

City of Menifee

**AGRICULTURAL LAND EVALUATION
AND SITE ANALYSIS (LESA)**

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EXECUTIVE SUMMARY / SUMMARY OF FINDINGS

Tom Dodson and Associates (TDA) was contracted to conduct a Land Evaluation and Site Analysis (LESA) for the Rockport Ranch Project in Menifee, California. LESAs are a term used to define an approach for rating the relative quality of land resources based upon specific measurable features. The formulation of a California Agricultural LESAs Model is the result of Senate Bill 850 (Chapter 812/1993), which charges the Resources Agency, in consultation with the Governor's Office of Planning and Research, with developing an amendment to Appendix G of the California Environmental Quality Act (CEQA) Guidelines concerning agricultural lands. Such an amendment is intended "to provide lead agencies 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" (Public Resources Code Section 21095).

The California Agricultural LESAs Model is composed of six different factors. Two (2) Land Evaluation factors are based upon ratings of soil resource quality. Four (4) Site Assessment factors provide measures of a given site's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, each of these factors is separately rated on a 100 point scale. The factors are then weighted relative to one another and combined, resulting in a single numeric score for a given project, with a maximum attainable score of 100 points. It is this project score that becomes the basis for making a determination of a project's potential significance, based upon a range of established scoring thresholds.

A single LESAs score is generated for a given project after all of the individual LESAs factors have been scored and weighted. Just as with the scoring of individual factors that comprise the California Agricultural LESAs Model, final project scoring is based on a scale of 100 points, with a given project being capable of deriving a maximum of 50 points from the Land Evaluation factors and 50 points from the Site Assessment factors.

The California Agricultural LESAs Model is designed to make determinations of the potential significance of a project's conversion of agricultural lands during the Initial Study phase of the CEQA review process. Scoring thresholds are based upon the total LESAs score, as well as the component LE and SA "sub-scores." In this manner the scoring thresholds are dependent upon the attainment of a minimum score for the LE and SA sub-scores so that a single threshold is not the result of heavily skewed sub-scores (i.e., a site with a very high LE score, but a very low SA score, or vice versa). The table below presents the California Agricultural LESAs scoring thresholds.

**Table 1
CALIFORNIA AGRICULTURAL LESA SCORING THRESHOLDS**

Total LESA Score	Scoring Decision
0 to 39 Points	Not considered significant
40 to 59 Points	Considered significant only if LE and SA sub-scores are each greater than or equal to 20 points
60 to 79 Points	Considered significant unless either LE or SA sub-scores is less than 20 points
80 to 100 Points	Considered significant

The result of the LESA analysis for this site in Menifee was an overall LESA score of 40.357. According to the LESA Model scoring thresholds, agricultural resource impacts associated with a LESA score of 40.357, which is not considered to be a significant impact, because the Land Evaluation Score and the Site Assessment scores are not both greater than 20. The conversion of the project site to residential use is, therefore, not considered a significant adverse impact to agricultural resources.

FIGURE 1. Site Map



INTRODUCTION / ENVIRONMENTAL SETTING

The proposed project encompasses approximately 78 acres of land located in the City of Menifee, Riverside County. As presently proposed, the project proponent has prepared a draft specific plan (the Rockport Ranch SP No. 2016-286), that would allow conversion of this former dairy/agricultural property to be comprised of two main land uses; a residential land use component and an open space land use component. These individual land uses will be subdivided to accommodate two forms of residential development and two forms of open space use. Residential land uses will be a mix of single-family homes and single-family courtyard residential development with each type located in clusters of like products. Open space also will be subdivided into two categories; passive open space (landscaping, bio-retention basins, open turf areas, and the large lake feature) and recreational open space (trails, community pool area, tot lots, barbeque stations, etc.).

The proposed project site, Rockport Ranch, is located in the eastern portion of the City of Menifee. The project site is bounded as follows: Old Newport Road and Tierra Shores residential development to the north; Wilderness Lakes RV Resort to the south; Briggs Road, Ramona Egg Ranch and agricultural land to the east; and The Lakes residential development to the west. The Project site and surrounding area is a mixture between residential, specific plan, agricultural, recreational, and vacant land uses.

The project site is situated at the southwest corner of Briggs Road and Old Newport Road in the City of Menifee. Historically, a commercial dairy was located on the site. Operation of the dairy ceased in 2014 and the buildings and infrastructure associated with the dairy have since started to be removed. In September of 2017 demolition and grading permits were granted by the City of Menifee to demolish the remaining foundations of the dairy processing facilities. Demolition of the concrete on site restarted in October of 2017. Concrete was broken down in size (based on geotechnical recommendations) and was placed as engineered fill into two of the three deep existing settling basins located in the southwesterly region of the Project site. The demolition process was completed in November of 2017. Four homes associated with the dairy are situated at the northern end of the site, along Old Newport Road.

