Class</i> | 121.6 | | |
| Total Project Acres per LCC Class | 430.4 | 139.1 | 0.0 |
| * Project Size Scores | 100 | 90 | 0 |
| Highest Project Size Score | 100 | | |
| * Project Size Score was determined from the Project Size Scoring Table from the LESA Instruction Manual (California Department of Conservation 1997). | | | |

| Site Assessment Worksheet 2 | | | | |
|--|--------------------------|-----------------------------------|-----------------------------------|--|
| Water Resources Availability | | | | |
| A | B | C | D | E |
| Project Portion | Water Source | Proportion of Project Area | Water Availability Score* | Weighted Availability Score (C x D) |
| 1 | Irrigation District Only | 1.0 | 100 | 100 |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| | | (Must Sum to 1.0) | Total Water Resource Score | 100 |
| <p>* The Water Availability Score was determined using the Water Resources Availability Scoring Table from the LESA Instruction Manual (California Department of Conservation 1997).</p> | | | | |

| Site Assessment Worksheet 3 | | | | | | | |
|---|----------------------|----------------------------------|---------------------------------|---------------------------------------|--|--|----------------------|
| Surrounding Agricultural Land & Surrounding Protected Resource Land | | | | | | | |
| A | B | C | D | E | F | G | |
| Zone of Influence* | | | | | | | |
| Total Acres | Acres in Agriculture | Acres of Protected Resource Land | Percent in Agriculture (B/A) | Percent Protected Resource Land (C/A) | Surrounding Agricultural Land Score (From LESA Manual Table 6) | Surrounding Protected Resource Land Score (From LESA Manual Table 7)** | |
| 4168.6 | 2445 | 830 | 58.7 | 20 | 40 | 0 | |
| * In conformance with the instructions in the LESA Instruction Manual (California Department of Conservation 1997), the Zone of Influence was determined by drawing the smallest rectangle that could completely encompass the entire Project Area. A second rectangle was then drawn which extended one quarter mile on all sides beyond the first rectangle. The Zone of Influence is represented by the entire area of all parcels with any lands inside the outer rectangle, less the area of the proposed project (Figure 4). | | | | | | | |
| ** The LESA Instruction Manual (California Department of Conservation 1997) describes <i>Protected Resource Land</i> as those lands with long term use restrictions that are compatible with or supportive of agricultural uses of land. Included among them are the following: Williamson Act contracted lands; Publicly owned lands maintained as park, forest, or watershed resources; and Lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban or industrial uses. | | | | | | | |
| Surrounding Parcels*** | Acres | Protected Resource Land? | Percent Protected Resource Land | Acres in Protected Land | Agricultural Land? | Percent Agricultural Land | Acres of Agriculture |
| 051-330-024 | 58.5 | N | 0 | 0 | Y | 100 | 0.0 |
| 051-350-010 | 80.0 | N | 0 | 0 | N | 0 | 0.0 |
| 051-350-011 | 66.2 | N | 0 | 0 | N | 0 | 0.0 |
| 051-350-015 | 105.8 | N | 0 | 0 | Y | 100 | 105.8 |
