

Agricultural Conversion Analysis

For

Shadow Run Ranch Tentative Map

TM 5223 RPL³; P 00-030;

BC 00-0205; ER 00-02-035

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Table of Contents

Glossary of Terms and Acronyms	v
Summary	S-1
1. INTRODUCTION.....	1
<u>1.1</u> Purpose of the Report.....	1
<u>1.2</u> Project Location and Description.....	1
<u>1.3</u> Analysis Methods	2
<u>1.4</u> Environmental Setting (Existing Conditions)	2
1.4.1 Regional Context.....	2
1.4.2 Onsite Agricultural Resources.....	3
1.4.3 Offsite Agricultural Resources	9
1.4.4 Zoning and General Plan Designation	9
2. ONSITE AGRICULTURAL RESOURCES	10
<u>2.1</u> Local Agricultural Resource Assessment (LARA) Model	10
2.1.1 LARA Model Factors	10
2.1.2 LARA Model Result	12
<u>2.2</u> Guidelines for the Determination of Significance	12
<u>2.3</u> Analysis of Project Effects.....	12
3. OFFSITE AGRICULTURAL RESOURCES	13
<u>3.1</u> Guidelines for the Determination of Significance	13
<u>3.2</u> Analysis of Project Effects.....	13
<u>3.3</u> Mitigation Measures and Design Considerations	14
<u>3.4</u> Conclusions.....	14
4. CONFORMANCE WITH AGRICULTURAL POLICIES.....	15
<u>4.1</u> Applicable General and Community Plan Policies.....	15
4.1.1 San Diego County General Plan	15
4.1.2 San Diego County Zoning Ordinance	16
4.1.3 County Board of Supervisors Policy I-38	16
4.1.4 San Diego County Agricultural Enterprises and Consumer Information Ordinance (§63.401 et seq.)	17
4.1.5 San Diego Local Agency Formation Commission (LAFCO) Policy L-101	17
<u>4.2</u> Project Consistency with Applicable Policies.....	17
4.2.1 San Diego County General Plan	17
4.2.2 San Diego County Zoning Ordinance	19
4.2.3 County Board of Supervisors Policy I-38	19
4.2.4 San Diego County Agricultural Enterprises and Consumer Information Ordinance (§63.401 et seq.)	19
4.2.5 San Diego Local Agency Formation Commission (LAFCO) Policy L-101	20

<u>4.3</u>	<u>Conclusions</u>	20
5.	CUMULATIVE IMPACT ANALYSIS	21
<u>5.1</u>	<u>Guidelines for the Determination of Significance</u>	21
<u>5.2</u>	<u>Analysis of Project Effects</u>	21
5.2.1	Projects That Would Not Substantially Impair Ongoing Viability of Agriculture.....	22
5.2.2	Projects Analyzed With Existing Agriculture Or Prime Or Statewide Importance Soils Onsite	22
<u>5.3</u>	<u>Mitigation Measures and Design Considerations</u>	24
<u>5.4</u>	<u>Conclusions</u>	24
6.	SUMMARY OF PROJECT IMPACTS AND MITIGATION	25
7.	REFERENCES	27
8.	LIST OF PREPARERS AND PERSONS AND ORGANIZATIONS CONTACTED	28

Figures

Figure 1, Regional Vicinity Map	29
Figure 2, USGS Pala Quadrangle 7.5' Map	31
Figure 3, Plot Plan on Aerial Photograph	33
Figure 4, Regional Aerial Photograph	35
Figure 5, Farmland Mapping & Monitoring Program (FMMP) Map Legend.....	37
Figure 6, Regional FMMP Map.....	39
Figure 7, Soils Map.....	41
Figure 8, Site on FMMP Map	43
Figure 9, Zone of Influence on FMMP Soils Map.....	45
Figure 10, Zone of Influence on Aerial Photograph	47
Figure 11, Zone of Influence Parcel Sizes	49
Figure 12, Slope Map.....	51
Figure 13, Cumulative Projects on FMMP Soils Map.....	53

Tables

Table 1, Soil Quality Matrix	55
Table 2, LARA Model Factor Ratings.....	57
Table 3, Cumulative Project List	59
Table 4, Cumulative Projects That Do Not Substantially Impair Viability of Surrounding Agriculture	61

Attachments

LARA Model Instructions	Attachment A
Important Farmland Mapping Categories	Attachment B
Areacimates and Generalized Western Plantclimate Zones	Attachment C
County Water Authority Boundary and Groundwater Aquifer Types.....	Attachment D
Williamson Act Contract Lands.....	Attachment E

Glossary of Terms and Acronyms

AWM	County Department of Agriculture, Weights and Measures
CEQA	California Environmental Quality Act
CSA	Community Supported Agriculture
DOC	State of California, Department of Conservation
DWR	State of California, Department of Water Resources
FHA	Farm and Home Advisor
FMMP	California Farmland Mapping and Monitoring Program
FPPA	Federal Farmland Protection Policy Act
GIS	Geographic Information System
LAFCO	Local Agency Formation Commission
LARA	Local Agricultural Resource Assessment Model
LCC	Land Capability Classification
LESA	Model Land Evaluation and Site Assessment Model
MWD	Municipal Water District
NASS	National Agricultural Statistics Service
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
SWP	State Water Project
TDS	Total Dissolved Solids
UCCE	University of California Cooperative Extension

Summary

Shadow Run Ranch, Tentative Map (TM) 5223 Rpl³ consists of 248.26 acres located west of Adams Drive on State Route 76 (SR-76) in Pala, San Diego County. The project proposes 47 lots, consisting of 44 residential lots that range in size from 2.01 to 7.3 acres, a biological open space lot of 91.3 acres, an agricultural open space lot of 39.2 acres, and a recreation lot of 7.9 acres.

The majority of the site is currently in agriculture and consists of approximately 154 acres of avocados, lemons, oranges, grapefruit, pomegranates, and persimmons. A residence and caretaker's residence are located on the site, along with several agricultural work sheds, storage buildings and equipment garages.

The project has been evaluated using the Local Agricultural Resource Assessment (LARA) Model for assessing the significance of agricultural resources. LARA Model Instructions are included as Attachment A of this analysis. The evaluation determined that the site is not an important agricultural resource, as discussed in Section 2.

The project will not result in significant offsite agricultural resource impacts. Proposed lot sizes are consistent with the combined agricultural and low-density residential development that has occurred in the surrounding area. The existing agricultural uses that will remain onsite are similar in character to those that exist east, south, and west of the site, as discussed in Section 3.

The project is consistent with the (19) Intensive Agriculture designation of the San Diego County General Plan, the A-70 zoning designation, and the Pala/Pauma Subregional Plan. Therefore, no significant agricultural impacts are associated with planning aspects of the project, as discussed in Section 4.

The project will not result in any cumulatively significant agricultural impacts. Agricultural operations within the cumulative study area consist mostly of citrus or avocado groves intermingled with rural residential use. None of the cumulative projects in the immediate area will result in significant direct or indirect impacts to agricultural resources in the area. Several large projects ten mile west near or adjacent to I-15 have agricultural impacts, mostly to grazing lands. These projects will not result in the regional impairment of agriculture because they avoid impacts where possible, preserve key agricultural areas on site, and are not key agricultural production areas. Therefore no cumulatively significant agricultural impacts will occur from the project in combination with other anticipated projects in the study area, as discussed in Section 5.

The project does not result in significant agricultural impacts either individually or cumulatively. Therefore, no further mitigation is required.

1. INTRODUCTION

1.1. Purpose of the Report

The purpose of this agricultural report is to identify and discuss all relevant land use issues onsite and offsite in the vicinity of the project to determine potential impacts to surrounding active agricultural operations and/or Williamson Act contracts and agricultural preserves. The importance of onsite agricultural resources will be determined by applying the Local Agricultural Resource Assessment (LARA) Model, which takes into account factors such as water, climate, soil quality, surrounding land uses, land use consistency, and topography. Offsite impacts and conformance with the agricultural policies of the County are also assessed. Cumulative impacts to agricultural resources are assessed, and project design elements and/or mitigation measures that would minimize potential significant adverse effects are identified as needed.

1.2. Project Location and Description

Shadow Run Ranch, Tentative Map (TM) 5223 Rpl³, is located in the unincorporated community of Pala/Pauma in north central San Diego County east of Interstate 15 (I-15), as shown in Figure 1, "Regional Vicinity Map." All Figures are found at the end of this Report. State Route 76 (SR-76) borders the project's southern boundary and Adams Drive runs along the eastern side, as shown in Figure 2, "USGS Pala Quadrangle 7.5' Map," page 31. Adams Drive will provide access to the proposed project. Figure 3, "Plot Plan on Aerial Photograph," page 33, illustrates the project design in relation to existing land use features.

The project consists of 47 lots, 44 of which are residential lots ranging in size from 2.01 to 7.3 acres. Three open space lots are proposed, consisting of an agricultural lot (Lot 45) of 39.2 acres, a biological open space lot (Lot 46) of 91.3 acres, and a recreation lot (Lot 47) of 7.9 acres. The agricultural lot will be owned and operated by the applicant or subsequent Homeowners Association (HOA). An easement will be placed over the lot that restricts uses to agriculture. Fencing is proposed along the boundary with the recreation lot to discourage intrusions and theft.

The agricultural lot is located in the north central section of the site. This location was chosen for preservation of agriculture because:

1. It has immediate access to Adams Drive and SR-76. Eastern areas of the site are more isolated.
2. Agriculture is established in this area and is very productive
3. The site has been planted with new persimmon and citrus trees, providing a better long term production resources than older parts of the grove.

4. Soils types (Soboba stony loamy sand 9-30% slopes or SsE) are the same across the site, so the chosen location can take advantage of the beneficial soils on the site.
5. The FMMP classification of the site as Unique Farmland is consistent east to west, so that the eastern area is able to take full advantage of the best farmland on the site
6. Irrigation is available throughout the site
7. Although elevational differences are greater in the east, they do not impact the planting density or access to trees.

1.3. Analysis Methods

The following data resources were used in the preparation of this report: 1) US Department of Agriculture Soil Conservation Service and Forest Service Soil Survey San Diego Area, California, 2) County of San Diego Department of Agriculture, Weights & Measures (AWM) Crop Statistics & Annual Reports, 3) County of San Diego Department of Planning and Land Use (DPLU) Geographic Information System (GIS) Valley Center Discretionary Project Map, 4) Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) San Diego County Important Farmland Map, 5) DPLU GIS Soil Candidates for Prime Farmland and Farmland of Statewide Importance, 6) DPLU GIS Areaclimates and Generalized Western Plantclimate Zones, and 7) DPLU GIS County Water Authority (CWA) Boundary and Groundwater Aquifer Types.

The site was mapped using aerial photo interpretation and the USGS Pala Quadrangle 7.5' map. The FMMP map and County of San Diego Department of Public Works (DPW) GIS map were also used for mapping the site.

1.4. Environmental Setting (Existing Conditions)

1.4.1. Regional Context

Topography in the vicinity ranges from the steep rugged terrain of the Palomar Mountain foothills in the northeast to more gently sloping areas along the San Luis Rey River in the south. The elevations in Pauma Valley range from approximately 730 feet adjacent to SR-76 to approximately 1620 feet in the northeast. Pauma's climate is Pacific Ocean-dominated with an average annual rainfall of 13.5 inches and average temperature of 64 degrees Fahrenheit (°F). The community of Pauma is served by the Yuima Municipal Water District (YMWD) and by private wells. Soil types in the area include rocky and stony sandy loams, stony land, and sandy loam.

Land use in Pauma Valley is mostly agricultural. Rural residential uses are focused in a few neighborhoods along SR-76. One such neighborhood is the Adams Drive community, which is located adjacent to the site on the east. Agricultural uses in the

region include orchards, such as citrus and avocado, range lands, and nursery operations. The relationship of the project site to surrounding areas is shown in Figure 4, "Regional Aerial Photograph," page 35.

The community of Pauma Valley is approximately 3.2 miles southeast of the project, along State Route (SR) 76. There is a small market, community center, and casino, among other interspersed small businesses, located along this route in Pauma Valley. The community of Pala is approximately 4.25 miles to the west. The Pala Casino dominates the area, while the town of Pala is located off the main road to the north. The I-15 freeway is approximately 8.4 miles to the west.

There are several Indian Reservations in the area. The Pauma Reservation borders the site to the north. Others are Rincon, Pala, and the La Jolla Indian Reservations. Privately owned agricultural operations, single family dwellings, minor commercial uses, undeveloped property, and Williamson Act Contract lands are also located throughout the region.

Farmland Mapping & Monitoring Program (FMMP) designations in the area include Farmland of Statewide Importance, Farmland of Local Importance, Unique Farmland, Urban and Built-Up Land, and Other Land. Details of these designations are found in Section 1.4.3, "Offsite Agricultural Resources". A legend (Figure 5, FMMP Map Legend," page 37) and map (Figure 6, "Regional FMMP Map," page 38) identify the FMMP designations in the region.

1.4.2. Onsite Agricultural Resources

The project site has supported agricultural operations since the 1940's¹. Oranges, avocado, lemons, grapefruit and persimmons make up the majority of active agricultural operations currently onsite, with some pomegranates also grown in selected areas. . FMMP designations on the site include Unique Farmland and Other Land, detailed in Section 1.4.2.2, "FMMP Farmland Designations".

