

**LESA ASSESSMENT
LAUREL 2 SOLAR PROJECT
(T16S, R12E, S22, S26 & S27, SBB&M)**

IMPERIAL COUNTY, CALIFORNIA

September 2017

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Prepared for:

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ENVIRONMENTAL MANAGEMENT ASSOCIATES

LAND EVALUATION AND SITE ASSESSMENT MODEL

LAUREL 2 SOLAR PROJECT (T16S, R12E, S22, S26 & S27, 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 Laurel 2 Solar Project (Project) (APNs 051-300-032 (portion), 051-300-036, 051-310-027, 051-310-028). The proposed Laurel 2 Solar Project would be constructed on approximately 280 acres of privately owned land located approximately 10 miles southwest of El Centro, west of the Derrick Road, east of Westside Road, north of West Diehl Road and approximately ½ mile south of Interstate 8 (Figure 1 and Figure 2).

LESA ASSESSMENT
LAUREL 2 SOLAR PROJECT
IMPERIAL COUNTY, CALIFORNIA

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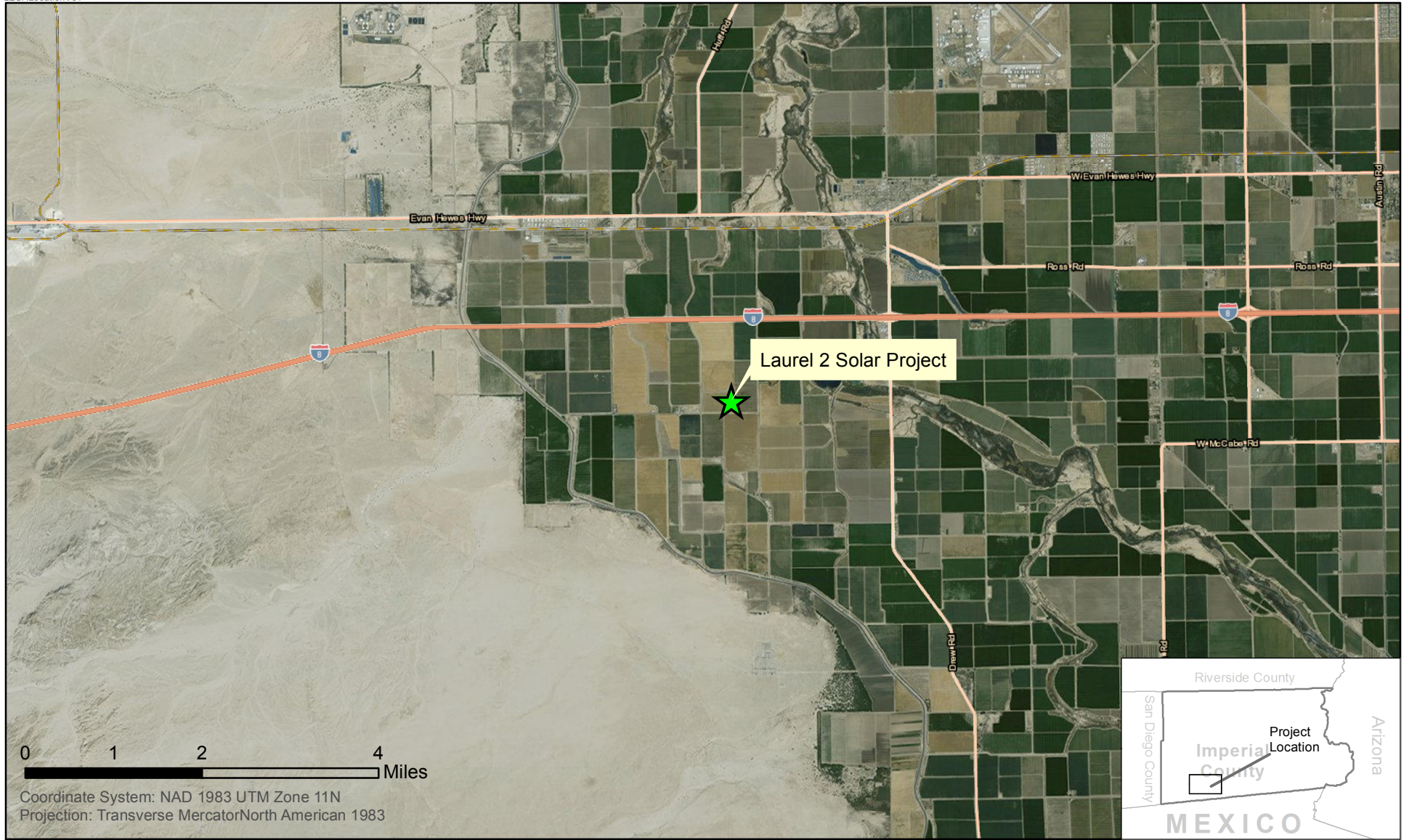
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Date: 9/3/2017
Author: Carey, D.