| 051-350-016 | 0.1 | N | 0 | 0 | N | 0 | 0.0 |
| 051-350-017 | 0.9 | N | 0 | 0 | N | 0 | 0.0 |
| 051-360-003 | 32.0 | N | 0 | 0 | N | 0 | 0.0 |
| 051-360-004 | 54.5 | N | 0 | 0 | Y | 100 | 54.5 |
| 051-360-005 | 110.8 | N | 0 | 0 | Y | 100 | 110.8 |
| 051-360-008 | 87.3 | N | 0 | 0 | Y | 95 | 82.9 |
| 051-360-010 | 2.4 | N | 0 | 0 | N | 0 | 0.0 |
| 051-360-011 | 92.0 | N | 0 | 0 | Y | 100 | 92.0 |
| 051-360-012 | 60.4 | N | 0 | 0 | Y | 100 | 60.4 |
| 051-360-014 | 80.0 | N | 0 | 0 | Y | 100 | 80.0 |
| 051-360-018 | 1.8 | N | 0 | 0 | Y | 100 | 1.8 |
| 051-360-022 | 3.3 | N | 0 | 0 | N | 0 | 0.0 |
| 051-360-028 | 128.0 | N | 0 | 0 | Y | 100 | 128.0 |
| 051-360-032 | 203.6 | N | 0 | 0 | N | 0 | 0.0 |
| 051-360-033 | 2.5 | N | 0 | 0 | N | 0 | 0.0 |
| 051-360-034 | 3.3 | N | 0 | 0 | N | 0 | 0.0 |
| 051-360-035 | 1.8 | N | 0 | 0 | N | 0 | 0.0 |
| 051-360-036 | 76.8 | N | 0 | 0 | Y | 100 | 76.8 |
| 051-360-037 | 1.9 | N | 0 | 0 | N | 0 | 0.0 |
| 051-360-038 | 57.5 | N | 0 | 0 | Y | 80 | 46.0 |
| 051-380-024 | 805.6 | Y | 100 | 806 | N | 0 | 0.0 |
| 051-390-001 | 37.5 | N | 0 | 0 | N | 0 | 0.0 |
| 051-390-002 | 18.7 | N | 0 | 0 | Y | 100 | 18.7 |
| 051-390-003 | 80.1 | N | 0 | 0 | Y | 90 | 72.1 |
| 051-390-005 | 19.1 | N | 0 | 0 | Y | 100 | 19.1 |
| 051-390-007 | 82.8 | N | 0 | 0 | Y | 100 | 82.8 |
| 051-390-008 | 43.6 | N | 0 | 0 | Y | 100 | 132.6 |
| 051-390-009 | 110.7 | N | 0 | 0 | Y | 100 | 76.8 |
| 051-390-011 | 132.6 | N | 0 | 0 | Y | 100 | 132.6 |
| 051-390-014 | 42.5 | N | 0 | 0 | Y | 80 | 34.0 |
| 051-390-015 | 86.4 | N | 0 | 0 | Y | 50 | 43.2 |
| 051-390-016 | 553.8 | N | 0 | 0 | Y | 30 | 166.1 |
| 051-390-017 | 31.9 | N | 0 | 0 | Y | 60 | 19.1 |
| 051-390-019 | 19.4 | N | 0 | 0 | Y | 100 | 19.4 |
| 051-390-020 | 34.3 | N | 0 | 0 | Y | 100 | 34.3 |
| 051-390-021 | 24.7 | Y | 100 | 25 | N | 0 | 0.0 |
| 051-390-023 | 50.5 | N | 0 | 0 | Y | 100 | 116.6 |
| 051-390-024 | 78.5 | N | 0 | 0 | Y | 100 | 38.2 |
| 052-120-016 | 116.6 | N | 0 | 0 | Y | 100 | 116.6 |
| 052-120-017 | 38.2 | N | 0 | 0 | Y | 100 | 38.2 |
| 052-120-018 | 79.0 | N | 0 | 0 | Y | 100 | 79.0 |
| 052-120-055 | 39.8 | N | 0 | 0 | Y | 100 | 39.8 |
| 052-420-012 | 11.7 | N | 0 | 0 | Y | 100 | 39.8 |
| 052-420-013 | 319.3 | N | 0 | 0 | Y | 90 | 287.4 |
| Total | 4168.6 | | Total | 830 | | Total | 2445 |
| ***The Imperial County Assessors website was accessed to identify the surrounding parcel numbers (http://www.co.imperial.ca.us/assessor/). The percentage of agriculture was determined from a map overlay used to estimate the proportion of land in agriculture and the California Department of Conservation Important Farmland Map Series. | | | | | | | |

Figure 4: Zone of Influence



| | | | | |
|----------------------|--------------------------|--|---|---|
| <p>1" = 3,009 ft</p> | <p>Zone of Influence</p> | <p>Vega Solar Project 09/27/2017</p> |  |  |
|----------------------|--------------------------|--|---|---|

This map represents a visual display of related geographic information. Data provided hereon is not a guarantee of actual field conditions. To be sure of complete accuracy, please contact Imperial County staff for the most up-to-date information.