1.4.2.1. Soils

The Land Capability Classification (LCC) system classifies soils according to their limitations when cultivated and according to the way that they respond to management practices. Class I soils have no significant limitations for raising crops. Classes VI through VIII have severe limitations, limiting or precluding their use for agriculture. Capability subclasses are further defined by adding a subclass letter to the class designation. Capability subclasses are e, w, s, or c. The letter 'e' shows that the

¹ <http://www.historicaerials.com/Default.aspx>

main limitation is risk of erosion. The letter 'w' indicates that water in or on the soil interferes with plant growth or cultivation. The letter 's' indicates that the soil is limited mainly because it is shallow, dry or stony. Finally, the letter 'c' is used only in some parts of the United States where cold or dry climates are a concern. Groupings are made according to the limitation of the soils when used to grow crops and the risk of damage to soils when they are used in agriculture. Productive agriculture in San Diego County typically occurs on soils having LCC ratings of III and IV, and a significant number of local soils have the class designations e and c, indicating limitations related to erosion and shallow soils. Capability units are assigned Arabic numbers that suggest the main kind of limitation responsible for placement of the soil in the capability class and subclass.

There are four soil types found on the project site. The Soil Survey, San Diego Area, California, describes these soil types as follows: 1) Soboba stony loamy sand (SsE), 9 to 30 percent slopes, 2) Cieneba-Fallbrook rocky sandy loam (CnG2), 30 to 65 percent slopes, eroded, 3) Stony Land (SvE), and 4) Cieneba-Fallbrook rocky sandy loam (CnE2), 9 to 30 percent slopes, eroded. Each is discussed in more detail below.

SsE has a LLC of VIe-7(20), indicating that fertility is low to medium and that this type of soil is best suited for range or recreation. Approximately 58 percent of the site consists of this soil type and is currently used for avocado and orange trees. Runoff is medium to rapid and erosion hazards are moderate to high for SsE.

For CnG2 the LCC is VIe-7(19) for Cieneba and Fallbrook series (30 to 65 percent slope), and VIIIs-1(19) for Rock Outcrop series. The Cieneba and Fallbrook series have high to low fertility and are suited mostly for range. However, such crops as citrus and avocados may be established on CnG2, Cieneba and Fallbrook series. The Rock Outcrop series is not suited to farming and is better used for wildlife habitat, recreational facilities, and watershed. Approximately 11 percent of the site consists of this soil type and is currently undeveloped. Runoff for Cieneba and Fallbrook series is slow to rapid and the erosion hazard is slight to high. Rock Outcrop series runoff is rapid, and the erosion hazard is high for CnG2.

The LCC rating for SvE is VIIIs-1(19, 20). This unit is predominantly rock outcrop and has no value for farming. Runoff is rapid to very rapid, and erosion hazards are moderate to very high. This soil is suitable for wildlife habitat, recreational facilities, and watershed. Approximately 17 percent of the site consists of this soil type, which runs along Frey Creek.

The LCC for CnE2 is VIe-7(19), for Cieneba and Fallbrook series (9 to 30 percent slope), and VIIIs-1(19) for Rock Outcrop series. The Cieneba and Fallbrook series have high to low fertility and are suited mostly for range. However, crops such as citrus and avocados may be established on CnE2, Cieneba and Fallbrook series soils.

The Rock Outcrop series is not suited to farming and is used for wildlife habitat, recreational facilities, and watershed. Approximately 14 percent of the site consists of this soil type and is currently undeveloped. Runoff for Cieneba and Fallbrook series is slow to rapid and the erosion hazard is slight to high. Rock Outcrop series runoff is rapid, and the erosion hazard is high for CnE2.

Storie Index (SI), a measure of soil quality, expresses numerically on a 100 point scale the relative degree of suitability or value of a soil for general intensive agriculture. Higher SI ratings indicate higher quality soils. The SI rating is based on several factors including profile characteristics (affecting root penetration), surface soil texture (affecting ease of tillage and capacity of soil to hold water), slope (affecting soil erosion), and other unique limiting factors of the soil such as poor drainage, high water table, salts, and acidity.

The SI for SsE is 24, indicating severe limitations for crops, and requiring careful management if used for crops. CnG2 soils have a SI of 18 for Cieneba and Fallbrook series, indicating that they are not suited for cultivated crops but can be used for pasture and range. There is no SI for Rock Outcrop series indicating no suitability for any type of farming. SvE soils have a SI of <10, indicating no suitability for any type of farming. The SI for CnE2 is 18 for Cieneba and Fallbrook series, indicating that they are not suited for cultivated crops but can be used for pasture and range. There is no SI for Rock Outcrop series indicating no suitability for any type of farming for CnE2.

Soils on the site and in the vicinity are shown in Figure 7, “Soils Map,” page 41.

1.4.2.2. FMMP Farmland Designations

The California Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) publishes maps and statistical data for analyzing impacts on California’s agricultural resources. The FMMP program rates agricultural land according to soil quality and irrigation status. The best quality lands are called Prime Farmland and Farmland of Statewide Importance. Maps are updated every two years, with current land use information gathered from aerial photographs, a computer mapping system, public review, and field reconnaissance. The minimum mapping unit is ten acres. The DOC Prime Farmland, Farmland of Statewide Importance, and Unique Farmlands are referenced in the California Environmental Quality Act (CEQA) Guidelines, Appendix G, as resources to consider in an evaluation of agricultural impacts.

The DOC publishes a list of soils that meet the soil quality criteria for Prime Farmland soils and Soils of Statewide Importance. The soil criteria are defined by the Natural Resources Conservation Service (NRCS) and are unique to each county. In

San Diego County, 44 local soils qualify for the Prime Farmland designation and 65 soils qualify for the Farmland of Statewide Importance designation.

The site has FMMP designations of Unique Farmland and Other Land. Unique Farmland is used for producing the state's major high economic value crops on land not qualifying for Prime or Statewide Importance designations. This land is usually irrigated, but may include non-irrigated fruits and vegetables as found in some climatic zones in California. The majority of the site is Unique Farmland and includes the citrus and avocado groves. Other Land does not meet the criteria of any other category and includes the reservoir, undeveloped areas with rocky steep slopes to the north, and the riparian area along Frey Creek. There are no soil types on the site that are classified as Prime Farmland or Farmland of Statewide Importance.

The site is shown in Figure 8, "Site on FMMP Map," page 43. Definitions of all FMMP Farmland Categories are provided in Attachment B, "Important Farmland Mapping Categories," and on Figure 5.

1.4.2.3. History of Agricultural Use

Historical aerial photography shows that the site has been used for agricultural purposes since the 1940s, when the agricultural operation was created just east of Frye Creek by Adolph Schoepe. By the early 1960s, the reservoir onsite had been created and the site has continued to expand since, with primarily oranges, avocado, lemons, and grapefruit, and pomegranates. As stated previously, in recent years, persimmons have been added as a crop.

1.4.2.4. Climate

Pauma's climate is warm during the summer when the average temperature is 80 degrees (°) Fahrenheit (F), and cool during the winter, when the average temperature is 48°F. The warmest month of the year is August with an average maximum temperature of 94°F, while the coldest month of the year is January with an average minimum temperature of 32°F. The annual average precipitation in Pauma is 9 inches. Rainfall is distributed from fall through spring, with dry summers. The wettest month of the year is February with an average rainfall of 3.14 inches. Average humidity for this area is approximately 70 percent.

A 1970 University of California Cooperative Extension (UCCE) study titled, "Climates of San Diego County: Agricultural Relationships," identified five areacimates: maritime, coastal, transitional, interior, and desert. Climatic conditions within each areacimate are similar. The study also identified more detailed plantclimates, defined as a "climates in which specific plants, groups, or associations

are evident and will grow satisfactorily, assuming water and soil are favorable,” (Close, et. al., 1970). Areacimates and Plantclimates of San Diego County are represented in Attachment C, “Areacimates and Generalized Western Plantclimate Zones.”

Adapted from the plantclimates outlined in the UCCE study, Generalized Western Plantclimate Zones, or “Sunset Zones” (from the Sunset Western Garden Books which popularized their usage) were developed to further differentiate the effects that latitude, elevation, ocean versus continental air mass influence, and local terrain have on microclimates, freezing, air, and water drainage. Sunset Zones are not intended to determine suitability for specific crops; rather they are a measure of overall climate suitability for the typical agricultural commodities produced in San Diego County. The Sunset Zone designations take into account the USDA hardiness rating which identifies the lowest temperature at which a plant will thrive. Sunset Zones range from Zone 1, representing the coldest winters in the west, to Zone 24, which represents the maritime influence.

The site is located within Zone 21, which is a transitional areacimate that occupies a series of valleys partially screened from maritime influences by low mountains to the west, and limited by the western extension of the Peninsular Range to the east. These valleys may be dominated by coastal influence for a day, week, or month and then may be dominated for similar periods by continental air. Zone 21 gets more ocean influence and is good for citrus and is the mildest zone that gets adequate winter chilling for some plants. Low temperatures range from 23°F to 36°F, with temperatures rarely dropping far below 30°F.

Transitional areacimates allow year-round production due to mild temperatures throughout the year. These climates are also located in proximity to transportation infrastructure, facilitating efficient product delivery to market. These factors make agriculture the most highly favorable and productive in the transitional areacimate.

1.4.2.5. Water Resources

Well water is currently used for irrigation. Water is pumped to the onsite reservoir and is distributed by gravity to the grove.

With annexation, potable water will be provided by the Yuima Municipal Water District (YMWD) to serve the potable water needs of the project. Onsite wells will provide non-potable water for agriculture and other needs, such as landscaping.

Approximately three quarters of the site is composed of alluvial and sedimentary aquifer that are typically composed of either consolidated or unconsolidated gravel, sand, silt, and clay. Although most of these aquifers have high water storage capacity,

some have relatively thin saturated thickness and therefore limited storage. Alluvial and sedimentary aquifers can be underlain by fractured rock aquifers, which could potentially provide additional storage. The underlying aquifer in the northern portion of the site is composed of fractured crystalline rock, which typically yields low volumes and production of water compared to other aquifer types. Fractured crystalline rock aquifers are found mostly in the mountainous areas of San Diego County, and their characteristics vary greatly depending on the underlying fracture locations and orientations. Underlying aquifer types of San Diego County are shown in Attachment D, “County Water Authority Boundary and Groundwater Aquifer Types.”

1.4.2.6. Williamson Act Contracts and Agricultural Preserves

The California Land Conservation Act of 1965, known informally as the Williamson Act, was formed as an incentive to retain prime agricultural land and open space in agricultural use, thereby slowing its conversion to urban and suburban development. The program entails a contract between the City or County and land owner whereby the land is taxed on the basis of its agricultural use rather than its market value. The land becomes subject to certain enforceable restrictions, and certain conditions need to be met prior to approval of an agreement.

The underlying goals of the Williamson Act are to protect agriculture and open space. The California state legislature found that “the discouragement of premature and unnecessary conversion of agricultural land to urban uses is a matter of public interest” and that “agricultural lands have a definitive public value as open space,” (Government Code, §51220[c][d]).

Few property owners have entered into contracts in San Diego County over the past 25 years. According to information from the County Assessor’s Office, only two contracts were executed in San Diego County between 1980 and 2005, and 40 parcels currently under a Contract are in the process of non-renewal. The non-renewal process takes ten years to complete, during which time property taxes are incrementally raised to remove the tax benefit, with restrictions to development being lifted at the end of the ten year period. The site is not under a Contract and is not within an Agricultural Preserve. Contract lands are shown in Attachment E, “Williamson Act Contract Lands.”

1.4.3. Offsite Agricultural Resources

There is an area within the one-quarter mile Zone of Influence (ZOI) under Williamson Act Contract, which is located to the northwest of the proposed project, as shown in Figure 9, “Zone of Influence on FMMP Soils Map,” page 45, and Figure 10, “ZOI on

Aerial Photograph,” page 47. The site supports mostly citrus groves and single family residences.

FMMP Farmland designations within the ZOI include Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, Commercial, and Other Land. The Majority of the ZOI is designated Other Land and Unique Farmland. The Williamson Act Contract area northwest of the site is made up of mostly Farmland of Statewide Importance and Local Importance designations. The site is maintained as a grove.

Active agricultural operations in the area include an avocado grove southwest of the site, citrus and avocado to the north, and nursery, truck crops, citrus, and avocado orchards to the south. Several small agricultural operations occur in the Adams Drive neighborhood adjacent to the site on the east. These tend to have groves, extensive landscaping, as well as a single family residence.

1.4.4. Zoning and General Plan Designation

The proposed project is located in agricultural zone A70 (4) Limited Agricultural Use, which allows a minimum lot size of four acres per the County Zoning Ordinance. This zone is intended to create and preserve areas intended primarily for agricultural crop production while allowing single-family residential uses. Based on the site, designation, zoning, and slope, 52 dwelling units would be allowed at maximum on the 248-acre site. The project proposes 44 dwelling units, 8 less than allowed.

The General Plan Land Use Designation is (19) Intensive Agriculture, which is intended to promote a variety of agricultural uses including minor commercial, industrial, and public facility uses appropriate to agricultural operations or in support of the agricultural population. This designation permits two-, four-, and eight-acre parcels under specified conditions.

The Regional Land Use Policy Estate Development Area (EDA) applies to the proposed project. The EDA allows for combined agricultural and low density residential uses, where parcel sizes of two to twenty acres apply. The 44 lots will be clustered and a minimum of two acres in size. No development is proposed in areas with slopes greater than or equal to 25 percent. The project proposes three open space lots that together preserve approximately 138.4 acres (56 percent of the total project acreage).