Climate / Meteorology

Local climatic conditions in the project area are characterized by warm summers, mild winters, and infrequent rainfall. The average annual precipitation is about 11 inches, falling primarily from November to April (Western Regional Climate Center 2016). Winter low temperatures in the project area average about 37 degrees Fahrenheit (°F), and summer high temperatures average about 96°F.

The dominant meteorological feature affecting the region is the Pacific High Pressure Zone, which produces the prevailing westerly to northwesterly winds. These winds tend to blow pollutants away from the coast toward the inland areas. Consequently, air quality near the coast is generally better than that which occurs at the base of the coastal mountain range.

The prevailing westerly wind pattern is sometimes interrupted by regional “Santa Ana” conditions. A Santa Ana occurs when a strong high pressure develops over the Nevada–Utah area and overcomes the prevailing westerly coastal winds, sending strong, steady, hot, dry northeasterly winds over the mountains and out to sea.

Soils

The following soils are identified in the United States Department of Agriculture (USDA) Natural Resources Conservation Service Web Soil Survey National Cooperative Soil Survey as occurring on the project site. Please refer to Figure 2, which is a reproduction of the page in the Soil Survey showing the soils on the property.

Soil Types on the Project Site

Domino fine sandy loam, saline-alkali **(Dt)**

Domino silt loam, saline-alkali **(Dv)**

Exeter sandy loam, 0 to 2 percent slopes **(EnA)**

Exeter sandy loam, slightly saline-alkali, 0 to 5 percent slopes **(EoB)**

Exeter sandy loam, deep, 0 to 2 percent slopes **(EpA)**

Exeter very fine sandy loam, 0 to 5 percent slopes **(EwB)**

Exeter very fine sandy loam, deep, 0 to 5 percent slopes **(EyB)**

Waukena loam, saline-alkali **(Wd)**

FIGURE 2: Soils Map



USDA Natural Resources Conservation Service

Web Soil Survey National Cooperative Soil Survey

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LESA WORKSHEET (LAND EVALUATION PORTION)

The overall point score for this project is 40.357, which is below the thresholds of significant impact. The project is 78 acres, consisting of 8 different soil types. The following assumptions of specific soils acreages were made (refer to Figure 3 for soil type percentage and acreage assumptions).

Storie index rating, which provides a numeric rating based on a 100 point scale of the relative degree of suitability or value of a given soil for intensive agriculture; the rating is based upon soil characteristics only. The Storie index rating is based on soil characteristics and is obtained by evaluating soil surface and subsurface chemical and physical properties, as well as landscape surface features. Not considered in the rating are availability of water for irrigation, local climate, size and accessibility of mapped areas, distance to markets and other factors that might determine the desirability of growing certain plants in a given locality. Therefore, the index should not be used as the only indicator of land value. Where the local economic and geographic factors are known to the user, however, the Storie index may provide additional objective information for land tract value comparisons.

Four general factors are used in determining the index rating:

- A. Permeability, available water capacity, and the depth of the soil
- B. Texture of the surface soil
- C. Dominant slope of the soil body
- D. Other conditions more readily subject to management or modification by the land user. In this area these conditions include drainage and flooding, salinity and alkalinity, fertility, acidity, erosion, and microrelief. For some soils, more than one of these conditions is used in determining the rating.

Land Capability Classification (LCC) includes eight classes of land designated by Roman numerals I thru VIII. The first four classes are arable land—suitable for cropland—in which the limitations on their use and necessity of conservation measures and careful management increase from I thru IV. The criteria for placing a given area in a particular class involve the landscape location, slope of the site, depth, texture, and the reaction of the soil. The remaining four classes, V thru VIII, are not to be used for cropland, but may have uses for pasture, range, woodland, grazing, wildlife, recreation, and esthetic purposes. Within the broad classes are subclasses, which signify special limitations such as (e) erosion, (w) excess wetness, (s) problems in the rooting zone, and (c) climatic limitations. Within the subclasses are the capability units, which give some prediction of expected agricultural yields and indicate treatment needs. The capability units are groupings of soils that have common responses to pasture and crop plants under similar systems of farming.

The following LCC scores and Storie Index Scores were assumed for each specific soil type (identified in Table 2).

The Land Capability Classification Score total is 54.8, is the number value used in box <1> of the Factor Scores on the Final LESA Score Sheet. The Storie Index Score Total, 34.628, is the number value used in box <2> of the Factor Scores on the Final LESA Score Sheet. The sum of these numbers, 89.428, is the Land Evaluation (LE) subtotal. Once multiplied by the Weight

Factors, the total Weighted Factor Score can be obtained for the Land Evaluation (LE) portion of the LESA worksheet.