ENVIRONMENTAL MANAGEMENT ASSOCIATES

Laurel 2 Solar Project

Location Map

 Project Location

Figure 1: Location Map

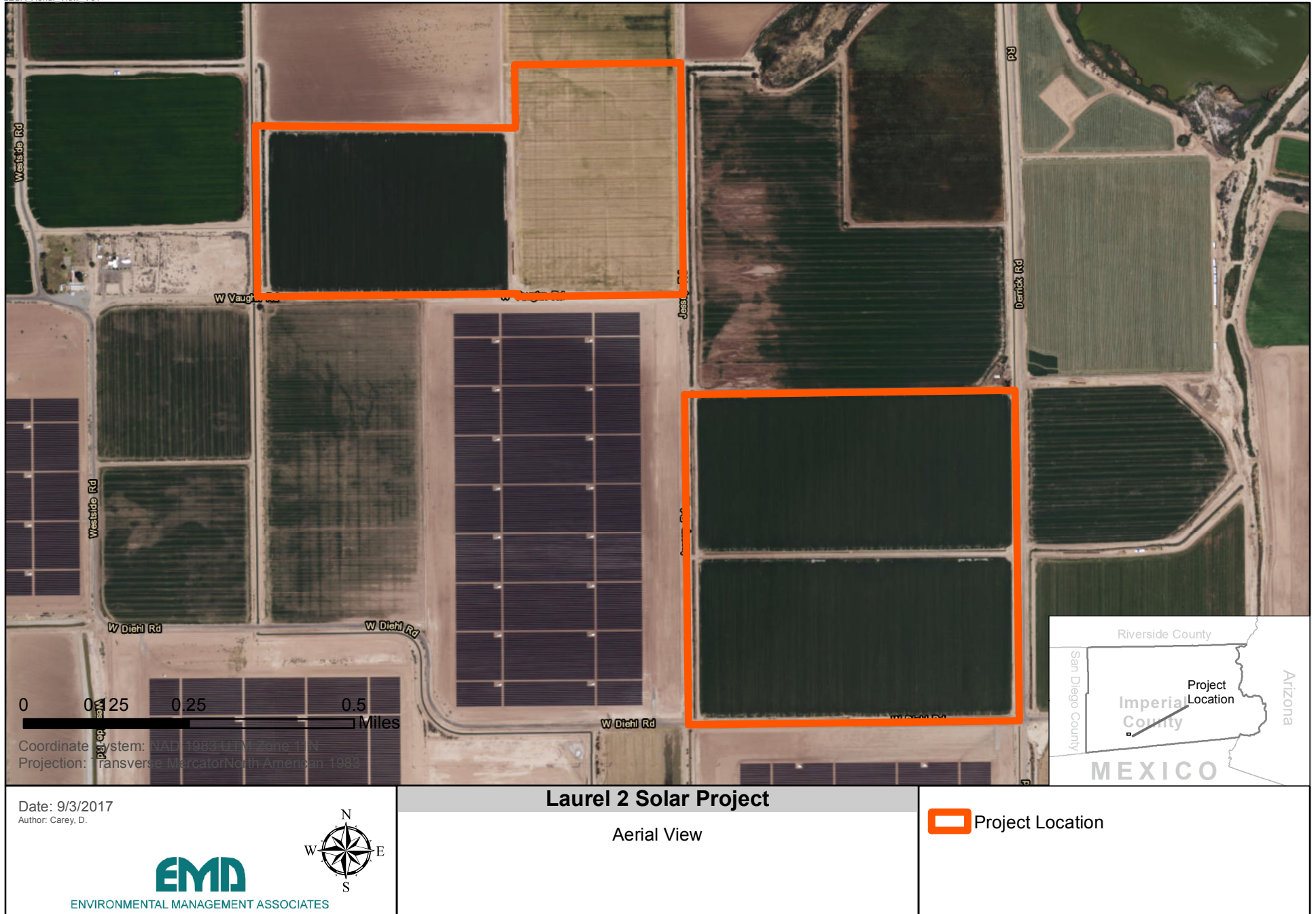


Figure 2 : Development Area on an Aerial Photographic Base

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	20.1	0.072	IIw	80	5.76	46	3.31
114	178.2	0.636	IIIw	60	38.16	36	22.90
115	61.5	0.220	IIIw	60	13.20	68	14.96
122	9.7	0.035	IIIw	60	2.10	77	2.70
123	1.4	0.005	IIIw	60	0.27	77	0.35
142	8.9	0.032	IIw	80	2.52	73	2.30
144	0.3	0.001	IIw	80	0.08	77	0.08
Totals	280.1	1.000		LCC Total Score	62.09	Storie Index Total Score	46.59
Total Project Area (acres)=	280.1						
* 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 — #1, 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%)	20.1	7.2%
114	Imperial silty clay, wet	Grade 4 - Poor	Imperial, WET (85%)	19.7	7.0%
115	Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes	Grade 2 - Good	Glenbar, WET (40%) Meloland (10%)	59.9	21.4%
122	Meloland very fine sandy loam, wet	Grade 2 - Good	Meloland, WET (85%)	9.7	3.5%
123	Meloland and Holtville loams, wet	Grade 2 - Good	Meloland, WET (40%) Holtville, WET (40%)	1.4	0.5%
142	Vint loamy very fine sand, wet	Grade 2 - Good	Vint, WET (90%) Meloland (5%)	8.9	3.2%
144	Vint and Indio very fine sandy loams, wet	Grade 2 - Good	Vint, WET (50%) Meloland (5%)	0.3	0.1%