| Final LESA Score Sheet | | | | California LESA Model Scoring Thresholds | |
|--------------------------------|---------------|-------------------------|------------------------|--|---|
| | Factor Scores | Factor Weight | Weighted Factor Scores | Total LESA Score | Scoring Decision |
| LE Factors | | | | | |
| Land Capability Classification | 74.46 | 0.25 | 18.62 | 0 to 39 Points | Not Considered Significant |
| Storie Index | 69.74 | 0.25 | 17.44 | | |
| LE subtotal | | 0.50 | 36.05 | | |
| SA Factors | | | | | |
| Project Size | 100 | 0.15 | 15.00 | 40 to 59 Points | Considered Significant <u>only</u> if LE <u>and</u> SA subscores are each <u>greater</u> than or equal to 20 points |
| Water Resource Availability | 100 | 0.15 | 15.00 | | |
| Surrounding Agricultural Land | 40 | 0.15 | 6.00 | 60 to 79 Points | Considered Significant <u>unless</u> either LE <u>or</u> SA subscore is <u>less</u> than 20 points |
| Protected Resource Land | 0 | 0.05 | 0.00 | | |
| SA Subtotal | | 0.50 | 36.00 | | |
| | | Total LESA Score | 72.05 | 80 to 100 Points | Considered Significant |

APPENDIX A: VEGA SES LLC SOLAR PROJECT SOILS DETAILS

Imperial County, California, Imperial Valley Area

110—Holtville silty clay, wet

Map Unit Setting

National map unit symbol: h8zj

Elevation: -230 to 200 feet

Mean annual precipitation: 0 to 3 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 300 to 350 days

Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Holtville, wet, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Holtville, Wet

Setting

Landform: Basin floors

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from mixed sources

Typical profile

H1 - 0 to 17 inches: silty clay

H2 - 17 to 24 inches: clay

H3 - 24 to 35 inches: silt loam

H4 - 35 to 60 inches: loamy very fine sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 5 percent

Salinity, maximum in profile: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 10.0

Available water storage in profile: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): 2w

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Glenbar

Percent of map unit: 5 percent
Hydric soil rating: No

Imperial

Percent of map unit: 5 percent
Hydric soil rating: No

Indio

Percent of map unit: 3 percent
Hydric soil rating: No

Vint

Percent of map unit: 2 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 8, Sep 12, 2016

Imperial County, California, Imperial Valley Area

114—Imperial silty clay, wet

Map Unit Setting

National map unit symbol: h8zn

Elevation: -230 to 200 feet

Mean annual precipitation: 0 to 3 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 300 to 350 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Imperial, wet, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Imperial, Wet

Setting

Landform: Basin floors

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Clayey alluvium derived from mixed and/or clayey lacustrine deposits derived from mixed

Typical profile

H1 - 0 to 12 inches: silty clay

H2 - 12 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat):

Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 5 percent

Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 20.0

Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): 3w

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Glenbar

Percent of map unit: 4 percent

Hydric soil rating: No

Meloland

Percent of map unit: 4 percent

Hydric soil rating: No

Holtville

Percent of map unit: 4 percent

Hydric soil rating: No

Niland

Percent of map unit: 3 percent

Hydric soil rating: No

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area

Survey Area Data: Version 8, Sep 12, 2016

Imperial County, California, Imperial Valley Area

122—Meloland very fine sandy loam, wet

Map Unit Setting

National map unit symbol: h8zx

Elevation: -230 to 200 feet

Mean annual precipitation: 0 to 3 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 300 to 350 days

Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Meloland, wet, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Meloland, Wet

Setting

Landform: Basin floors

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from mixed and/or eolian deposits derived from mixed

Typical profile

H1 - 0 to 12 inches: very fine sandy loam

H2 - 12 to 26 inches: stratified loamy fine sand to silt loam

H3 - 26 to 71 inches: clay

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 5 percent

Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 13.0

Available water storage in profile: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): 3w

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Imperial

Percent of map unit: 3 percent
Hydric soil rating: No

Indio

Percent of map unit: 3 percent
Hydric soil rating: No

Holtville

Percent of map unit: 3 percent
Hydric soil rating: No

Glenbar

Percent of map unit: 3 percent
Hydric soil rating: No

Vint

Percent of map unit: 3 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 8, Sep 12, 2016

Imperial County, California, Imperial Valley Area

123—Meloland and Holtville loams, wet

Map Unit Setting

National map unit symbol: h8zy

Elevation: -230 to 300 feet

Mean annual precipitation: 0 to 3 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 300 to 350 days

Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Meloland, wet, and similar soils: 40 percent

Holtville, wet, and similar soils: 40 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Meloland, Wet