**Table 2
LAND CAPABILITY CLASSIFICATION AND STORIE INDEX SCORES**

Soil Type	Project Acres	Proportion of Project Area (%)	LCC	LCC Rating¹	LCC Score²	Storie Index³	Storie Index Score⁴
Dt	8.9	11.4	III _s	60	6.84	17	1.938
Dv	6.3	8.0	III _s	60	4.8	17	1.36
EnA	19.8	25.4	III _s	60	15.24	34	8.636
EoB	11.1	14.3	III _s	60	8.58	26	3.718
EpA	7.4	9.5	III _e	70	6.65	34	3.2
EwB	0.2	0.3	III _e	70	.21	34	0.102
EyB	0.6	0.8	IV _e	50	.4	34	0.272
Wd	23.6	30.2	IV _s	40	12.08	51	15.402
TOTAL		100% 78 acres		LCC TOTAL SCORE	54.8	STORIE INDEX TOTAL	34.628

¹ LCC Ratings listed on page A-1 of the LESA Manual

(<http://www.conservation.ca.gov/dlrp/lesa/Documents/lesamodl.pdf>)

² LCC scores are obtained by multiplying the LCC rating by the Proportion of Project Area

³ As defined by the United States Department Of Agricultural Western Riverside Area Soil Survey

⁴ Storie Index Scores are obtained by multiplying the Storie Index by the Proportion of Project Area

LESA WORKSHEET (SITE ASSESSMENT PORTION)

The following project site scores were assumed for this project (Table 3).

**Table 3
PROJECT SIZE SCORES**

Soil Type	Acres:	LCC Class I-II	LCC Class III	LCC Class IV-VIII
Dt	Acres:		8.9	
Dv	Acres:		6.3	
EnA	Acres:		19.8	
EoB	Acres:		11.1	
EpA	Acres:		7.4	
EwB	Acres:		.2	
EyB	Acres:			.6
Wd	Acres:			23.6
	Total Acres	0	53.7	24.2
	Project Size Scores	0	60	0

Highest Project Size Score = 100
 (Project Size Scoring Table found on page A-3 of LESA Manual
<http://www.conservation.ca.gov/dlrp/lesa/Documents/lesamodl.pdf>)

The highest Project Size Score, 60, is the number value used in box <3> of the Factor Scores on the Final LESA Score Sheet. The Project Size Score is determined by the acreage of each specific soil type being assigned a number value.

The Water Resource Availability Score is based on the types of irrigation or availability of water for irrigation present on the project site, including a determination of whether there is dryland agriculture activity as well. Based on the Water Resource Availability Scoring Table (LESA Manual pg. A-6 <http://www.conservation.ca.gov/dlrp/lesa/Documents/lesamodl.pdf>), the project site is classified as Option 11. Option 11 is defined as land where in non-drought years irrigated production is feasible; however, physical and economic restrictions exist. In drought years, irrigated production is not feasible. This is because the well that supplies water on site contains high levels of Total Dissolved Solids (TDS) over 2,000 parts per million (ppm), which is considered severe and will restrict crop growth. The well water would need to be filtered or supplemented with potable City water and then blended. Both options are cost prohibitive for agricultural production. The final Water Resource Score for the project site is 30. This was obtained by multiplying the Proportion of Project Area by the Water Availability Score. The total Water Availability Score of 4.5 is the value of box <4> on the LESA Final Score Sheet (Table 6).

**Table 4
WATER RESOURCE SCORE**

Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score
Option 11	100%	30	30
		Total Water Resource Score	30

The Surrounding Agricultural Land Use Score is determined by the amount of surrounding land that is either being used for agriculture, or is protected resource land. The LESA Manual specifies that a one-quarter mile area around each complete parcel must be used to identify the Project’s “Zone of Influence.” Thus, a quarter mile area around the perimeter of the project was surveyed, and finally all parcels within this quarter mile area were included and outlined to form the project site’s Zone of Influence and to calculate the percentage of the project site’s surrounding area that is used for agriculture and/or is classified as a Protected Resource Land. Once the surrounding land (or Zone of Influence) has been documented, the total acres of the surrounding land or “Zone of Influence” must be calculated (Table 5; refer to Figure 3). Then, from the total acres of the surrounding land (Figure 5), the amount of acres in agriculture, which were gathered from assessing the California Important Farmland Finder Project Area Map provided as Figure 4, and the amount of acres in protected resource land, which was gathered from using the Williamson Contract Land Map (Figure 6) and the City of Menifee General Plan Land Use Map (Figure 7), must be calculated. The total scores (Resource Land Score, 30, and the Protected Resource Score 0) on the Final LESA Score Sheet, box <5>, will represent the score of the Zone of Influence Resource Land Score and box with a value of 30 <6> will represent the total Zone of Influence Protected Resource Score and have a value of 0. This will give the proposed project a total Zone of Influence Score of 30.