2. ONSITE AGRICULTURAL RESOURCES

2.1. Local Agricultural Resource Assessment (LARA) Model

The County of San Diego has approved a methodology that is used to determine the importance of agricultural resources in the unincorporated area of San Diego County, known as the Local Agricultural Resource Assessment (LARA) Model. The LARA Model evaluates six factors in determining the importance of agricultural resources, which are water, climate, soil quality, surrounding land uses, land use consistency, and slope. Each factor is given a high, medium, or low rating. If any of the required water, climate, or soil quality factors are rated low, the site is not considered a significant agricultural resource. Detailed LARA Model instructions are included as Attachment A and provide background information regarding the purpose and justification of each factor.

2.1.1. LARA Model Factors

2.1.1.1. Water

The majority of the site is located in an Alluvial and Sedimentary Aquifer with existing wells; therefore, the LARA Model water rating for the site is moderate. The proposed project plans to annex into the Yuima Municipal Water District but because the cost of extending off-site water infrastructure and obtaining a water meter is high, and because wells will continue to be used for onsite agriculture, the water rating remains moderate. Table 3, “Water Rating,” on page 21 of Attachment A, LARA Model Instructions, summarizes the ratings.

2.1.1.2. Climate

As detailed in Section 1.4.2.4 above, the site is located in Zone 21, which translates to a high LARA model climate rating. Zone 21 is rated high because of the mild year round temperatures and lack of freezing temperatures that allow year round production of high value crops. Zone 21 is also favorable due to its location close to urban areas and transportation infrastructure which facilitates product delivery to market. Table 6, “Climate Rating,” on page 26 of Attachment A, LARA Model Instructions, summarizes the ratings.

2.1.1.3. Soil Quality

The LARA Model's soil quality rating for the site is low. The site has a Soil Quality Matrix score of zero, which is below the threshold of 0.33. Table 1, "Soil Quality Matrix," found in the figures and tables section of this report, shows how these ratings are attained. Table 8, "Soil Quality Matrix Interpretation," on page 31 of Attachment A, LARA Model Instructions, summarizes the ratings.

2.1.1.4. Surrounding Land Uses

The site has a high Surrounding Land Use rating based on the LARA Model. Ninety nine percent of land within the ZOI is compatible with agriculture, which is greater than 50 percent, resulting in the site's high rating. Consideration of surrounding land uses within the ZOI is intended to provide a comparable measurement of the long-term sustainability of agriculture at the project site. Table 9, "Surrounding Land Use Rating," on page 33 of Attachment A, LARA Model Instructions, details how the rating is obtained. Figure 10, "ZOI on Aerial Photograph," page 47 shows the surrounding land area.

2.1.1.5. Land Use Consistency

The site's land use consistency rating is high. The project's median parcel size of 2.32 acres is smaller than the median parcel size within the project's ZOI, which is approximately 4.95 acres. A site surrounded by larger parcels usually indicates that the area in which the site is located has not already been significantly urbanized, therefore indicating that the area is more likely to continue to support viable agricultural uses. Table 10, "Land Use Consistency Rating," on page 35 of Attachment A, LARA Model Instructions, summarizes the ratings. Figure 11, "Zone of Influence Parcel Sizes," on page 49 shows the surrounding parcel sizes within the ZOI.

2.1.1.6. Slope

The site's slope rating is high. Using the soil survey criteria in Table 1, "Soil Quality Matrix," page 55, average slope that is available for agricultural use on the site is between zero and fifteen percent. A slope analysis is shown in Figure 12, "Slope Map," page 51. Table 11, "Slope Rating," on page 35 of Attachment A, LARA Model Instructions, summarizes the ratings.

2.1.2. LARA Model Result

Based on Table 2, “Interpretation of LARA Model Results,” page 20 of Attachment A, LARA Model Instructions, the site is not an important agricultural resource. The site falls under Scenario 5, which states that if at least one required factor is rated low importance, the site is not an important agricultural resource. Because the soil rating is low, as detailed in Section 2.1.1.3, the site is not an important agricultural resource as interpreted by the LARA Model. Table 2, “LARA Model Factor Ratings,” page 57 of this analysis, summarizes the ratings that result from the LARA Model.

2.2. Guidelines for the Determination of Significance

The following significance guideline is the basis for evaluating impacts to important onsite agricultural resources in San Diego County. Direct impacts to agricultural resources are potentially significant when a project would result in the following:

The project site has important agricultural resources as defined by the LARA Model; and the project would result in the conversion of agricultural resources that meet the soil quality criteria for Prime Farmland or Farmland of Statewide Importance, as defined by the FMMP; and as a result, the project would substantially impair the ongoing viability of the site for agricultural use.

2.3. Analysis of Project Effects

The LARA Model determined that the site is not an important agricultural resource, as one required factor (soils) is rated low importance and there are no Prime Farmland or Statewide Importance soils onsite, the site is not an important agricultural resource. The guideline is not exceeded and impacts are not significant and no mitigation is necessary.

3. OFFSITE AGRICULTURAL RESOURCES

3.1. Guidelines for the Determination of Significance

The following significance guidelines are the basis for determining the significance of indirect impacts to offsite agricultural operations and Williamson Act Contract land in San Diego County:

- a. The project proposes a non-agricultural land use within one-quarter mile of an active agricultural operation or land under a Williamson Act Contract (Contract) and as a result of the project, land use conflicts between the agricultural operation or Contract land and the proposed project would likely occur and could result in conversion of agricultural resources to a non-agricultural use.
- b. The project proposes a school, church, day care or other use that involves a concentration of people at certain times within one mile of an agricultural operation or land under Contract and as a result of the project, land use conflicts between the agricultural operation or Contract land and the proposed project would likely occur and could result in conversion of agricultural resources to a non-agricultural use.
- c. The project would involve other changes to the existing environment, which due to their location or nature, could result in the conversion of offsite agricultural resources to a non-agricultural use or could adversely impact the viability of agriculture on land under a Contract.

3.2. Analysis of Project Effects

- A. Agricultural uses within a quarter mile of the site: Mixed rural residential and agricultural uses border the site to the east, south, and west. The San Diego County Guidelines for Determining Significance states that if a residential subdivision consistent with existing densities in the surrounding area is proposed, the likelihood that the residential subdivision would constitute a significant indirect impact to agricultural resources is reduced based on the fact that similar land uses already exist in the area. This is the case with the project, which will retain a 39 acre agricultural grove and will avoid impacts to grove areas on individual lots. It incorporates restrictions on use of pesticides. Specifically the project will adhere to State law and County of San Diego ordinances regulating the use of pesticides, and will follow Department of Agriculture Weights and Measures policies and procedures for handling, notification, disposal, record keeping and reporting related to hazardous chemical use. The project will not use aerial spraying in grove maintenance activities. The project will comply with the County ordinance requiring statements to prospective buyers related to the prior existence of agriculture, in the area. The text of the statement is included in Section 4.2.4. With these design measures, impacts are not significant and no mitigation is required.

There is an area within the one-quarter mile Zone of Influence (ZOI) under Williamson Act Contract, which is located to the northwest of the proposed project, as shown in Figure 10, “ZOI on Aerial Photograph,” page 47. The site is maintained as a grove. The site is approximately 0.25 miles from the project boundary. It supports mostly citrus groves and single family residences. The site carries mostly Farmland of Statewide Importance and Local Importance designations on the FMMP map. This area is buffered from the project by Frey Creek, which will be maintained in open space that will include restrictions on access. There is also an approximately 40 foot topographic separation between the Williamson Act property and Frey Creek. Distance and topographic differences will attenuate potential conflicts in use such as noise and dust. The project will maintain a 39-acre agricultural preserve that is similar in use to the contract land. Additionally each project lot maintains an agricultural component that is also consistent with this offsite use. This consistency of use will assist in minimizing potential conflicts between these sites because similar operational issues will arise. Finally, potential lot owners will be advised of the proximity of agriculture, both on and off-site, prior to their purchase, which will help minimize unexpected consequences of proximate agriculture for lot owners.

- B. Project proposes a use that involves a concentration of people (such as a school or church) and is within one mile of an agricultural operation or Williamson Contract land: The project does not propose a use of this type.
- C. Project proposes other changes that could result in the conversion of agriculture: The project does not propose other changes that would result in the conversion of agricultural uses surrounding the site. The project encourages ongoing active agricultural operations by setting aside a 39 acre site for agricultural use. It is also encouraged through creation of estate-sized lots that can accommodate agriculture. This is consistent with existing use patterns surrounding the site, where small lots with an agricultural component are common. According to County policy, agriculture is compatible with residential lots of this size.

Potential agricultural land use conflicts are minimized because of the similarity of use between the project and surrounding areas. Residents with common uses tend to have a mutual understanding of issues that arise from the uses they have in common, which tends to minimize conflicts.

The project will incorporate noticing procedures of grove operations that comply with County of San Diego Ordinance §63.401 related to the prior existence of agriculture in the area. Restrictions on use of pesticide application such as aerial spraying will be implemented. Impacts are not significant because of the general compatibility of proposed and existing uses, and compliance with regulatory requirements. The guideline is not exceeded and impacts are not significant. No mitigation is required.

3.3. Mitigation Measures and Design Considerations

No potential indirect impacts to offsite agricultural operations would occur as a result of the project being located within a quarter mile of offsite agricultural operations. The project design calls for the retention of all existing agricultural operations not located on road, driveway, or pad areas, and will effectively buffer the residential uses from offsite areas. Therefore, no mitigation is required.

3.4. Conclusions

Offsite agricultural resources were assessed using aerial photographs and information gathered during site visits. The project will not significantly impact nearby agriculture because retention of the existing groves, Frey Creek, and roads, will buffer agricultural operations from potential impacts in the vicinity. The proposed project does not result in land use conflicts with agricultural lands in the vicinity because it is physically separated from existing agricultural uses. It will not produce a concentration of people because it does not propose a use such as a church or school. Furthermore, the project does not propose other changes to the existing environment which could result in the conversion of offsite agricultural resources to a non-agricultural use. The proposed project is consistent with existing mixed-use residential and agricultural densities in the surrounding area; thereby, reducing land use compatibility issues. Therefore, no significant indirect impacts will occur. Notice related to existing agriculture will be provided to prospective buyers, and restrictions on use of pesticides will be implemented. Due to the above factors, impacts are not significant and no mitigation is required.

4. CONFORMANCE WITH AGRICULTURAL POLICIES

4.1. Applicable General and Community Plan Policies

4.1.1. San Diego County General Plan

4.1.1.1. General Plan

The project site is regionally categorized as Estate Development Area (EDA) and is designated as (19) Intensive Agriculture. The EDA Regional Category of the General Plan permits both agricultural and low density residential uses. Residential parcel sizes ranging from two to twenty acres or larger will be permitted depending on the slope.

The (19) designation promotes rural residential development and a variety of agricultural uses including minor commercial, industrial, and public facility uses appropriate to agricultural operations or supportive of the agricultural population. This designation permits two-, four-, and eight-acre parcels under specific conditions. Two acre minimum parcel sizes are allowed when the following findings are made: 1)

At least 80 percent of the land of a proposed parcel does not exceed 25 percent slope, 2) The land is planted, and has been planted, for at least the previous one-year period, in one or more commercial crops that remain commercially viable on two-acre lots, 3) A continuing supply of irrigation water is available to the land, 4) The land has access to a publicly maintained road without the necessity of a significant amount of grading, and 5) Two-acre parcels on the land will not have a significant adverse environmental impact which cannot be mitigated.

4.1.1.2. Pala/Pauma Subregional Plan

The Pala/Pauma Subregional Plan states “because nearly 11.5 percent of the unincorporated territory of this Subregion is in some form of valuable agricultural production and agriculture provides economic benefits to County residents” and “the Subregion contains much valuable agricultural land which, although adversely affected by high water and labor costs, should be encouraged”, “orderly, planned growth that is provided as needs arise and essential services such as water, sewer, fire protection, and schools, are made available.”³

The subregional plan also states that “agricultural cropland currently occupies 8,510 acres of land within the Pala/Pauma Subregional Plan Area, or 11.5 percent of the total area. Soil, climate, land cost, and on-going agricultural activities combine to create highly favorable conditions for continuing agricultural success; therefore, designate existing agricultural areas under the rural lands regional category, when consistent with parcel sizes, to limit the intrusion of incompatible land uses into existing agricultural areas.”⁴

Furthermore, the subregional plan states that “Avocational agriculture, primarily orchard crops on small parcels, is found throughout the Pala/Pauma Subregion. Where the use of land is primarily residential, avocational agriculture is considered to be of benefit to both the economy and environment; therefore, recognize that avocational agriculture is a compatible secondary use of land throughout the subregion.”⁵

4.1.2. San Diego County Zoning Ordinance

The site is zoned A70 Limited Agricultural Use Regulations, which are intended to create and preserve areas intended primarily for agricultural crop production. Residential uses are a permitted use in this zone. Additionally, a limited number of small farm animals may be kept and agricultural products raised on the premises may be processed.

³ Pala/Pauma Subregional Plan p. 7

⁴ Pala/Pauma Subregional Plan p. 8

⁵ Pala/Pauma Subregional Plan p. 8

4.1.3. County Board of Supervisors Policy I-38

The County Board of Supervisors Policy I-38 sets forth policies for the implementation of the Williamson Act, which are summarized in Section 1.4.2.6. This Policy establishes the criteria for formation of preserves within the County of San Diego, including required hearings, minimum lot size, zoning, and eligible ownership.