Setting

Landform: Basin floors

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from mixed sources and/or eolian deposits derived from mixed sources

Typical profile

H1 - 0 to 12 inches: loam

H2 - 12 to 26 inches: stratified loamy fine sand to silt loam

H3 - 26 to 38 inches: clay

H4 - 38 to 60 inches: stratified silt loam to loamy fine sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 5 percent

Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 13.0

Available water storage in profile: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Holtville, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/or lacustrine deposits derived from mixed

Typical profile

H1 - 0 to 12 inches: loam
H2 - 12 to 24 inches: clay
H3 - 24 to 36 inches: silt loam
H4 - 36 to 60 inches: loamy very fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 10.0
Available water storage in profile: Moderate (about 7.7 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Glenbar

Percent of map unit: 4 percent
Hydric soil rating: No

Imperial

Percent of map unit: 4 percent
Hydric soil rating: No

Indio

Percent of map unit: 4 percent
Hydric soil rating: No

Rositas

Percent of map unit: 4 percent
Hydric soil rating: No

Vint

Percent of map unit: 4 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 8, Sep 12, 2016

Imperial County, California, Imperial Valley Area

132—Rositas fine sand, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: h907

Elevation: -230 to 350 feet

Mean annual precipitation: 0 to 3 inches

Mean annual air temperature: 70 to 75 degrees F

Frost-free period: 300 to 350 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Rositas and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rositas

Setting

Landform: Basin floors

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from mixed and/or eolian deposits derived from mixed

Typical profile

H1 - 0 to 9 inches: fine sand

H2 - 9 to 60 inches: sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Somewhat excessively drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 5 percent

Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)

Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Niland

Percent of map unit: 4 percent

Hydric soil rating: No

Rositas

Percent of map unit: 4 percent

Hydric soil rating: No

Vint

Percent of map unit: 4 percent

Hydric soil rating: No

Antho

Percent of map unit: 1 percent

Hydric soil rating: No

Holtville

Percent of map unit: 1 percent

Hydric soil rating: No

Superstition

Percent of map unit: 1 percent

Hydric soil rating: No

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area

Survey Area Data: Version 8, Sep 12, 2016

Imperial County, California, Imperial Valley Area

135—Rositas fine sand, wet, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: h90b

Elevation: -230 to 350 feet

Mean annual precipitation: 0 to 3 inches

Mean annual air temperature: 70 to 75 degrees F

Frost-free period: 300 to 350 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Rositas, wet, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rositas, Wet

Setting

Landform: Basin floors

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from mixed and/or eolian deposits derived from mixed

Typical profile

H1 - 0 to 9 inches: fine sand

H2 - 9 to 60 inches: sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 5 percent

Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)

Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): 3w

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Vint

Percent of map unit: 4 percent

Hydric soil rating: No

Superstition

Percent of map unit: 4 percent

Hydric soil rating: No

Carsitas

Percent of map unit: 4 percent

Hydric soil rating: No

Antho

Percent of map unit: 3 percent

Hydric soil rating: No

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area

Survey Area Data: Version 8, Sep 12, 2016

Imperial County, California, Imperial Valley Area

142—Vint loamy very fine sand, wet

Map Unit Setting

National map unit symbol: h90k

Elevation: -230 to 150 feet

Mean annual precipitation: 0 to 3 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 300 to 350 days

Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Vint, wet, and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vint, Wet

Setting

Landform: Basin floors

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from mixed and/or eolian deposits derived from mixed

Typical profile

H1 - 0 to 10 inches: loamy very fine sand

H2 - 10 to 60 inches: loamy fine sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): High
(1.98 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 5 percent

Salinity, maximum in profile: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)

Available water storage in profile: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): 2w

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Indio

Percent of map unit: 5 percent

Hydric soil rating: No

Meloland

Percent of map unit: 5 percent

Hydric soil rating: No

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area

Survey Area Data: Version 8, Sep 12, 2016

Imperial County, California, Imperial Valley Area

144—Vint and Indio very fine sandy loams, wet

Map Unit Setting

National map unit symbol: h90m

Elevation: -230 to 300 feet

Mean annual precipitation: 0 to 3 inches

Mean annual air temperature: 72 to 75 degrees F

Frost-free period: 300 to 350 days

Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Vint, wet, and similar soils: 50 percent