**Table 5
ZONE OF INFLUENCE**

Total Acres	905
Acres in Agriculture ^{1, 2}	492.9
Acres of Protected Resource Land	0
Percent of Agriculture	54.4
Percent Protected Resource Land	0
Surrounding Agricultural Land Score	30
Surrounding Protected Resource Land Score	0
TOTAL Zone of Influence Score	30

(Surrounding Land Scoring Tables on page A-7, 9, of the LESA Manual
<http://www.conservation.ca.gov/dlrp/lesa/Documents/lesamodl.pdf>)

¹http://www.arcgis.com/home/webmap/viewer.html?url=https%3A%2F%2Fspatialservices.conservation.ca.gov%2Farcgis%2Frest%2Fservices%2FDLRP%2FCaliforniaImportantFarmland_mostrecent%2FFeatureServer&source=sd (Figure 4),

²<https://maps.conservation.ca.gov/dlrp/ciftimeseries/>

**Table 6
FINAL LESA SCORE SHEET**

	Factor Scores	Factor Weight	Weighted Factor Scores
LE Factors			
Land Capability Classification	<1> 54.8	0.25	13.7
Storie Index	<2> 34.628	0.25	8.657
LE Subtotal	-	-	22.357
SA Factors			
Project Size	<3> 60	0.15	9
Water Resource Availability	<4> 30	0.15	4.5
Surrounding Agricultural	<5> 30	0.15	4.5
Protected Resource Land	<6> 0	0.05	0
SA Subtotal	-	-	18.0
FINAL LESA Score			40.357

The total Site Assessment (SA) factor score for this project site is 120. The weighted subtotal for the Site Assessment portion of the LESA worksheet is 18.0. The total Land Evaluation (LE) factor score is 89.428 and the weighted subtotal of the Land Evaluation is 22.357. The total weighted score is 40.357, which is not considered to be a significant impact, because the Land Evaluation Score and the Site Assessment scores are not both greater than 20.

Presented in Table 6 is the Final LESA Score Sheet, which provides the factor scores and the factor weights, as well as the weighted factor scores. When combined, the score for this project is 40.357. Under the LESA threshold guidelines, 40.357 is not considered to be a significant impact from loss of agricultural resources, because the sub-scores for the Land Evaluation and the Site Assessment weighted factor ratings are not both individually greater than 20.