4.1.4. San Diego County Agricultural Enterprises and Consumer Information Ordinance (§63.401 et seq.)

The Agricultural Enterprises and Consumer Information Ordinance of the San Diego County Code of Regulatory Ordinances (§63.401 et seq.) is intended to define and limit the circumstances under which agricultural enterprise activities, operations, and facilities shall constitute a nuisance. The Ordinance acknowledges that lands used for agricultural purposes may be converted to other uses or zones, whether those parcels are zoned for agricultural uses or not. However, the Ordinance prohibits changes in land uses in the vicinity of an existing agricultural land use that would result in the existing agricultural land use (established for a minimum of three years) to be deemed a nuisance if it was not a nuisance prior to the proposed changes in land use.

4.1.5. San Diego Local Agency Formation Commission (LAFCO) Policy L-101

San Diego Local Agency Formation Commission (LAFCO) has adopted Legislative Policy L-101, Preservation of Open Space and Agricultural Lands, to further the policies and priorities of the Cortese-Know-Hertzberg Local Government Reorganization Act of 2000 regarding the preservation of open space and prime agricultural lands. LAFCO is required to consider how spheres of influence or changes of local governmental organization could affect open space and prime agricultural lands. Commissions are directed to guide development away from prime agricultural lands unless that action would not promote the planned, orderly and efficient development of an area, and to encourage development of existing vacant or non-prime agricultural lands within a jurisdiction.

4.2. Project Consistency with Applicable Policies

The project is consistent with the San Diego County General Plan, the Pala/Pauma Subregional Plan, and other agricultural policies and ordinances pertinent to the project.

4.2.1. San Diego County General Plan

4.2.1.1. General Plan

The project site is regionally categorized as Estate Development Area (EDA) and is designated as (19) Intensive Agriculture. The minimum proposed parcel size of two acres is allowed under the EDA category because the slope criteria of the (19)

Intensive Agriculture designation is met. None of the proposed residential parcels have average slopes greater than 25 percent. A continual supply of irrigation water is available to the project site through onsite wells and reservoir. Adams Drive will be used to access the site from State Route 76. Environmental studies completed for the project have not identified any significant adverse environmental impacts that cannot be mitigated. Therefore, the project is consistent with the San Diego County General Plan designation that is applicable to the site.

4.2.1.2. Pala/Pauma Subregional Plan

The project site currently produces oranges and avocados, providing economic benefits to the County. Besides preserving 34 acres (22 percent) of the current agricultural operations in open space, the project removes only trees on individual proposed lots necessary for building pads. According to the County of San Diego Department of Agriculture, Weights & Measures, records show that in 1997, approximately 671 citrus farms were on two or fewer acres. As of 2008, 68 percent of all farms in San Diego County are between one and nine acres, with a median of four acres. Furthermore, it is stated that the ability to farm small parcels is crucial to the success of future agriculture in San Diego County². Proposed residences on the site are a minimum of two acres each and fall into this category and are characteristic of this type of agricultural use in the area. Essential services such as water, sewer, fire protection, and schools are available to serve the project. The site is designated intensive agriculture, and avocational (“hobby”) agriculture is encouraged by the proposed project by retaining all grove trees possible on each residential lot. Therefore, the project is consistent with the Pala/Pauma Subregional Plan goals and policies that are applicable to the site as summarized in the table below:

Project Consistency with Applicable Goals and Policies		
Plan	Goal/Policy	Proposed Project Compatibility
Pala/Pauma Subregional Plan Land Use Goal	Orderly, planned growth that is provided as needs arise and essential services such as water, sewer, fire protection, and schools, are made available	The project is consistent with this goal. Essential services such as water, sewer, fire protection, and schools are available to serve the project.
Pala/Pauma Subregional Plan Land Use Policy 5	designate existing agricultural areas under the rural lands regional category, when consistent with parcel sizes, to limit the intrusion of incompatible land uses into existing agricultural areas	The project is consistent with this goal. Proposed residences on the site are a minimum of two acres each and fall into this category and are characteristic of this type of agricultural use in the area.

²County of San Diego Department of Agriculture, Weights & Measures, June 2, 1997 letter by Kathleen A. Thuner, Agricultural Commissioner

Pala/Pauma Subregional Plan Land Use Policy 7	recognize that avocational agriculture is a compatible secondary use of land throughout the subregion	The project is consistent with this goal. Avocational (“hobby”) agriculture is encouraged by the proposed project by retaining all grove trees possible on each residential lot.
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4.2.2. San Diego County Zoning Ordinance

The project proposes 44 residential dwelling units. Approximately seventeen percent of existing onsite agriculture will be preserved. The project conforms to the San Diego County Zoning Ordinance A70 zone by proposing rural residential use while preserving the existing agricultural use to the fullest extent possible.

4.2.3. County Board of Supervisors Policy I-38

The project site is not under an existing Williamson Act contract, therefore Policy I-38 is not applicable to the proposed project and no inconsistency with this policy is identified.

4.2.4. San Diego County Agricultural Enterprises and Consumer Information Ordinance (§63.401 et seq.)

The Agricultural Enterprises and Consumer Information Ordinance of the San Diego County Code of Regulatory Ordinances (§63.401 et seq.) is intended to define and limit the circumstances under which agricultural enterprise activities, operations, and facilities shall constitute a nuisance. Existing agricultural land use in the vicinity will not be deemed a nuisance as a result of the proposed project since the project will be buffered from these uses by the existing agriculture being preserved onsite and open space proposed as part of the project. Furthermore, existing roads separate offsite agricultural uses from the proposed rural residential use. Other residences located east of the proposed project are similar in size and scope with viable agricultural operations onsite. Therefore, the project is consistent with this ordinance.

The owner shall notify each prospective purchaser about potential agricultural operational issues that may occur on surrounding property and onsite in writing as follows:

Agricultural operations are located throughout the unincorporated area of San Diego County and are often conducted on relatively small parcels. The subject property is also located in the unincorporated area and, as such, is likely to be located near an agricultural enterprise, activity, operation, or facility or appurtenances thereof (collectively, “agricultural use”). Occupants of the property to be purchased may be exposed to inconveniences, irritations or discomforts arising from the agricultural use, including but not limited to noise, odors, fumes, dust, smoke, insects, rodents, the

operation of machinery of any kind (including aircraft) during any 24 hour period, the storage and disposal of manure, and the application by spraying or other means of agricultural chemicals, such as pesticides and fertilizers. Purchasers of the property may be required to accept such inconveniences, irritations and discomforts, unless the agricultural use constitutes a public or private nuisance under the provisions of Section 3482.5 of the Civil Code or Section 63.403 of the San Diego County Code. The agricultural use may be altered or expanded in the future.

Further, a project design consideration to require submission of an application for Final Public Report to the State of California, Department of Real Estate which will completely disclose all hazards and unusual conditions in or near this subdivision related to surrounding agricultural uses will be written as follows:

The subdivider shall provide evidence satisfactory to the Director of the Department of Planning and Land Use that an application for a Final Public Report has been submitted to the State of California, Department of Real Estate that discloses that there will be hazards or unusual conditions in or near this subdivision related to surrounding agricultural uses. The application must fully disclose to potential purchasers of the property all inconveniences and irritations arising from agricultural operations including, but not limited to the following: cultivation, plowing, spraying, pruning, harvesting, drying, crop protection from the elements or depredation which generates dust, smoke, noise, insects, rodents, and odor, and the use of agricultural chemicals, including but not limited to herbicides, insecticides, fungicides, rodenticides, and fertilizers.

4.2.5. San Diego Local Agency Formation Commission (LAFCO) Policy L-101

The project is not prime agricultural land. The agricultural evaluation for the project has determined that there are no prime agricultural soils on the Shadow Run Ranch project site and there is no Prime Farmland or Farmland of Statewide Importance on the site. In addition, the LARA analysis of the project determined the site is not an important agricultural resource. These conclusions are discussed in detail in Section 2.3. The project has been designed to maintain a significant agricultural presence on the site. A 33.64-acre agricultural open space will be created over an existing citrus grove, which will be owned by the Homeowner's Association and will be professionally managed. Grading on each lot will be restricted to pads and roads, and existing grove on the remainder of each lot, estimated to be a minimum of one acre, will be maintained. Groundwater for irrigation purposes will be made available to each lot to facilitate the retention and ongoing management of these areas. Professional management over the entire grove will be encouraged. Policies such as spraying controls will encourage compatibility of residential and agricultural uses.

The proposed project also creates a 91.73-acre biological open space lot that preserves the site's most sensitive biological resources. This includes the on-site portion of Frey

Creek, which is an important wildlife movement corridor in the area. In addition, an 7.9-acre recreational open space area is also created at the on-site reservoir.

4.3. Conclusions

The project will not conflict with zoning or land use designations because the project is consistent with its existing zoning and designations and no changes are proposed to existing zoning or designations. With estate-sized parcels being proposed, and as much of the avocado/citrus grove onsite being retained as possible, the rural and agricultural character of the Pala area will be retained by the project. There are no changes in land uses being proposed that would conflict with existing agricultural operations in the vicinity because the project is buffered from existing agricultural use in the area. Impacts are not significant and no mitigation is required.

5. CUMULATIVE IMPACT ANALYSIS

Cumulative impacts are those caused by the additive effects of other projects to agricultural resources over time. A project's impact may not be individually significant, but the additive effect when viewed in connection with the impacts of past, present, and probable future projects may cause the significant loss or degradation of agricultural resources.

5.1. Guidelines for the Determination of Significance

The guidelines for determining the significance of cumulative impacts are based on the same guidelines used to determine the significance of project level impacts (Sections 2.2 and 3.1), with the exception that the analysis considers the significance of the cumulative impact of the individual project in combination with the impacts caused by other projects in the cumulative study area.

5.2. Analysis of Project Effects

The cumulative projects study area consists of approximately 41,600 acres extending over a 65 square mile area and was chosen based on a combination of topography and its location within the Pala/Pauma Subregional Planning Area. The Pala Mountain range forms the western and southwestern boundaries while the mountainous terrain of the Cleveland National Forest forms the northern cumulative boundary. The community of Pauma Valley spans to the east and south of the project. Surrounding projects are shown in Figure 13, "Cumulative Projects on FMMP Soils Map," page 53. These projects are labeled with their project number and are designated by brown dots if open, red dots if completed, and blue dots if withdrawn. Projects on Prime Farmland and/or Farmland of Statewide Importance and those with existing agricultural uses are listed in Table 4, "Cumulative Project List," on page

59. The remaining projects are listed in Table 3, “Cumulative Projects That Do Not Substantially Impair Viability of Surrounding Agriculture,” page 61.

The study area produced a total of 27 projects that needed to be examined. A County map showing projects in the study area was obtained. A two-tiered process was used to analyze projects. Initially all projects were screened using criteria in the County of San Diego *Guidelines for Determining Significance, Agricultural Resources*, Section 4.2.1. Cumulative projects that do not substantially impair the viability of surrounding agriculture, as determined in the guidelines mentioned above, are discussed in Section 5.2.1 below and listed in Table 4, “Cumulative Projects That Do Not Substantially Impair Viability of Surrounding Agriculture,” page 61. Sixteen projects fall into this category. Remaining projects were researched using available County records to determine the extent of agricultural impacts. Both direct and indirect impacts were reviewed. These eleven projects are listed in Table 4, “TM 5223, Cumulative Project List,” page 59, and are analyzed in Section 5.2.2 below.

5.2.1. Projects That Would Not Substantially Impair Ongoing Viability of Agriculture

The County currently performs many agricultural analyses “in house”. The projects as reviewed by county staff that would not substantially impair the ongoing viability of agricultural use for their permits are summarized in Table 3, “Cumulative Projects That Do Not Substantially Impair Viability of Surrounding Agriculture,” page 61. These projects may or may not have existing agriculture and/or Prime or Statewide Importance soils onsite. Examples of these projects include minor expansions or alterations of an existing use, single family residence grading permits, boundary adjustments and Certificates of Compliance, agricultural intensification, accessory or auxiliary uses such as wireless telecommunication facilities and drainage facilities, road improvements and other minor public facility improvements, and any project, including residential subdivisions, that would substantially avoid impacts to Prime and Statewide Importance soils while maintaining agricultural viability. Projects that have been withdrawn are also included in this list of projects.

Minor Use Permits 06-076 and 01-114 are wireless facilities that would not substantially impair the ongoing viability of the surrounding sites for agricultural use because they are accessory uses that cover a very small area. Minor Use Permits 81-037, 67-092, 63-162, and 65-034 and MUP 08-045 do not have existing agricultural activities onsite, contain no soils of importance, and are minor expansions of an existing use. Tentative Parcel Map (TPM) 20913 is a lot split of five acres into four lots. There are no existing agricultural uses or soils of importance on the site. Tentative Map (TM) 4944, previously a plant nursery, was completely cleared of all vegetation and has no soils of importance onsite. GPA 09-006 pertains to a General Plan Amendment that has no agricultural impacts. SD05-065 has a categorical exemption. MUP 99-001 is a packing house that

continues to support agriculture. TPMs 20896 and 20959, and Permits 07-006 and 05-009 have been withdrawn. Projects Analyzed With Existing Agriculture Or Prime Or Statewide Importance Soils Onsite

There are seven projects that have existing agriculture or have Prime or Statewide Importance soils onsite that were analyzed for cumulative direct impacts. The Pala/Pauma Subregional Plan area is primarily an agricultural community. Projects in the vicinity appear to be mostly agricultural operation expansions and rural residential developments retaining the majority of existing groves, thereby resulting in a significant area of groves being retained for continued production. The focus of this cumulative impact analysis is on cumulative direct and indirect impacts to agricultural resources from the project and other projects in the cumulative analysis area. Table 4, "Cumulative Project List," on page 59, shows the estimated impacts to Prime Farmland, Farmland of Statewide Importance, and existing agriculture from projects in the cumulative analysis area.

