

**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**

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## **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**

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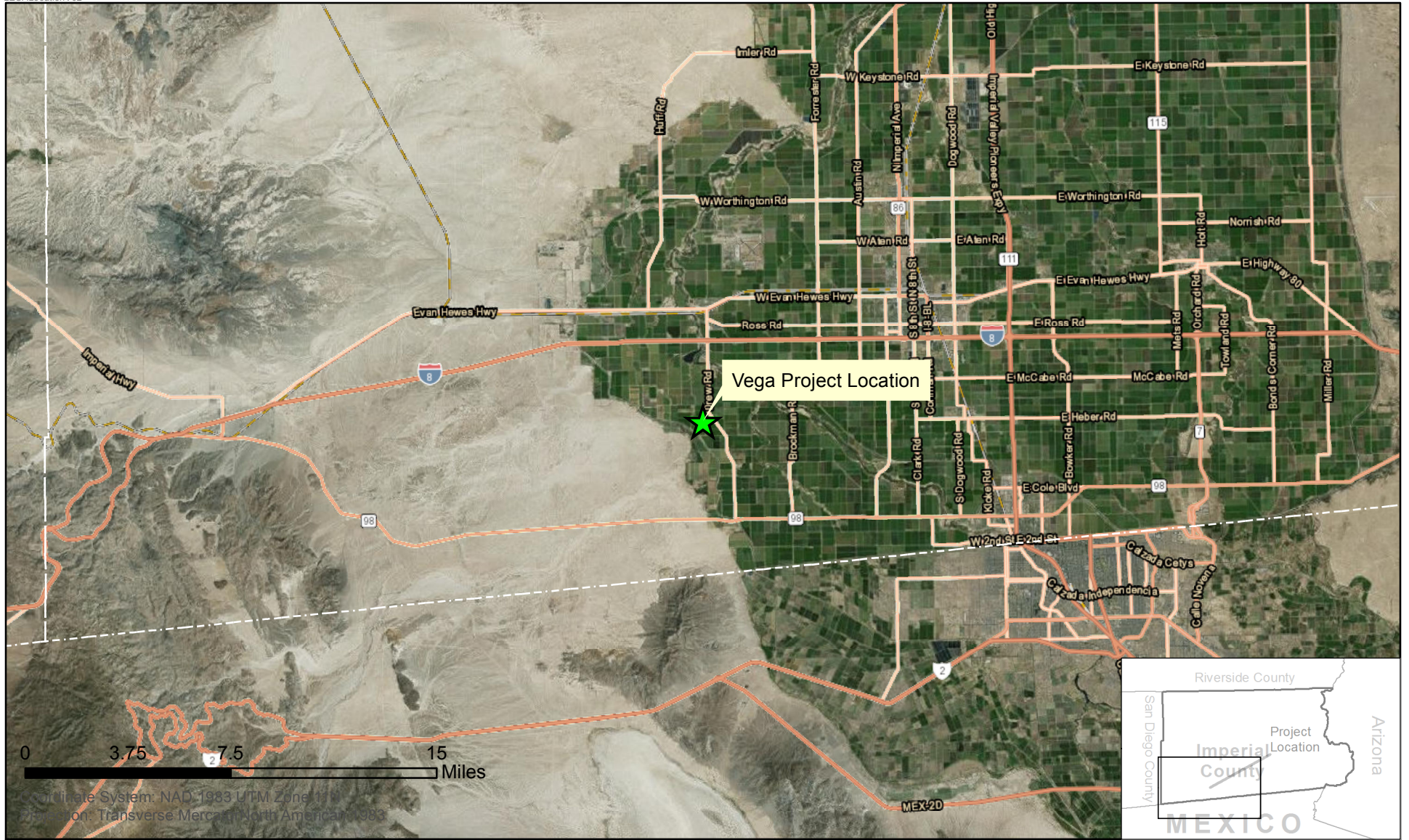
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Date: 10/4/2017  
 Author: Carey, D.