FIGURE 3: Zone of Influence Map

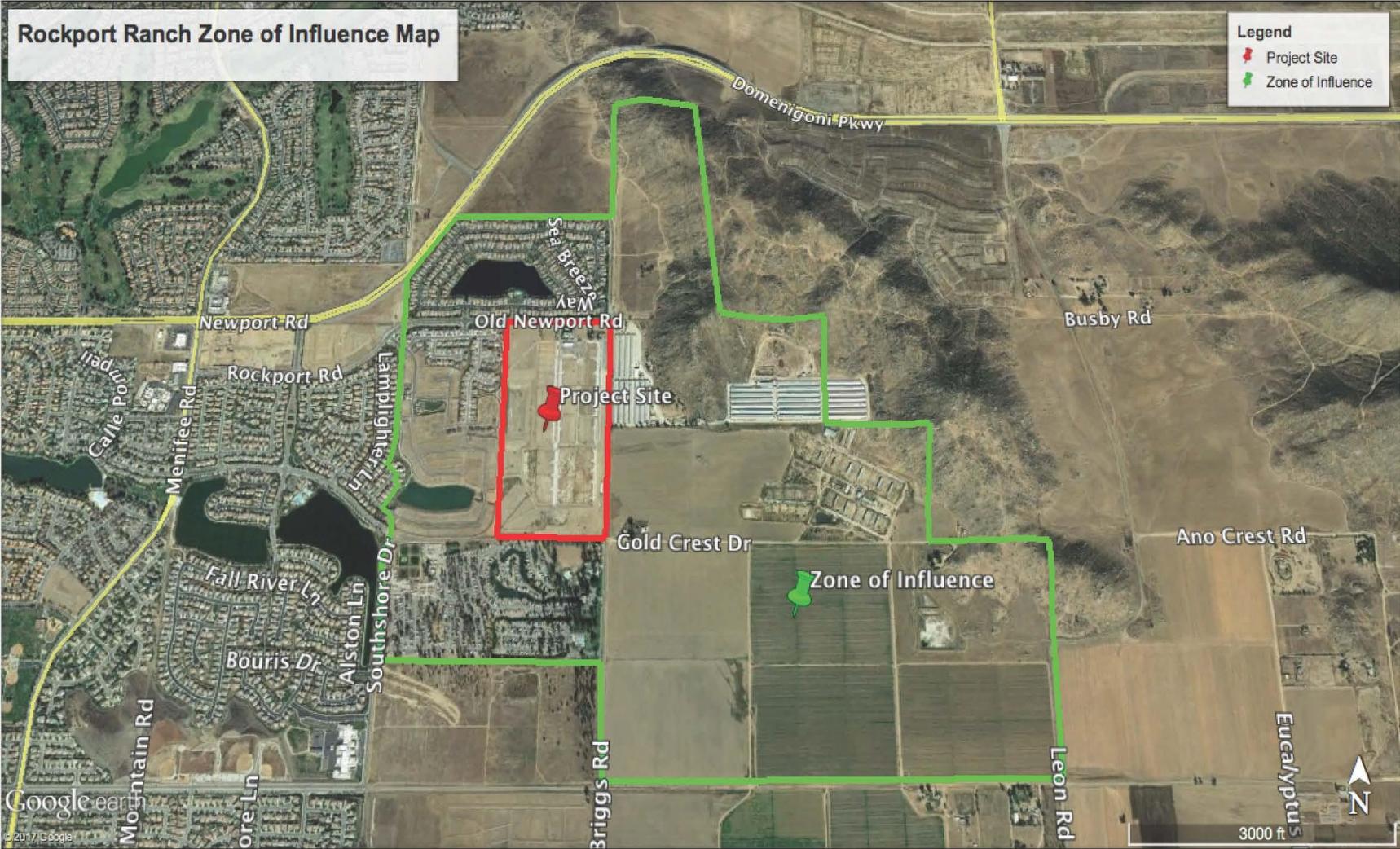


FIGURE 4: California Important Farmland Finder Project Area Map

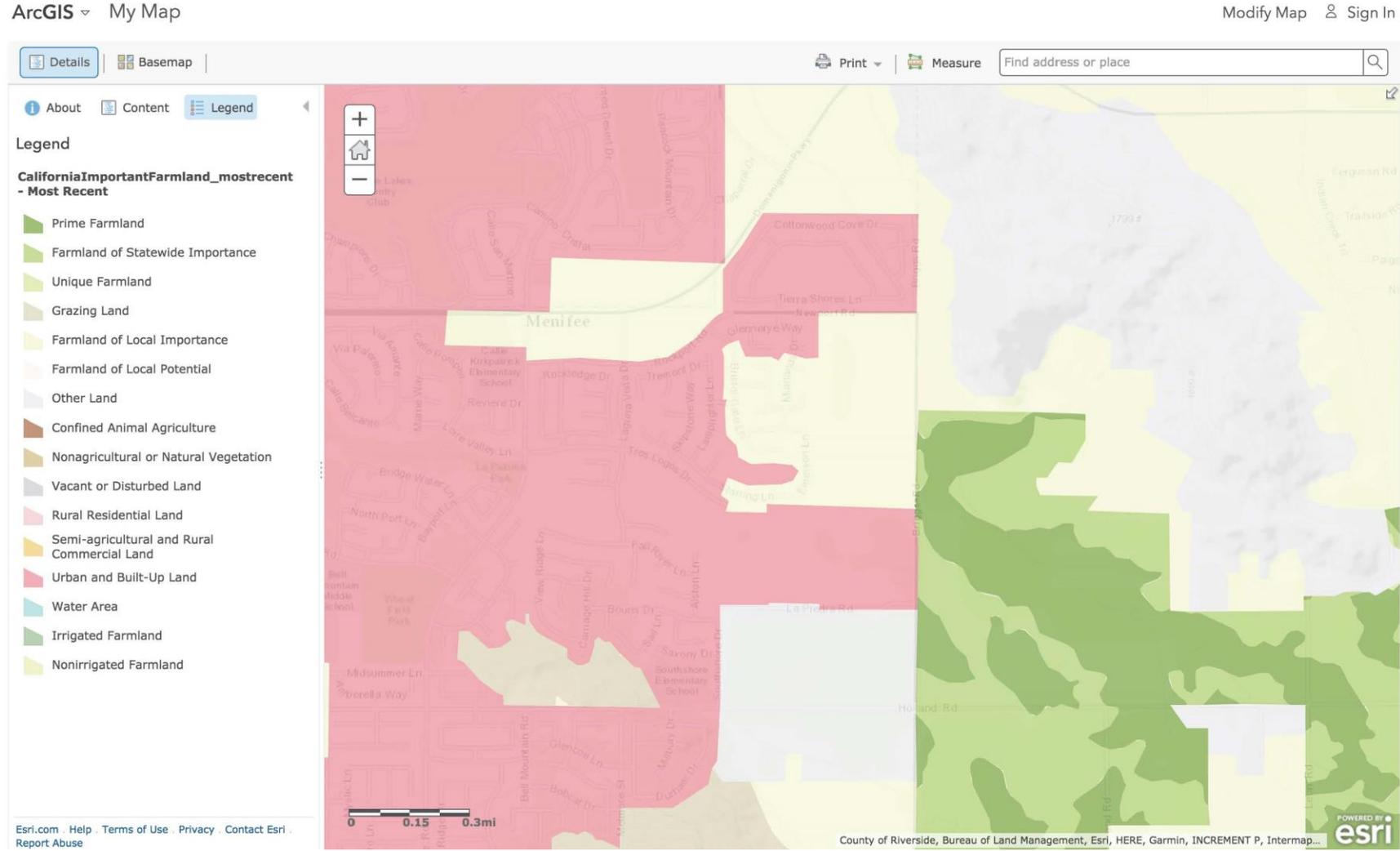
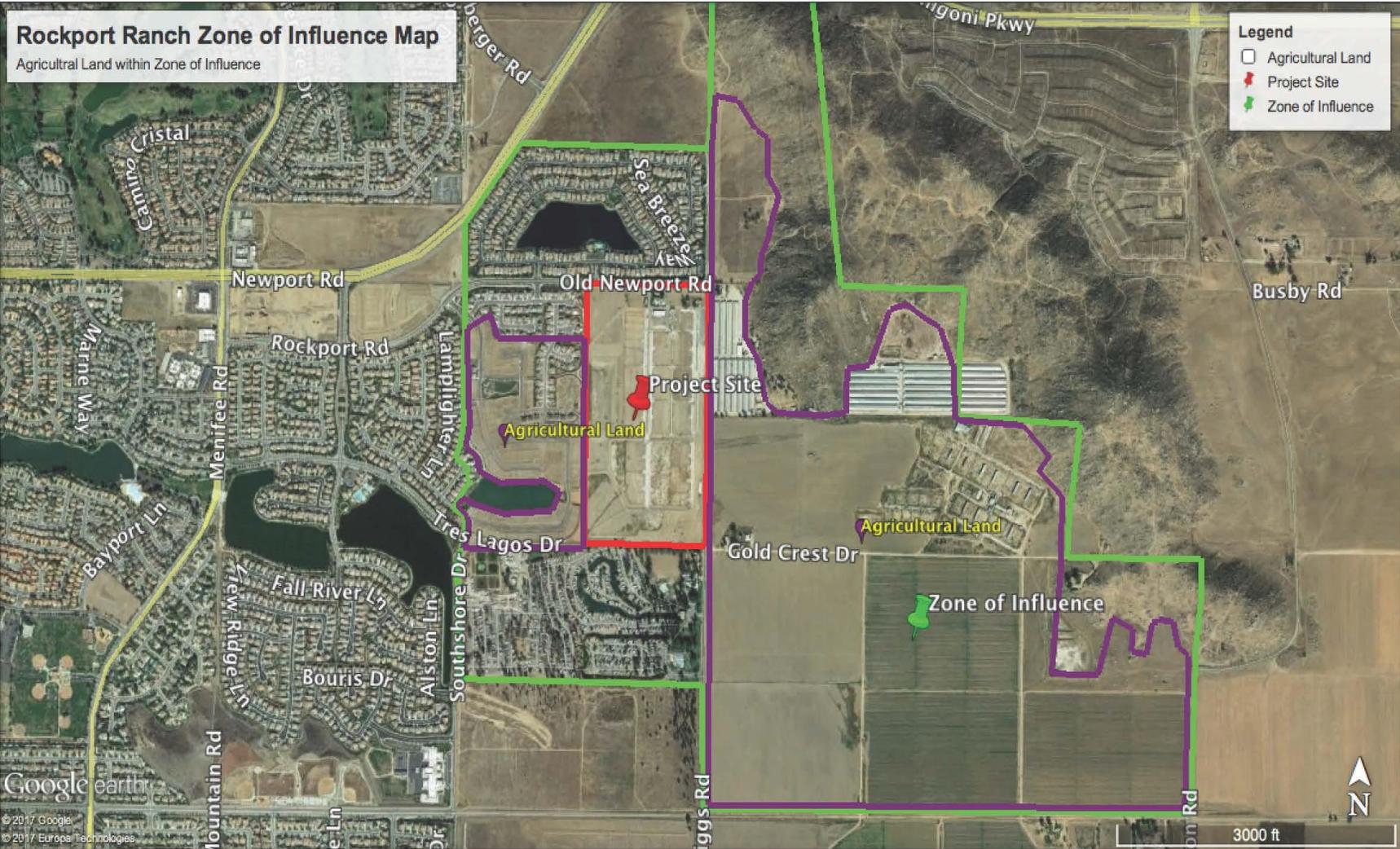