Club Estates (TM 5499) is a subdivision of 48.31 acres into 32 residential parcels. The subdivision has Prime and Statewide Importance Farmland with active citrus grove onsite. The project has been approved and County of San Diego determined that there are no significant cumulative agricultural impacts resulting from this project.

Oak Tree Ranch (TM 5540) proposes 24 condominiums and has Statewide Importance Farmland onsite and truck crops are grown on the site. There are no important soils noted on the FMMP map.

La Cuesta De Pauma (TM 5263) consists of 274 acres divided into 51 residential lots and is made up mostly of Unique Farmland with avocado and citrus groves. The County of San Diego has determined that there are no significant cumulative agricultural impacts as a result of this project.

McNally Road (TPM 21004) consists of 58 acres and has been approved for a 5-parcel subdivision within an existing avocado and citrus grove. Agriculture will be retained on each lot and there are no significant cumulative agricultural impacts noted.

Nextel (MUP 05-014) was approved for a wireless communication facility within an existing agricultural operation of truck crops. The facility, less than one acre in size, is located on Prime Farmland, however, agriculture is to continue on the site and there are no significant cumulative agricultural impacts noted.

Pauma Valley Packing Company (MUP 99-001) is a fruit processing and packing agricultural operation that facilitates other agricultural operations. Therefore, no cumulative impacts to agriculture will occur.

T-Y Nursery Yard (AD 05-065) is an approved permit to clear approximately eleven acres of vegetation onsite for the addition of container plants to the existing nursery. T-Y Nursery supports and expands agricultural operations; therefore, there are no significant cumulative agricultural impacts.

Sol Orchard (AP 11-037, location 21) was approved as a 43 acre solar generating facility. It encompasses some Farmland of Statewide Importance. Agriculture will be retained around solar panels.

Campus Park West (GPA 05-003, location 25) consists of 118.5 acres that would include residential, office, and commercial uses. It would impact 8.8 acres of agriculture.

Meadowood (GPA 04-002, location 26) is a 389.5-acre project proposing 255 single family residences. It would impact 165.3 acres of grazing land. The project preserves 45.1 acres in a dedicated agricultural preserve.

Warner Ranch (GPA 06-009, location 27) consists of 513 acres and proposes single family and multi-family residential, parks, and open space, as well as a fire station. The project has the potential to impact 77.3 acres of agricultural land. Agricultural land is protected in open space easements.

In summary, a total of 337.4 acres will be directly impacted by the eleven projects examined in detail; two had no direct or indirect cumulative agricultural impacts (TM 5263, TPM 21004,). Agriculture and/or agricultural-facilitating operations are expected to continue on six of the projects (TPM 21004, MUP 05-014, MUP 99-001, GPA 04-002, GPA 03-004, and AD 05-065). The cumulative study area impacts consist largely of avocado and citrus groves.

The project in combination with other anticipated development in the study area do not have a regionally significant cumulatively significant on agriculture because cumulative projects have avoided impacts or mitigated their effect at the project level, and because regional agricultural resources remain intact, and are in fact growing despite isolated losses of agricultural land.

The preservation of areas adequate for agriculture is an important aspect of farming in San Diego County because the majority (68%) of San Diego County farms are between one and nine acres in size. The project's General Plan category (Estate Development Area) and designation (19) allows a minimum parcel size of two acres, wherein agriculture can be combined with low density residential uses. This is important for continued agriculture because this allows the establishment of residences while retaining agricultural operations. None of the cumulative projects analyzed result in incompatible development that would increase agriculture interface conflicts and associated agricultural viability. Many have existing agriculture and so are adapted to the effects of agricultural operations. Projects with residential components will be required to notify

potential residents about existing agriculture, per County Ordinance §63.401 detailed above.

5.3. Mitigation Measures and Design Considerations

The proposed project has been effectively designed to avoid potentially significant cumulative effects by avoiding impacts to 110 acres of the existing 154 acres of agriculture onsite. This includes the preservation of 39 acres of the existing agriculture onsite in agricultural open space. No mitigation measures will be necessary to reduce the significance of potential cumulative impacts.

5.4. Conclusions

A 41,600-acre area was evaluated for cumulative impacts to agriculture. Based on the list of projects approach, nineteen projects were identified, seven of which had project-level impacts. It was determined that none of the cumulative projects result in development that would impact agriculture. The project in combination with other anticipated development in the study area does not result in cumulatively significant agricultural impacts because cumulative projects have avoided or minimized agricultural impacts, retained agricultural uses, or mitigated impacts. The cumulative projects do not result in incompatible development because they remain consistent with surrounding uses and will notice any new residents about the existence of agriculture in the area. Cumulative impacts to agriculture are not significant and no mitigation is necessary.

There are no significant potential cumulative impacts based on the list of projects in the vicinity, therefore, cumulative agricultural impacts are less than significant and no mitigation is required.

6. SUMMARY OF PROJECT IMPACTS AND MITIGATION

The project has been designed to retain preserves 39 acres (25 percent) of existing agriculture in open space. Existing onsite agriculture will be retained to allow individual lot owners to continue with an agricultural use if they desire to do so.

The project is not a significant agricultural resource according to the LARA model. The project does not substantially impair the ongoing viability of the site for agricultural use. Proposed parcel sizes ranging from 2.01 to 5.40 acres are adequate to support continuing agricultural operations onsite. These parcel sizes are compatible with the mixed-use residential and agricultural uses that surround the project, which exhibit a pattern of successful agricultural

operations on small parcels. The proposed project is consistent with General Plan and zoning designations, and is compatible with the rural residential and agricultural policies of the Pala/Pauma Subregional Plan.

No significant cumulative impacts will result from the proposed project in combination with other planned development in the 41,600-acre study area. Project design features ensure the continued viability of agricultural operations onsite. Planned projects throughout the area either preserve existing agricultural uses or propose parcel sizes that ensure the continuing viability of agricultural uses. The proposed project does not result in significant agricultural impacts individually or cumulatively and no mitigation is required.

7. REFERENCES

California Department of Conservation, Division of Land Resource Protection

- 2006 Local Agricultural Resource Assessment Model
- 2004 Farmland Mapping and Monitoring Program, San Diego County Important Farmland 2002 Map.
- 1997 California Agricultural Land Evaluation and Site Assessment Model.

County of San Diego

- 2007 Guidelines for Determining Significance and Report Format and Content Requirements, Agricultural Resources.
- 2006 Crop Statistics & Annual Report, Department of Agriculture, Weights & Measures.
- 1993 Pala/Pauma Subregional Plan, Part XVII of San Diego County General Plan. Adopted January 3, 1979, amended May 7, 1986.
- 1989 Board of Supervisors' Policy I-38, Adopted September 11, 1998, last amended August 22, 1989.
- 1987 San Diego County Code of Regulatory Ordinances. Title 6 Health and Sanitation, Division 3. Crops and Plants, Chapter 4. Agricultural Enterprises and Consumer Information (§63.411 et seq.).

U.S. Department of Agriculture, Soil Conservation Service and Forest Service

- 1973 Soil Survey, San Diego, California
- 1970 Soil Survey, Sheet No. 34, San Diego Area, California (Rancho Santa Fe Quadrangle)

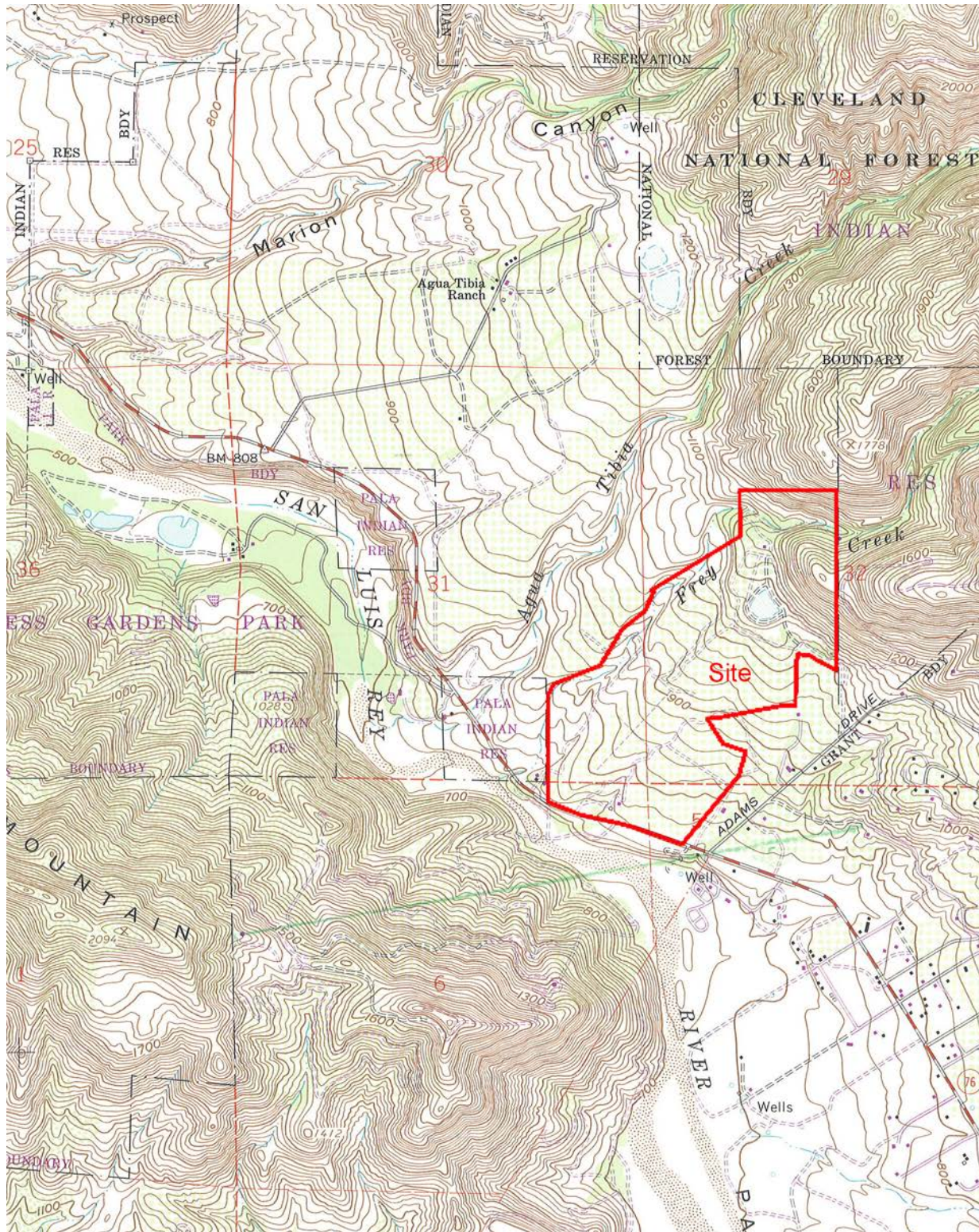
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PRIME FARMLAND

LAND WITH THE BEST COMBINATION OF PHYSICAL AND CHEMICAL CHARACTERISTICS ABLE TO SUSTAIN LONG TERM PRODUCTION OF AGRICULTURAL CROPS. THIS LAND MUST HAVE BEEN USED FOR PRODUCTION OF IRRIGATED CROPS AT SOME TIME DURING THE FOUR YEARS PRIOR TO THE MAPPING DATE.



FARMLAND OF STATEWIDE IMPORTANCE

LAND WITH A GOOD COMBINATION OF PHYSICAL AND CHEMICAL CHARACTERISTICS FOR AGRICULTURAL PRODUCTION, HAVING ONLY MINOR SHORTCOMINGS, SUCH AS LESS ABILITY TO STORE SOIL MOISTURE, COMPARED TO PRIME FARMLAND. THIS LAND MUST HAVE BEEN USED FOR PRODUCTION OF IRRIGATED CROPS AT SOME TIME DURING THE FOUR YEARS PRIOR TO THE MAPPING DATE.



UNIQUE FARMLAND

LAND USED FOR PRODUCTION OF THE STATE'S MAJOR CROPS ON SOILS NOT QUALIFYING FOR PRIME OR STATEWIDE IMPORTANCE. THIS LAND IS USUALLY IRRIGATED, BUT MAY INCLUDE NONIRRIGATED FRUITS AND VEGETABLES AS FOUND IN SOME CLIMATIC ZONES IN CALIFORNIA.



FARMLAND OF LOCAL IMPORTANCE

LAND THAT MEETS ALL THE CHARACTERISTICS OF PRIME AND STATEWIDE, WITH THE EXCEPTION OF IRRIGATION. FARMLANDS NOT COVERED BY THE ABOVE CATEGORIES BUT ARE OF SIGNIFICANT ECONOMIC IMPORTANCE TO THE COUNTY. THEY HAVE A HISTORY OF GOOD PRODUCTION FOR LOCALLY ADAPTED CROPS. THE SOILS ARE GROUPED IN TYPES THAT ARE SUITABLE FOR TRUCK CROPS (SUCH AS TOMATOES, STRAWBERRIES, CUCUMBERS, POTATOES, CELERY, SQUASH, ROMAINE LETTUCE, AND CAULIFLOWER) AND SOILS SUITED FOR ORCHARD CROPS (AVOCADOS AND CITRUS).



GRAZING LAND

LAND ON WHICH THE EXISTING VEGETATION IS SUITABLE FOR GRAZING OF LIVESTOCK. THE MINIMUM MAPPING UNIT FOR THIS CATEGORY IS 40 ACRES.