Subtotals for #1				120.1	42.9%
Summary by Map Unit — #2, Imperial County, California, Imperial Valley Area (CA683)					
Map unit symbol	Map unit name	Rating	Component name (percent)	Acres in AOI	Percent of AOI
114	Imperial silty clay, wet	Grade 4 - Poor	Imperial, WET (85%)	158.5	56.6%
115	Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes	Grade 2 - Good	Glenbar, WET (40%) Meloland (10%)	1.6	0.6%
Subtotals for #2				160.1	57.1%
Totals for Area of Interest				280.1	100.0%

Figure 3: Development Area Soils Map

	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>	20.1		
<i>Project Acres per LCC Class</i>		178.2	
<i>Project Acres per LCC Class</i>		61.5	
<i>Project Acres per LCC Class</i>		9.7	
<i>Project Acres per LCC Class</i>		1.4	
<i>Project Acres per LCC Class</i>	8.9		
<i>Project Acres per LCC Class</i>	0.3		
Total Project Acres per LCC Class	29.3	250.8	0.0
* Project Size Scores	50	100	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
* 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*					Surrounding Agricultural Land Score (From LESA Manual Table 6)	Surrounding Protected Resource Land Score (From LESA Manual Table 7)**
Total Acres	Acres in Agriculture	Acres of Protected Resource Land	Percent in Agriculture (B/A)	Percent Protected Resource Land (C/A)		
1640.8	934	0	56.9	0	40	0