FIGURE 5: Agricultural Land Within Zone of Influence



CONCLUSION AND RECOMMENDATIONS

Implementation of the proposed project, Rockport Ranch, will not pose a significant impact to agricultural resources a result of being converted to urban use. Based on application of the California Agricultural LESA Model to the conversion of the project site, the project site’s overall point total of 40.357, which is not considered to be a significant impact, because the Land Evaluation Score and the Site Assessment scores are not both greater than 20. Therefore, the proposed project is below the thresholds of significance and will not require mitigation.

**Table 7
SCORING DECISION**

Total LESA Score	Scoring Decision
0 to 39 Points	Not Considered Significant
40 to 79 Points	Considered Significant only if LE and SA sub-scores are each greater than or equal to 20 points
60 to 79 Points	Considered Significant unless either LE or SA sub-scores is less than 20 points
80 to 100 Points	Considered Significant

REFERENCES

California Department of Agriculture. 1997. *California Agricultural Land Evaluation and Site Assessment Model Instruction Manual*.

California Department of Conservation; California Important Farmland Finder (8/17/17)
http://www.arcgis.com/home/webmap/viewer.html?url=https%3A%2F%2Fspatialservices.co%2Fconservation.ca.gov%2Farcgis%2Frest%2Fservices%2FDLRP%2FCaliforniaImportantFarmland_mostrecent%2FFeatureServer&source=sd

County of Riverside. 2015. *Riverside County General Plan*.