URBAN AND BUILT-UP LAND

RESIDENTIAL LAND WITH A DENSITY OF AT LEAST SIX UNITS PER TEN-ACRE PARCEL, AS WELL AS LAND USED FOR INDUSTRIAL AND COMMERCIAL PURPOSES, GOLF COURSES, LANDFILLS, AIRPORTS, SEWAGE TREATMENT, AND WATER CONTROL STRUCTURES.



OTHER LAND

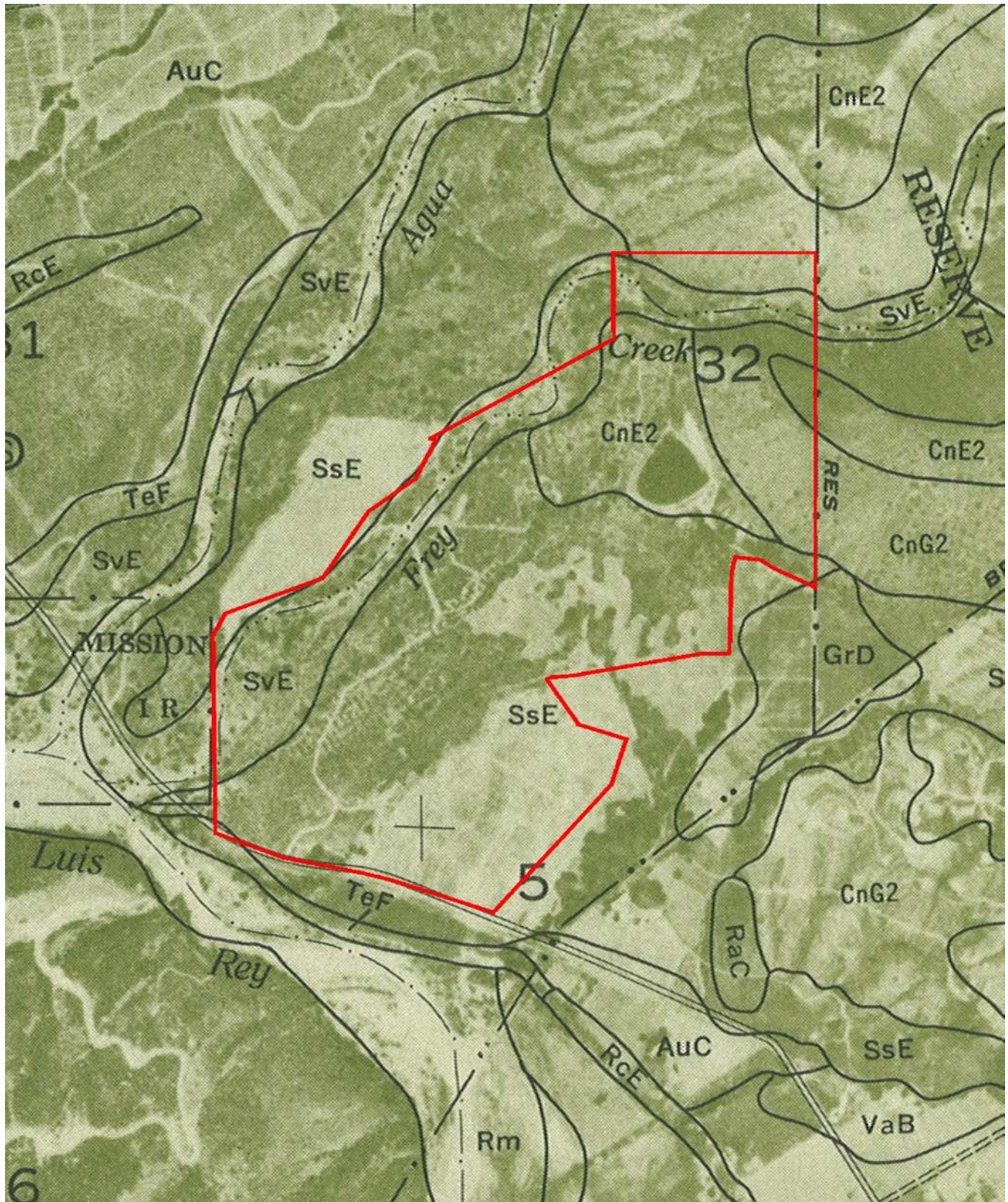
LAND WHICH DOES NOT MEET THE CRITERIA OF ANY OTHER CATEGORY. COMMON EXAMPLES INCLUDE LOW-DENSITY RURAL DEVELOPMENTS, WETLANDS, DENSE BRUSH AND TIMBERLANDS, GRAVEL PITS, AND SMALL WATER BODIES.