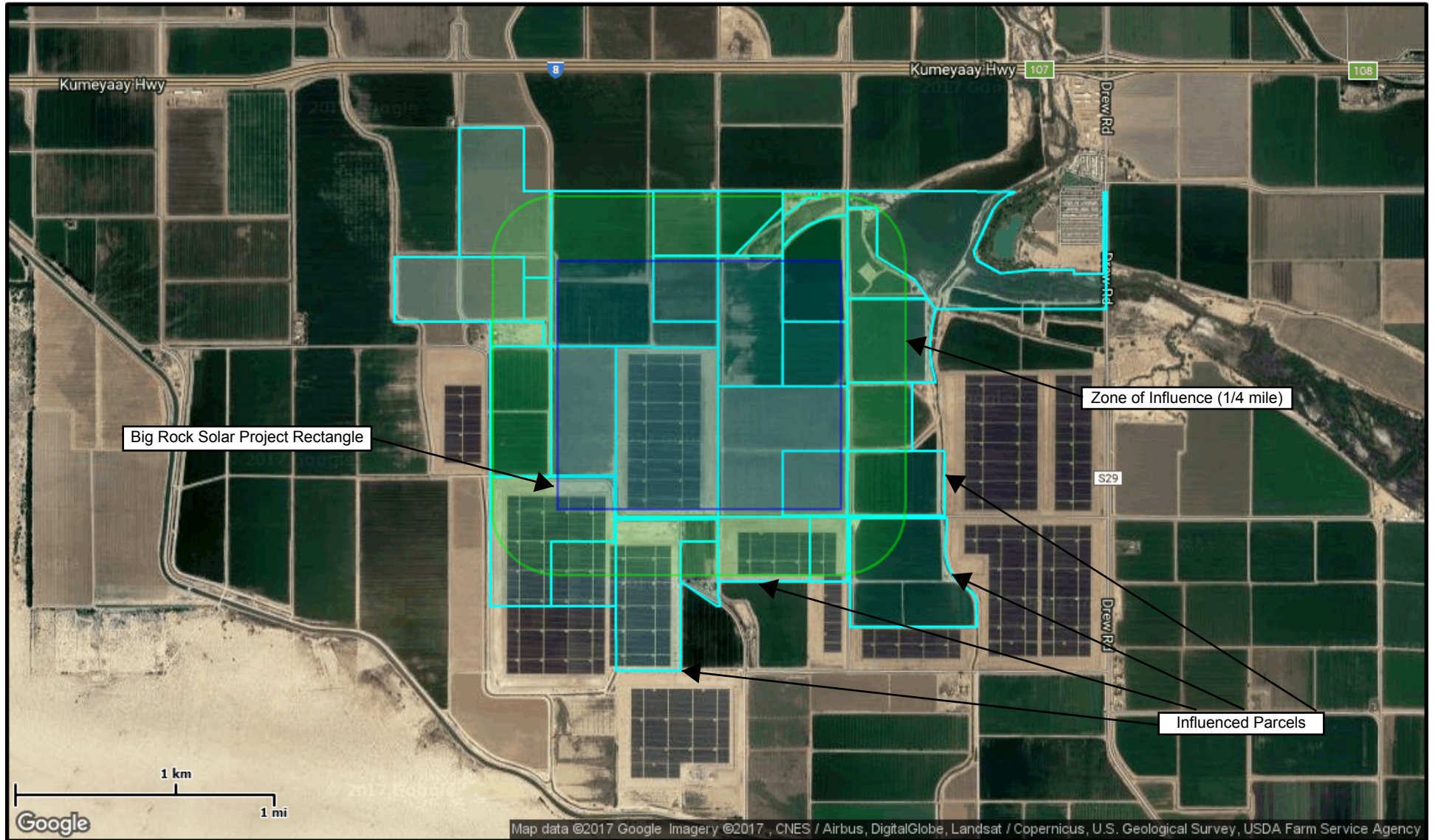
* In conformance with the instructions in the LESA Instruction Manual (California Department of Conservation 1997), the Zone of Influence was determined by drawing the smallest rectangle that could completely encompass the entire Project Area. A second rectangle was then drawn which extended one quarter 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).