City of Menifee. 2013. *Menifee General Plan*

South Coast Air Quality District. 1993. *CEQA Air Quality Handbook*.

United State Department of Agriculture Natural Resources Conservation Service Web Soil Survey (8/16/17) <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

ATTACHMENT 1

Western Riverside Area, California

Dt—Domino fine sandy loam, saline-alkali

Map Unit Setting

National map unit symbol: hct6
Elevation: 1,000 to 1,800 feet
Mean annual precipitation: 12 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 230 to 280 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Domino and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Domino

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 14 inches: fine sandy loam
H2 - 14 to 27 inches: silt loam
H3 - 27 to 36 inches: cemented
H4 - 36 to 63 inches: loam, sandy loam
H4 - 36 to 63 inches:

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Natural drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Available water storage in profile: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: D
Ecological site: SANDY BASIN (R019XD070CA)
Hydric soil rating: No

Minor Components

Chino

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

Willows

Percent of map unit: 5 percent

Hydric soil rating: No

Dv—Domino silt loam, saline-alkali

Map Unit Setting

National map unit symbol: hct8

Elevation: 1,000 to 1,800 feet

Mean annual precipitation: 12 inches

Mean annual air temperature: 63 degrees F

Frost-free period: 230 to 280 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Domino and similar soils: 85 percent

Minor components: 15 percent

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

Description of Domino

Setting

Landform: Alluvial fans

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 14 inches: silt loam

H2 - 14 to 27 inches: silt loam

H3 - 27 to 36 inches: cemented

H4 - 36 to 63 inches: loam, sandy loam

H4 - 36 to 63 inches:

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: 20 to 40 inches to duripan

Natural drainage class: Moderately well drained

Runoff class: High

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

Depth to water table: More than 80 inches

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate, maximum in profile: 10 percent

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

Available water storage in profile: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: D

Ecological site: SILTY BASIN (R019XD068CA)

Hydric soil rating: No

Minor Components

Chino

Percent of map unit: 10 percent

Hydric soil rating: No

Willows

Percent of map unit: 4 percent

Hydric soil rating: No

Unnamed

Percent of map unit: 1 percent

Landform: Depressions

Hydric soil rating: Yes

EnA—Exeter sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hctg

Elevation: 20 to 700 feet

Mean annual precipitation: 7 to 20 inches

Mean annual air temperature: 61 to 64 degrees F

Frost-free period: 250 to 300 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Exeter and similar soils: 85 percent

Minor components: 15 percent

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

Description of Exeter

Setting

Landform: Alluvial fans

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 16 inches: sandy loam

H2 - 16 to 37 inches: sandy clay loam

H3 - 37 to 50 inches: indurated

H4 - 50 to 60 inches: stratified sandy loam to silt loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: 20 to 40 inches to duripan

Natural drainage class: Well drained

Runoff class: Low

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

Depth to water table: More than 80 inches

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate, maximum in profile: 1 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Ecological site: LOAMY (1975) (R019XD029CA)
Hydric soil rating: No

Minor Components

Greenfield

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

Ramona

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

Monserate

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

Unnamed

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

EoB—Exeter sandy loam, slightly saline-alkali, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: hctj
Elevation: 300 to 700 feet
Mean annual precipitation: 7 to 15 inches
Mean annual air temperature: 64 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Exeter and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Exeter

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 16 inches: sandy loam
H2 - 16 to 37 inches: sandy clay loam
H3 - 37 to 50 inches: indurated
H4 - 50 to 60 inches: stratified sandy loam to silt loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Natural drainage class: Well drained
Runoff class: Low

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

Depth to water table: More than 80 inches

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate, maximum in profile: 1 percent

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

Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: C

Ecological site: LOAMY (1975) (R019XD029CA)

Hydric soil rating: No

Minor Components

Ramona

Percent of map unit: 5 percent

Hydric soil rating: No

Monserate

Percent of map unit: 5 percent

Hydric soil rating: No

Greenfield

Percent of map unit: 5 percent

Hydric soil rating: No

EpA—Exeter sandy loam, deep, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hctk

Elevation: 300 to 700 feet

Mean annual precipitation: 7 to 15 inches

Mean annual air temperature: 64 degrees F

Frost-free period: 250 to 300 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Exeter and similar soils: 85 percent

Minor components: 15 percent

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

Description of Exeter

Setting

Landform: Alluvial fans

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 16 inches: sandy loam

H2 - 16 to 37 inches: sandy clay loam

H3 - 37 to 50 inches: indurated

H4 - 50 to 60 inches: stratified sandy loam to silt loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: 35 to 60 inches to duripan

Natural drainage class: Well drained

Runoff class: Medium

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

Depth to water table: More than 80 inches

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate, maximum in profile: 1 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): 2s

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Ecological site: LOAMY (1975) (R019XD029CA)