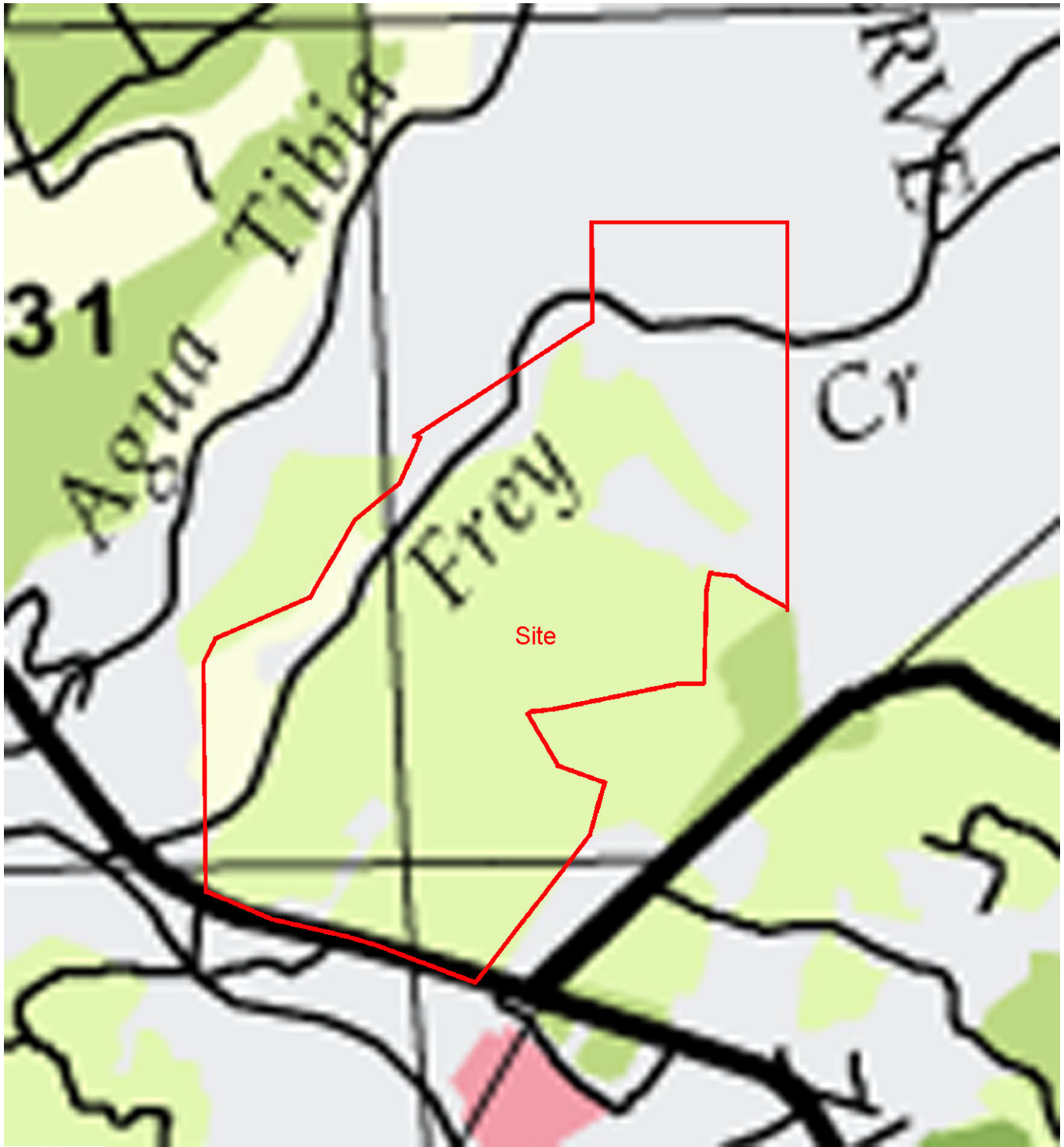


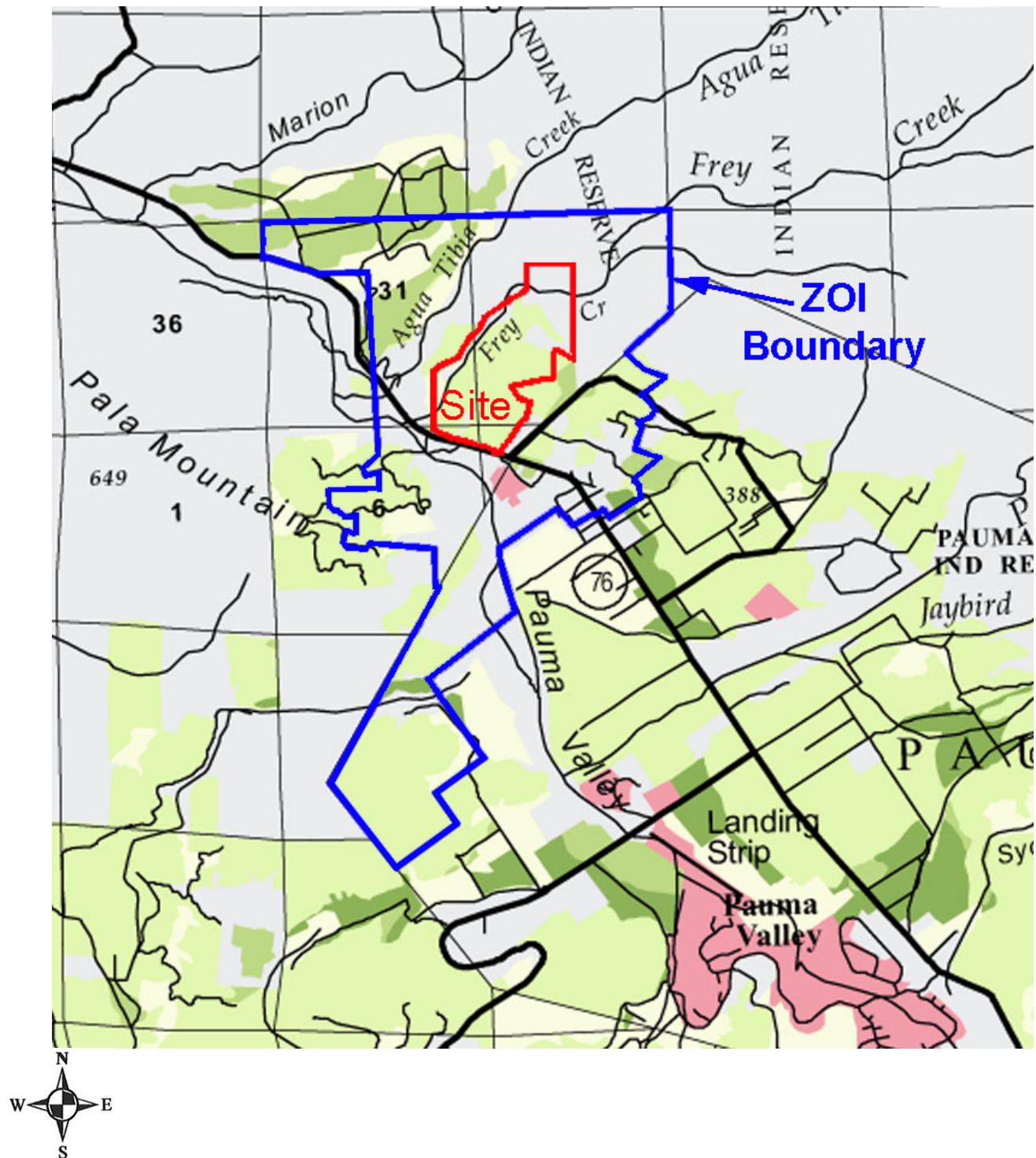
WATER

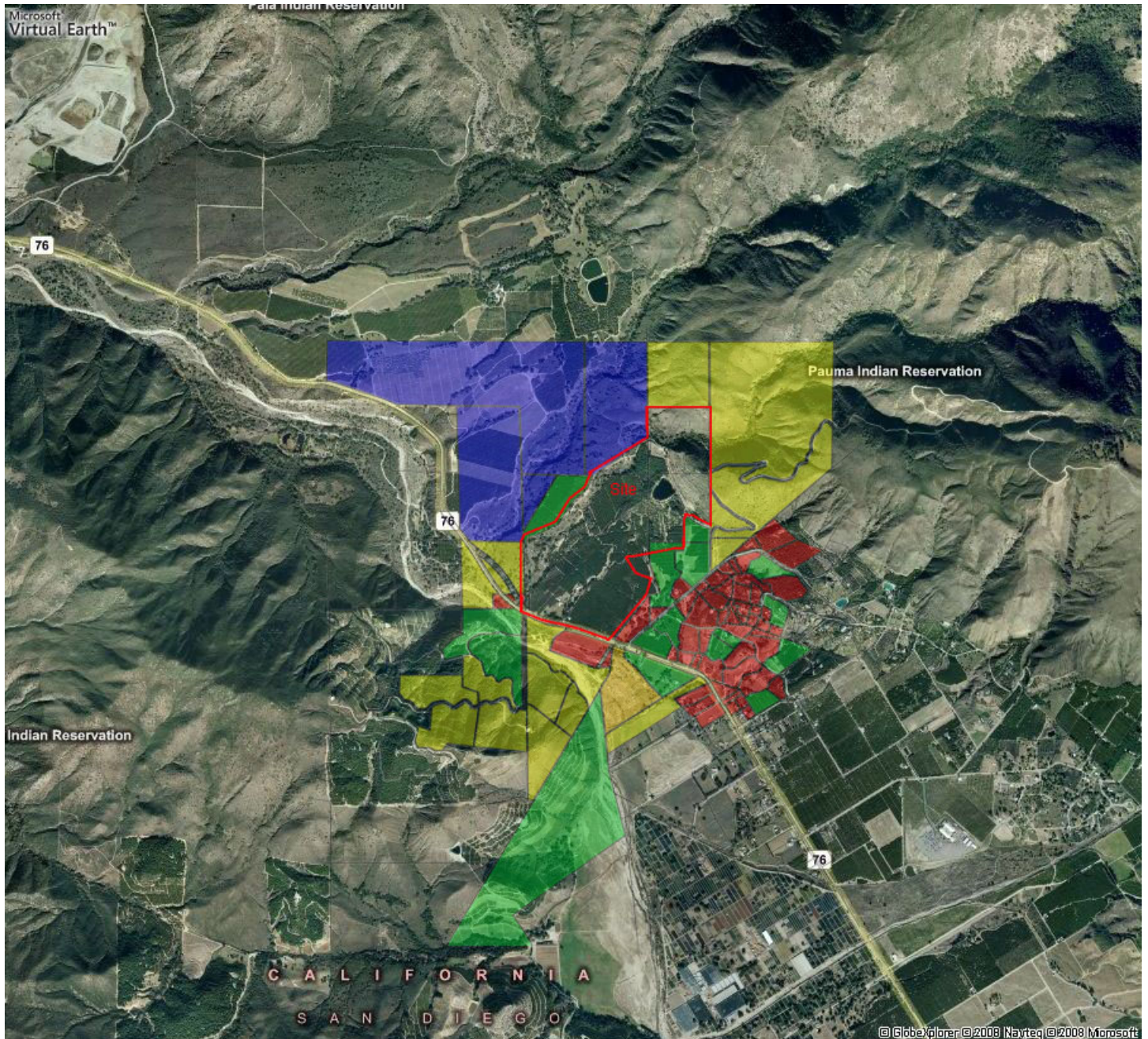
PERENNIAL WATER BODIES WITH AN EXTENT OF AT LEAST 40 ACRES.



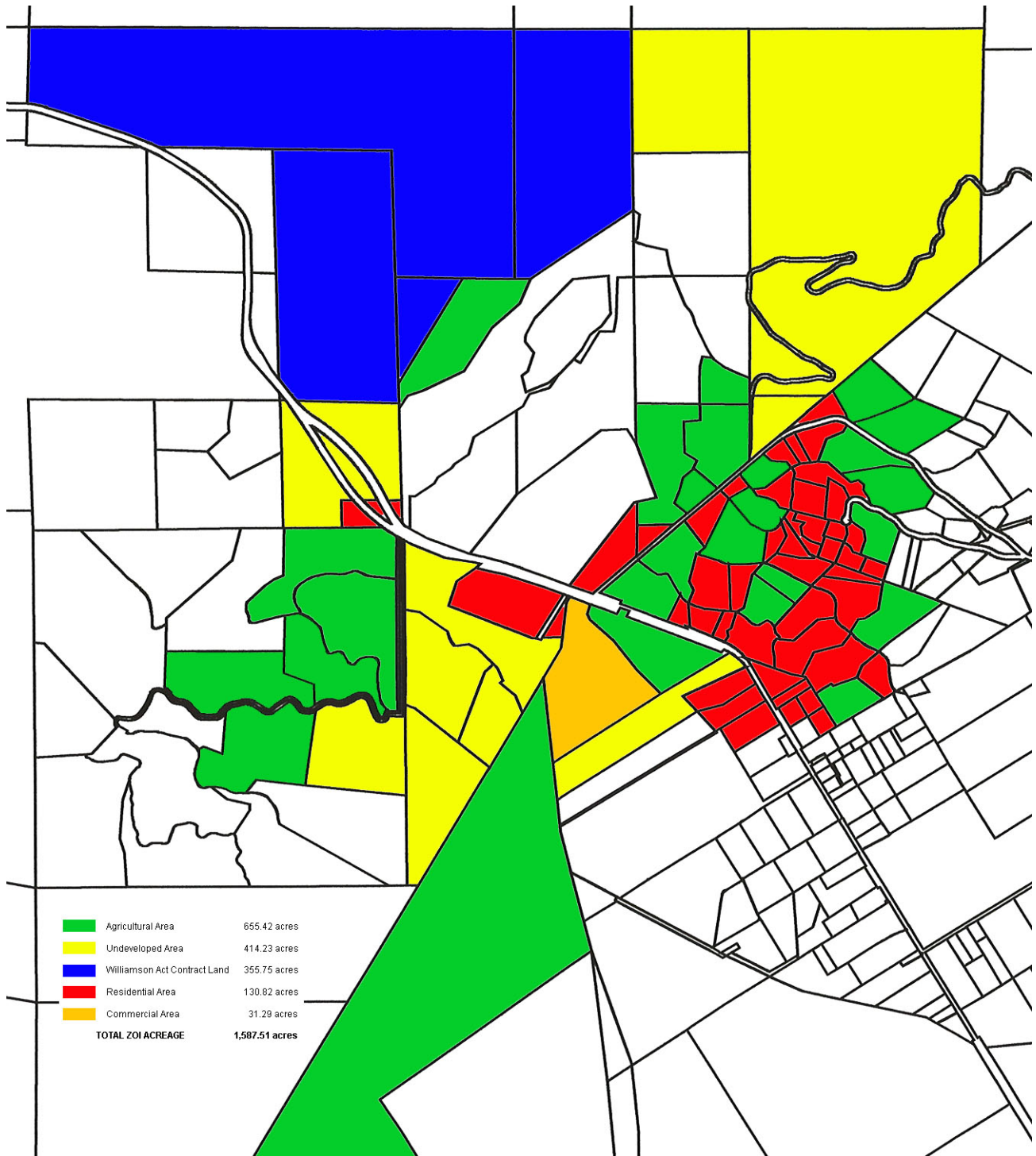








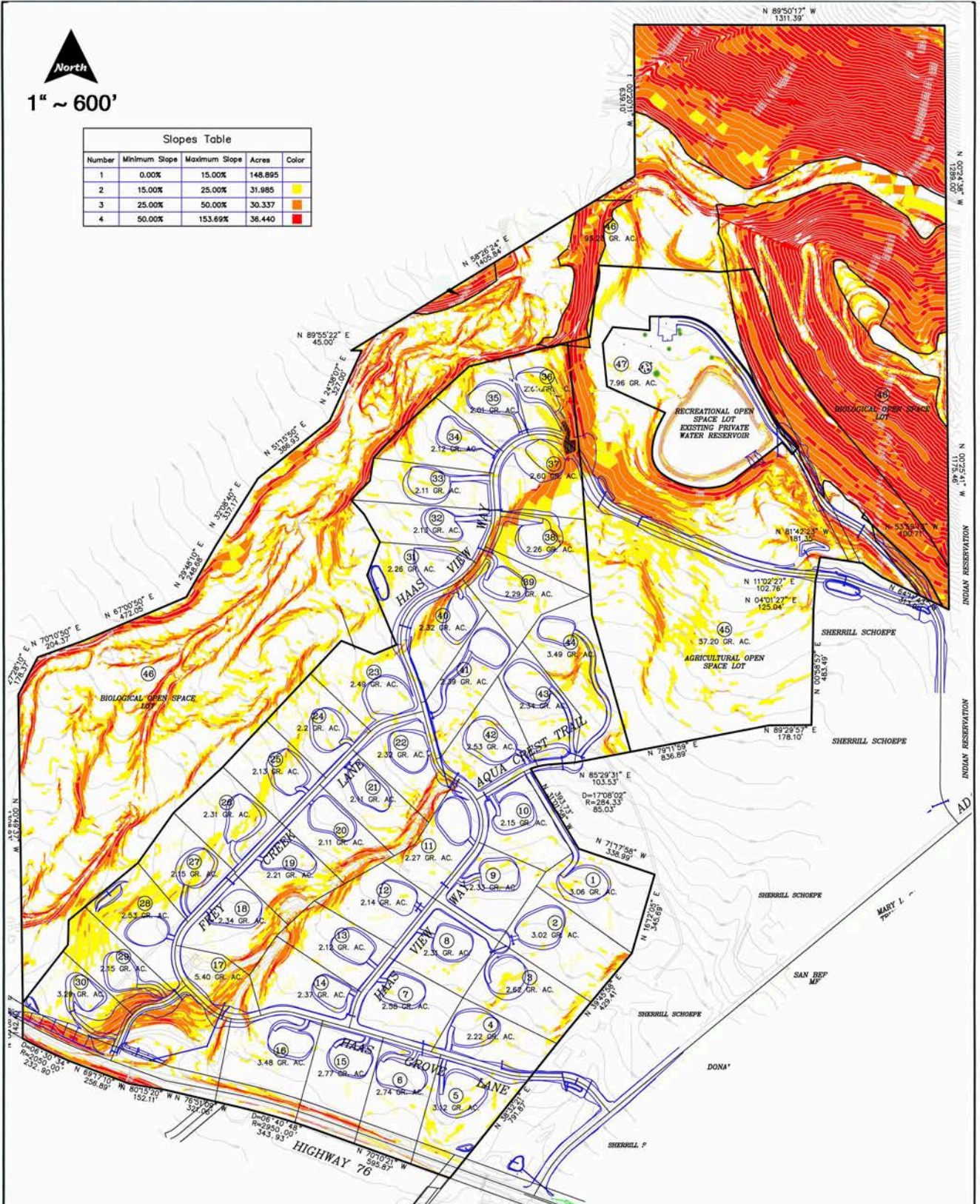
See Figure 11 for Index to Color Codes





1" ~ 600'

Slopes Table				
Number	Minimum Slope	Maximum Slope	Acres	Color
1	0.00%	15.00%	148.895	
2	15.00%	25.00%	31.985	
3	25.00%	50.00%	30.337	
4	50.00%	153.69%	36.440	



TM 5223
Soil Quality Matrix

**Table
1**

Soil Quality Matrix							
	Column A	Column B	Column C	Column D	Column E	Column F	Column G
	Soil Type	Size of project site (acreage)	Unavailable for agricultural use	Available for agricultural use	Proportion of project site	Is soil candidate for prime farmland or farmland of statewide significance? (Yes=1, No=0)	Multiply Column E x Column F
Row 1	SsE	141.13	57	84.13	.77	0	0
Row 2	CnG2	40.89	40.89	0	0	0	0
Row 3	SvE	36.94	36.94	0	0	0	0
Row 4	CnE2	29.30	3.5	25.8	.23	0	0
Row 5	Total	248.26	Total	109.93			
Row 6	Soil Quality Matrix Score						0

Source: Guidelines for Determining Significance, Agricultural Resources, DPLU 3/19/07

LARA Model Factor Ratings			
	LARA Model Rating		
	High	Moderate	Low
Required Factors			
Climate	X		
Water		X	
Soil Quality			X
Complementary Factors			
Surrounding Land Uses	X		
Land Use Consistency	X		
Slope	X		

Source: Guidelines for Determining Significance, Agricultural Resources, DPLU 3/19/07

# On Fig 13	Project Number	Reason for Determination of No Agricultural Impact
3	AD 05-065	Categorical Exemption
7	MUP 81-037	No agriculture onsite, no soils of importance onsite (minor expansion of existing use) ¹
8	MUP 65-034	No agriculture onsite (expansion of existing use) ¹
9	ZAP 01-114	Citrus & subtropicals onsite, exempt from CEQA ¹
10	TPM 20896	Withdrawn
11	MUP 05-009	Withdrawn
12	TPM 20959	Withdrawn
13	ZAP 07-006	Withdrawn
14	MUP 67-092	No agriculture onsite, no soils of importance onsite (avoids impacts to Prime and Statewide Importance soils) ¹
15	MUP 99-001	Packing house continues to support agriculture
16	TPM 20913	No agriculture onsite, no soils of importance onsite (avoids impacts to Prime and Statewide Importance soils) ¹
17	MUP 06-076	No agriculture onsite, no soils of importance onsite (auxiliary use) ¹
18	MUP 63-162	No agriculture onsite, no soils of importance onsite (minor expansion of existing use) ¹
19	TM 4944	No agriculture onsite, no soils of importance onsite (avoids impacts to Prime and Statewide Importance soils) ¹
20	MUP 08-045	No agricultural impacts on site
23	GPA 09-006	Amendment of General Plan Circulation element. No impact to agriculture

¹ per Guidelines for Determining Significance, Agricultural Resources, Section 4.2.1

TM 5223
Cumulative Project List

**Table
4**

# On Fig 13	Project Name	Project Number	Agricultural Use Onsite	Important Agricultural Resource? Prime Farmland (PF) Farmland of Statewide Importance (FSI)	Direct Impact Estimate (Ac)
1	McNally Road	TPM 21004	Avocado & citrus	None	0
2	Nextel	MUP 05-014	Truck crops	PF	<1
3	T-Y Nursery Yard	AD 05-065	Nursery operation	None	0
4	Oak Tree Ranch	TM 5540	Truck crops	FSI	10
5	La Cuesta De Pauma	TM 5263	Avocado & citrus	None	0
6	Club Estates	TM 5499	Citrus	PF & FSI	32
15	Pauma Valley Packing Co	MUP 99-001	Fruit packing/ processing	None	0
21	Sol Orchard	AP11-037	Pasture, row crops	FSI	43
25	Campus Park West	GPA 05-003	Grassland	Undetermined	8.8
26	Meadowwood	GPA 04-002	Grazing land	Undetermined	165.3
27	Warner Ranch	GPA 03-004	Grassland	Undetermined	77.3
Total Acres					337.4

ATTACHMENTS

ATTACHMENT A

LARA Model Instructions

3.1 LARA Model Instructions⁶

Application of the LARA model is intended for use in evaluating the importance of agricultural resources when it is determined that a discretionary project could adversely impact agricultural resources located onsite. The LARA model takes into account the following factors in determining importance of the agricultural resource:

Required Factors:

Water
Climate
Soil Quality

Complementary Factors:

Surrounding Land Uses
Land Use Consistency
Topography

Directions for determining the rating for each LARA model factor are provided in sections 3.1.1 through 3.1.6 of this document. Upon rating each factor, it is necessary to refer to Table 2, Interpretation of LARA Model Results, to determine the agricultural importance of the site.