Indio, wet, and similar soils: 40 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vint, Wet

Setting

Landform: Basin floors

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from mixed sources and/or eolian deposits derived from mixed sources

Typical profile

H1 - 0 to 10 inches: very fine sandy loam

H2 - 10 to 40 inches: loamy fine sand

H3 - 40 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat):

Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 5 percent

Salinity, maximum in profile: Slightly saline to moderately saline
(4.0 to 8.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 10.0

Available water storage in profile: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): 2w

Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Indio, Wet

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium and/or eolian deposits derived from mixed

Typical profile

H1 - 0 to 12 inches: very fine sandy loam
H2 - 12 to 40 inches: stratified loamy very fine sand to silt loam
H3 - 40 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat):
Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Slightly saline to moderately saline
(4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 10.0
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Rositas

Percent of map unit: 5 percent
Hydric soil rating: No

Meloland

Percent of map unit: 5 percent

Hydric soil rating: No

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area
Survey Area Data: Version 8, Sep 12, 2016

Imperial County, California, Imperial Valley Area

145—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area

Survey Area Data: Version 8, Sep 12, 2016

California Revised Storie Index (CA)

The Revised Storie Index is a rating system based on soil properties that govern the potential for soil map unit components to be used for irrigated agriculture in California.

The Revised Storie Index assesses the productivity of a soil from the following four characteristics:

- Factor A: degree of soil profile development
- Factor B: texture of the surface layer
- Factor C: steepness of slope
- Factor X: drainage class, landform, erosion class, flooding and ponding frequency and duration, soil pH, soluble salt content as measured by electrical conductivity, and sodium adsorption ratio

Revised Storie Index numerical ratings have been combined into six classes as follows:

- Grade 1: Excellent (81 to 100)
- Grade 2: Good (61 to 80)
- Grade 3: Fair (41 to 60)
- Grade 4: Poor (21 to 40)
- Grade 5: Very poor (11 to 20)
- Grade 6: Nonagricultural (10 or less)

Reference:

O'Geen, A.T., Southard, S.B., Southard, R.J. 2008. A Revised Storie Index for Use with Digital Soils Information. University of California Division of Agriculture and Natural Resources. Publication 8355. <http://anrcatalog.ucanr.edu/pdf/8335.pdf>

Report—California Revised Storie Index (CA)

| California Revised Storie Index (CA)—Imperial County, California, Imperial Valley Area | | | |
|--|------------------|--------------------------------------|-------|
| Map symbol and soil name | Pct. of map unit | California Revised Storie Index (CA) | |
| | | Rating class | Value |
| 110—Holtville silty clay, wet | | | |
| Holtville, WET | 85 | Grade 3 - Fair | 46 |
| 114—Imperial silty clay, wet | | | |
| Imperial, WET | 85 | Grade 4 - Poor | 36 |
| 122—Meloland very fine sandy loam, wet | | | |
| Meloland, WET | 85 | Grade 2 - Good | 77 |

| California Revised Storie Index (CA)---Imperial County, California, Imperial Valley Area | | | |
|--|------------------|--------------------------------------|-------|
| Map symbol and soil name | Pct. of map unit | California Revised Storie Index (CA) | |
| | | Rating class | Value |
| 123—Meloland and Holtville loams, wet | | | |
| Holtville, WET | 40 | Grade 2 - Good | 77 |
| Meloland, WET | 40 | Grade 2 - Good | 77 |
| 132—Rositas fine sand, 0 to 2 percent slopes | | | |
| Rositas | 85 | Grade 3 - Fair | 52 |
| 135—Rositas fine sand, wet, 0 to 2 percent slopes | | | |
| Rositas, WET | 85 | Grade 3 - Fair | 55 |
| 142—Vint loamy very fine sand, wet | | | |
| Vint, WET | 90 | Grade 2 - Good | 73 |
| 144—Vint and Indio very fine sandy loams, wet | | | |
| Vint, WET | 50 | Grade 2 - Good | 77 |
| Indio, WET | 40 | Grade 1 - Excellent | 88 |
| 145—Water | | | |
| Water | 100 | Not Applicable for Storie Index | |

Data Source Information

Soil Survey Area: Imperial County, California, Imperial Valley Area
 Survey Area Data: Version 8, Sep 12, 2016