Hydric soil rating: No

Minor Components

Greenfield

Percent of map unit: 5 percent

Hydric soil rating: No

Ramona

Percent of map unit: 5 percent

Hydric soil rating: No

Monserate

Percent of map unit: 5 percent

Hydric soil rating: No

EwB—Exeter very fine sandy loam, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: hctm

Elevation: 20 to 700 feet

Mean annual precipitation: 7 to 20 inches

Mean annual air temperature: 61 to 64 degrees F

Frost-free period: 250 to 300 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Exeter and similar soils: 85 percent

Minor components: 15 percent

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

Description of Exeter

Setting

Landform: Alluvial fans

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 16 inches: very fine sandy loam

H2 - 16 to 37 inches: sandy clay loam

H3 - 37 to 50 inches: indurated

H4 - 50 to 60 inches: stratified sandy loam to silt loam

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: 20 to 40 inches to duripan

Natural drainage class: Well drained

Runoff class: Low

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

Depth to water table: More than 80 inches

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate, maximum in profile: 1 percent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): 3e

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Ecological site: LOAMY (1975) (R019XD029CA)

Hydric soil rating: No

Minor Components

Ramona

Percent of map unit: 5 percent

Hydric soil rating: No

Monserate

Percent of map unit: 5 percent

Hydric soil rating: No

Greenfield

Percent of map unit: 5 percent

Hydric soil rating: No

EyB—Exeter very fine sandy loam, deep, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: hctn

Elevation: 300 to 700 feet

Mean annual precipitation: 7 to 15 inches

Mean annual air temperature: 64 degrees F

Frost-free period: 250 to 300 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Exeter and similar soils: 85 percent

Minor components: 15 percent

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

Description of Exeter

Setting

Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 16 inches: fine sandy loam
H2 - 16 to 37 inches: sandy clay loam
H3 - 37 to 50 inches: indurated
H4 - 50 to 60 inches: stratified sandy loam to silt loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: 35 to 60 inches to duripan
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: LOAMY (1975) (R019XD029CA)
Hydric soil rating: No

Minor Components

Ramona

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

Monserate

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

Greenfield

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

Wd—Waukena loam, saline-alkali

Map Unit Setting

National map unit symbol: hd05
Elevation: 600 feet
Mean annual precipitation: 10 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Waukena and similar soils: 85 percent

Minor components: 15 percent

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

Description of Waukena

Setting

Landform: Basin floors

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 12 inches: loam

H2 - 12 to 36 inches: sandy clay loam

H3 - 36 to 60 inches: stratified loamy fine sand to 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: High

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: Rare

Frequency of ponding: None

Calcium carbonate, maximum in profile: 10 percent

Salinity, maximum in profile: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 2.0

Available water storage in profile: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: C

Ecological site: SILTY BASIN (R019XD068CA)

Hydric soil rating: No

Minor Components

Willows

Percent of map unit: 5 percent

Hydric soil rating: No

Traver

Percent of map unit: 5 percent

Hydric soil rating: No

Grangeville

Percent of map unit: 5 percent

Hydric soil rating: No

USDA Web Soil Survey Report – California Revised Storie Index (Rockport Ranch)

Map Unit Symbol and Name	California Revised Storie Index (CA)	
	Rating Class	Value
Dt —Domino fine sandy loam, saline-alkali	Grade 5 – Very Poor	17
Dv —Domino silt loam, saline-alkali	Grade 5 – Very Poor	17
EnA —Exeter sandy loam, 0 to 2 percent slopes	Grade 4 - Poor	34
EoB —Exeter sandy loam, slightly saline-alkali, 0 to 5 percent slopes	Grade 4 - Poor	26
EpA —Exeter sandy loam, deep, 0 to 2 percent slopes	Grade 4 - Poor	34
EwB —Exeter very fine sandy loam, 0 to 5 percent slopes	Grade 4 - Poor	34
EyB —Exeter very fine sandy loam, deep, 0 to 5 percent slopes	Grade 4 - Poor	34
Wd —Waukena loam, saline-alkali	Grade 3 - Fair	51

<https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

USDA Web Soil Survey Report – Land Capability Classification (Rockport Ranch)

Map Unit Symbol and Name	Component Name	Land Capability Subclass
Dt —Domino fine sandy loam, saline-alkali	Domino	3s
Dv —Domino silt loam, saline-alkali	Domino	3s
EnA —Exeter sandy loam, 0 to 2 percent slopes	Exeter	3s
EoB —Exeter sandy loam, slightly saline-alkali, 0 to 5 percent slopes	Exeter	3s
EpA —Exeter sandy loam, deep, 0 to 2 percent slopes	Exeter	3e
EwB —Exeter very fine sandy loam, 0 to 5 percent slopes	Exeter	3e
EyB —Exeter very fine sandy loam, deep, 0 to 5 percent slopes	Exeter	4e
Wd —Waukena loam, saline-alkali	Waukena	4s

<https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>