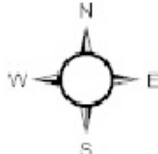

** The LESA Instruction Manual (California Department of Conservation 1997) describes *Protected Resource Land* as those lands with long term use restrictions that are compatible with or supportive of agricultural uses of land. Included among them are the following: Williamson Act contracted lands; Publicly 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
051-270-020	101.9	N	0	0	Y	100	101.9
051-300-004	11.3	N	0	0	Y	30	3.4
051-300-005	80.1	N	0	0	Y	95	76.1
051-300-008	79.9	N	0	0	Y	100	79.9
051-300-009	76.0	N	0	0	Y	98	74.5
051-300-011	79.6	N	0	0	Y	100	79.6
051-300-025	164.9	N	0	0	N	0	0.0
051-300-026	13.5	N	0	0	Y	77	10.4
051-300-027	12.6	N	0	0	N	0	0.0
051-300-034	4.7	N	0	0	N	0	0.0
051-300-035	40.4	N	0	0	Y	100	40.4
051-300-037	29.0	N	0	0	Y	100	29.0
051-310-002	16.3	N	0	0	N	0	0.0
051-310-023	60.3	N	0	0	Y	100	60.3
051-310-026	40.2	N	0	0	Y	100	40.2
051-310-050	42.4	N	0	0	Y	100	42.4
051-310-053	38.1	N	0	0	Y	75	28.6
051-310-054	65.3	N	0	0	Y	94	61.4
051-310-055	59.3	N	0	0	Y	98	58.1
051-310-062	155.0	N	0	0	Y	10	15.5
051-330-015	115.0	N	0	0	N	0	0.0
051-330-016	0.9	N	0	0	N	0	0.0
051-330-017	2.6	N	0	0	Y	30	0.8
051-330-019	101.8	N	0	0	Y	8	8.1
051-330-020	40.0	N	0	0	N	0	0.0
051-330-023	18.8	N	0	0	Y	68	12.8
051-360-001	57.1	N	0	0	N	0	0.0
051-360-002	23.2	N	0	0	N	0	0.0
051-360-005	110.9	N	0	0	Y	100	110.9
Total	1640.8		Total	0		Total	934

***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>Laurel 2 Solar Project 09/04/2017</p>		
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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	62.09	0.25	15.52	0 to 39 Points	Not Considered Significant
Storie Index	46.59	0.25	11.65		
LE subtotal		0.50	27.17		
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	63.17	80 to 100 Points	Considered Significant

APPENDIX A: LAUREL 2 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

115—Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: h8zp

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: 40 percent

Glenbar, wet, and similar soils: 40 percent

Minor components: 20 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 loam

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

Runoff class: Low

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

Moderately high (0.20 to 0.57 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 8.6 inches)

Interpretive groups

Land capability classification (irrigated): 3w

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

Description of Glenbar, Wet

Setting

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

Typical profile

H1 - 0 to 13 inches: silty clay loam
H2 - 13 to 60 inches: clay loam

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):
Moderately high (0.20 to 0.57 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: 15.0
Available water storage in profile: High (about 10.8 inches)

Interpretive groups

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

Minor Components

Holtville

Percent of map unit: 10 percent
Hydric soil rating: No

Meloland

Percent of map unit: 10 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

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

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

115—Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: h8zp

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: 40 percent

Glenbar, wet, and similar soils: 40 percent

Minor components: 20 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 loam

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

Runoff class: Low

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

Moderately high (0.20 to 0.57 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 8.6 inches)

Interpretive groups

Land capability classification (irrigated): 3w

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

Description of Glenbar, Wet

Setting

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

Typical profile

H1 - 0 to 13 inches: silty clay loam
H2 - 13 to 60 inches: clay loam

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):
Moderately high (0.20 to 0.57 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: 15.0
Available water storage in profile: High (about 10.8 inches)

Interpretive groups

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

Minor Components

Holtville

Percent of map unit: 10 percent
Hydric soil rating: No

Meloland

Percent of map unit: 10 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

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
115—Imperial-Glenbar silty clay loams, wet, 0 to 2 percent slopes			
Glenbar, WET	40	Grade 2 - Good	68
Imperial, WET	40	Grade 3 - Fair	57

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
122—Meloland very fine sandy loam, wet			
Meloland, WET	85	Grade 2 - Good	77
123—Meloland and Holtville loams, wet			
Holtville, WET	40	Grade 2 - Good	77
Meloland, WET	40	Grade 2 - Good	77
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

Data Source Information

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