ENVIRONMENTAL MANAGEMENT ASSOCIATES

**Vega SES LLC Solar Project**

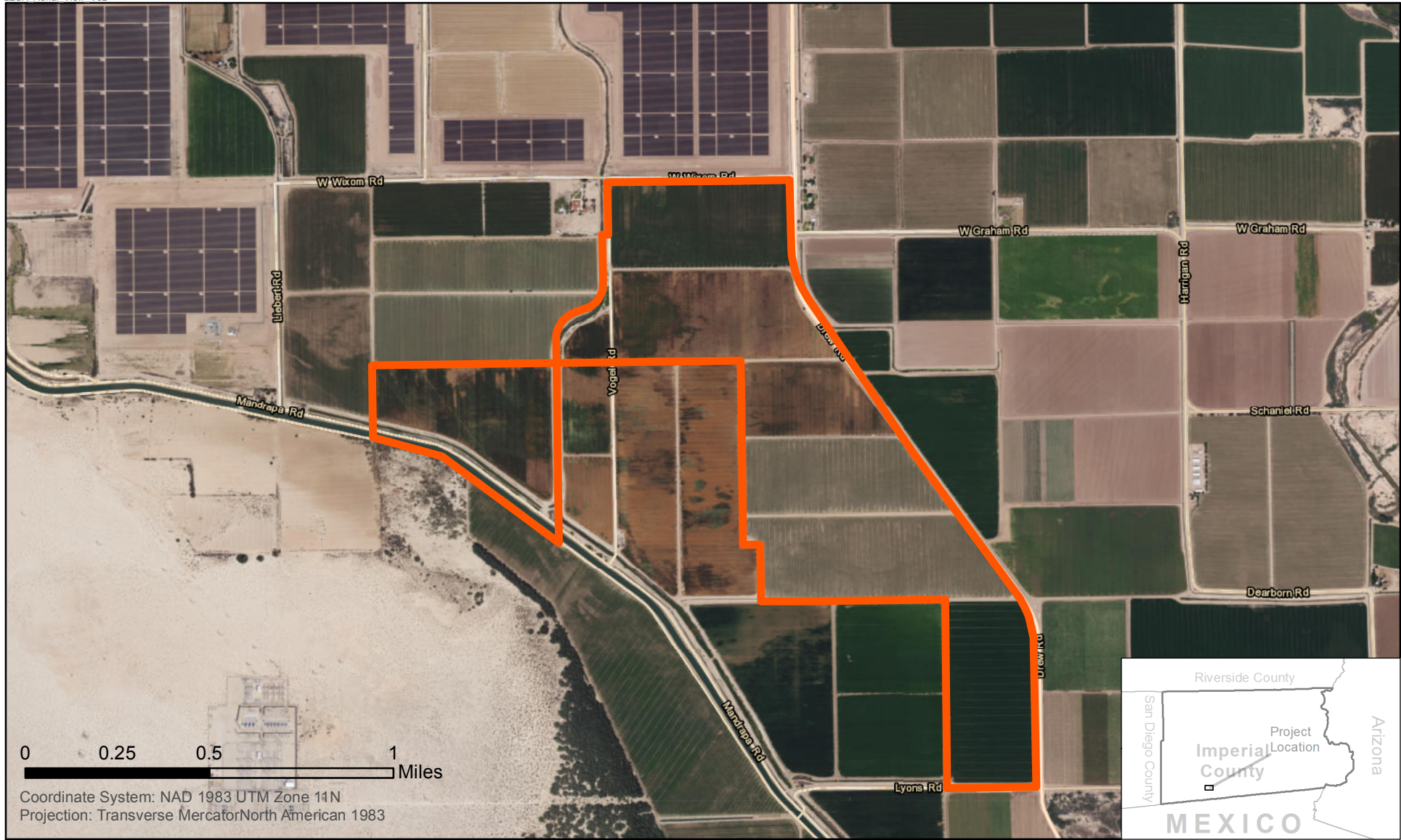
Location Map



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
<b>Totals</b>	574.5	1.000		<b>LCC Total Score</b>	74.46	<b>Storie Index Total Score</b>	69.74
<b>Total Project Area (acres)=</b>	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: <a href="http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx">http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx</a> (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: <a href="http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx">http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx</a> (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)

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%
<b>Totals for Area of Interest</b>				<b>574.5</b>	<b>100.0%</b>



	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		
<b>Total Project Acres per LCC Class</b>	<b>430.4</b>	<b>139.1</b>	<b>0.0</b>
<b>* Project Size Scores</b>	<b>100</b>	<b>90</b>	<b>0</b>
<b>Highest Project Size Score</b>			
	<b>100</b>		
* Project Size Score was determined from the Project Size Scoring Table from the LESA Instruction Manual (California Department of Conservation 1997).			



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

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 Protected Resource Land 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
<b>Total</b>	<b>4168.6</b>		<b>Total</b>	<b>830</b>		<b>Total</b>	<b>2445</b>
***The Imperial County Assessors website was accessed to identify the surrounding parcel numbers ( <a href="http://www.co.imperial.ca.us/assessor/">http://www.co.imperial.ca.us/assessor/</a> ). 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.							



Final LESA Score Sheet				California LESA Model Scoring Thresholds	
	Factor Scores	Factor Weight	Weighted Factor Scores	Total LESA Score	Scoring Decision
<b>LE Factors</b>					
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		
<b>SA Factors</b>					
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		
		<b>Total LESA Score</b>	<b>72.05</b>	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