Table 2. Interpretation of LARA Model Results

LARA Model Results			LARA Model Interpretation
Possible Scenarios	Required Factors	Complementary Factors	
Scenario 1	All three factors rated high	At least one factor rated high or moderate	The site is an important agricultural resource
Scenario 2	Two factors rated high, one factor rated moderate	At least two factors rated high or moderate	
Scenario 3	One factor rated high, two factors rated moderate	At least two factors rated high	
Scenario 4	All factors rated moderate	All factors rated high	
Scenario 5	At least one factor rated low importance	N/A	The site is <i>not</i> an important agricultural resource
Scenario 6	All other model results		

Data Availability

To complete the LARA model, various data sources are needed. The most efficient approach to completing the model is through analysis within a GIS. To facilitate this approach, the GIS data layers required to complete the LARA model are available upon request from DPLU. Available data sources include: groundwater aquifer type, Generalized Western Plantclimate Zones or "Sunset Zones", and Prime Farmland and

⁶ Various data sources referenced in this document are available from DPLU in hard copy format (maps) or in digital format for use within a Geographic Information System (GIS). Obtaining various data sources will be required to determine the importance of the resource.

Farmland of Statewide Importance soil candidates. Other data sources are available from the SANGIS webpage at <http://www.sangis.org/>.

3.1.1 Water

The water rating is based on a combination of a site's CWA service status, the underlying groundwater aquifer type and the presence of a groundwater well (Table 3). Due to the variability of well yields and the potential for groundwater quality problems to adversely impact the viability of the well for agricultural purposes, the water factor allows for a reduction in the water rating based on site specific well yield and quality data, if that data is available (Table 4).

Table 3. Water Rating ⁷

County Water Authority (CWA) Service Status -	Groundwater Aquifer Type and Well Presence	Rating
Inside CWA service area with existing water infrastructure connections and a meter	Any groundwater aquifer type	High
Inside CWA service area with infrastructure connections to the site, but no meter has been installed	The site is located in an Alluvial or Sedimentary Aquifer <i>and</i> has an existing well	High*
	The site is located in an Alluvial or Sedimentary Aquifer, but has no existing well	Moderate*
	The site is located on Fractured Crystalline Rock and has an existing well	Moderate*
	The site is located on Fractured Crystalline Rock, but has no existing well	Low*
Outside CWA or inside CWA but infrastructure connections are not available at the site and no meter is installed	The site is located in an Alluvial or Sedimentary Aquifer <i>and</i> has an existing well	Moderate*
	The site is located in an Alluvial or Sedimentary Aquifer, but has no existing well	Low*
	The site is located on Fractured Crystalline Rock (with or without a well)	Low*
	The site is located in a Desert Basin (with or without a well)	Low*

*These water ratings may be reduced based on available groundwater quantity and quality information, in accordance with Table 4. If no additional groundwater quantity or quality data is available, the ratings above shall apply.

⁷ If more than one underlying groundwater aquifer type exists at a site, usually the aquifer type that could produce the most water should be used to obtain the water rating. If it would be more reasonable to apply the rating based on the aquifer that would produce less water, a clear justification and reason for doing so must be provided.

Water Quality and Quantity Limitations

Site specific limitations to groundwater availability and quality exist and can lower the overall water rating of a site when data is available to support the limitation. Sites with imported water availability may not receive a lower water rating based on groundwater quality or yield data. Table 4 outlines potential water availability and quality limitations and the associated effect on the LARA model water rating.

Table 4. Groundwater Availability and Quality Effects on Water Rating

Groundwater Availability and Quality	Effect on Water Rating
The site has inadequate cumulative well yield (<1.9 GPM per acre of irrigated crops); TDS levels above 600 mg/L; or another documented agricultural water quality or quantity limitation exists	Reduces water rating by one level (i.e. from high to moderate or from moderate to low)

A determination of inadequate cumulative well yield as stated in Table 4 means that a site's well cannot produce at least enough water for each acre of irrigated crops at the site. At least 1.9 GPM is required per acre of irrigated crops, equating to production of 3 Acre Feet/Year (AFY) based on the following conversion factor: 1 AFY = 325,851 Gallons per Year / 365 days / 1440 minutes = 0.62 GPM. Cumulative well yield means that the combined yield of all wells on site may be summed to meet the required groundwater yield. As an example, if a site has 5 acres of irrigated crops, then production would need to be at least 9.5 GPM to produce enough water to irrigate the 5 acres, equating to approximately 15 AFY. If residence(s) exist on the project site, the groundwater analysis must demonstrate that an additional supply of 0.5 AFY can be achieved to account for residential water use associated with each existing onsite residence. To allow a reduction in the water quality score, TDS levels above 600 mg/L must be documented. If other documented water quality limitations exist that are not captured in the water quality measure of TDS, the water quality data must be provided and an associated water rating reduction justified. Although these requirements assume that water needs are consistent for a crop throughout the year while water requirements are typically higher in the dryer months, average annual required yield is used as the best available general measure of the adequacy of groundwater yields.

The quality and availability of imported water is not included as a factor to allow a reduction in the water rating due to an assumption that the MWD will continue to deliver water with the 500 mg/L TDS objective. However, it should be recognized that the degradation of the quality of Colorado River water is a known issue that could preclude the production of certain crops in the future. If in the future, the MWD is unable to meet their adopted water quality objectives, a similar reduction for imported water quality may need to be developed for consideration in the water score. Similarly, there is uncertainty regarding the continued future reliability of agricultural water deliveries based on various external issues that may affect local imported water supply such as protection of the Salton Sea and the stability of the Sacramento/San Joaquin Delta. As the impacts from external sources to local agricultural water deliveries become realized, the treatment of the water score in this document may need to be reevaluated.

Water Rating Explanation

Sites with availability of imported water always receive the highest water rating regardless of groundwater availability because the availability of imported water is essential for the long term viability of agriculture due to the limited natural rainfall and limited availability of groundwater resources in the County. Sites within the CWA service area that have no existing water meter, but that have water infrastructure connections to a site (in or near an adjacent street), are assigned a higher water rating than sites without existing water infrastructure connections. This is because the cost of extending off-site water infrastructure and obtaining a water meter is much higher than only obtaining a water meter and constructing onsite infrastructure connections to existing adjacent imported water infrastructure. Furthermore, the presence of existing imported water infrastructure adjacent to a site is a good indication that imported water is likely to become available to the site in the future (more likely than for a site far from infrastructure for imported water).

The underlying groundwater aquifer type and the presence of a well are two additional factors that affect the water rating. In general, sites underlain by an alluvial or sedimentary aquifer receive the highest ratings because these substrates have a much greater capacity to hold water than fractured crystalline rock. A site underlain by an alluvial or sedimentary aquifer with an existing well receives a higher rating than a site underlain by these geologic formations but having no existing well because of the cost associated with well installation. Well installation costs are added to the initial capital outlay required to begin an agricultural operation, thereby reducing the water rating if no well is present. The availability of groundwater in fractured crystalline rock is highly uncertain. However, a site underlain by fractured crystalline rock that has an existing well and is located adjacent to imported water infrastructure receives a moderate rating to take into account the cost of well installation, and the increased likelihood that imported water may become available at the site in the near future. Additionally, while groundwater yield in fractured crystalline rock is generally limited compared to other aquifer types, it can provide a good source of groundwater, especially in valley areas where there may be saturated residuum overlying the fractured crystalline rock. Sites with a well located on fractured crystalline rock, but without imported water infrastructure connections to the site, always receive a low rating because such sites would likely be reliant on a limited groundwater resource for the foreseeable future.

Nearly all agriculture in the desert basins is located in Borrego Valley, where documented groundwater overdraft conditions limit the long-term sustainability of agricultural use. A site located in a desert basin receives a low water rating due to the absence of imported water, and low groundwater recharge rates, which can easily result in groundwater overdraft conditions as documented in Borrego Valley, where extraction rates far exceed natural recharge. The Borrego Municipal Water District is taking measures to reduce water use in the basin through encouraging the fallowing of agricultural land. In addition, the County of San Diego requires proposed projects to mitigate for significant impacts to groundwater supply in accordance with CEQA. Mitigation may be achieved through the fallowing of agricultural land. These factors make preservation of agriculture in Borrego Valley infeasible in the long term when

considering the need to reduce overall groundwater use to protect the public health and the sustainability of the community.

Groundwater Quantity and Quality Explanation

The following discussion explains the reasoning behind the water rating reductions detailed in Table 4, Groundwater Availability and Quality Effects on Water Rating. The lack of a well with adequate yield (1.9 GPM for each acre of irrigated crops) reduces the water rating by one factor. This standard is based on the well yield needed to achieve production of 3 AFY per acre, an average crop irrigation requirement for crops produced locally (Table 5).

Table 5. Crop Water Use Averages

Crop	Typical Water Usage Per Acre (AFY)
Indoor Flowering and Foliage Plants	3-4
Ornamental Shrubs and Trees	3
Avocados	3
Bedding Plants	3
Cut Flowers	2-3
Tomatoes	2
Citrus	2.5-3
Poinsettias	3-4
Strawberries	3
Average	3

Source: UC Cooperative Extension, County of San Diego

A well with poor water quality (as measured by TDS levels above 600 mg/L or another documented water quality limitation) may reduce the water rating by one factor to account for agricultural limitations associated with using poor quality water for crop production. Groundwater with TDS concentrations above 600 mg/L is the guideline for allowing a reduction in the water factor based on available research on the effects of TDS on crop production, with specific focus on the effects on crops important to the San Diego region. In general, as TDS levels rise, water has diminishing value for agricultural use as it can restrict the range of crops that can be irrigated with the water and increases the cost of irrigation system maintenance.

According to the San Diego County Water Authority Agricultural Irrigation Water Management Plan, TDS levels above 500 mg/L are problematic for many of the subtropical crops produced in San Diego County, and TDS levels over 1,000 mg/l are virtually unusable for many of the subtropical crops grown here (2001). While TDS concentrations above 500 mg/L can be problematic for many subtropical crops, concentrations above 600 mg/L was selected as the guideline to take into account the already elevated TDS concentrations in imported water sources. Another study (Peterson, 1999) identified the TDS tolerance of selected crops. Field crops such as oat hay, wheat hay and barley were found to tolerate water with TDS levels up to 2,500

mg/L, but these are among the lowest value crops produced in the County. Strawberries were found to be intolerant to TDS levels greater than 500 mg/L; apples, grapes, potato, onion, and peppers slightly tolerant to TDS levels up to 800 mg/L; and cucumbers, tomatoes, and squash moderately tolerant to TDS levels up to 1,500 mg/L. The Florida Container Nursery BMP Guide prepared by the University of Florida Agricultural Extension (2006) identified TDS levels and the associated degree of problem that will be experienced for microirrigated container nursery production at different TDS levels. TDS of 525 mg/L or less was identified as producing no problems, TDS from 525 to 2100 mg/L having increasing problems, and TDS greater than 2100 mg/L having severe problems. High levels of TDS can be overcome through planting more salt resistant crops; however salt resistant crops are typically lower in value and would not produce the economic returns necessary to sustain a viable farming industry in San Diego County (high cost of production and land generally require production of high value crops). In general as TDS levels rise, crop yields decline, maintenance of irrigation systems becomes more difficult, and the range of crops (particularly high value crops) that can be supported is reduced.

In summary, TDS levels in groundwater above 600 mg/L substantially impair the water as a source of irrigation for agriculture, justifying a reduction in the water rating by one factor to account for the potential for reduced yields, increased difficulty in maintaining irrigation systems, and reduction in the range of crops that can be produced.

It is important to note that TDS is only one measure of water quality and does not differentiate between the various types of dissolved solids or contaminants that may be present in water. High levels of certain constituents can cause severe problems for agricultural production. For example, high chloride content can damage certain crops, while nitrates can cause problems for livestock. If specific documented limitations exist that reduce the viability of the water supply for agriculture, the water rating should be reduced. The quality of imported water is not considered because it is assumed that the MWD will deliver water with a maximum TDS of 500 mg/L, their adopted TDS objective for imported water deliveries.

3.1.2 Climate

Ratings associated with each Generalized Western Plantclimate Zone or "Sunset Zone" are included in Table 6, Climate Rating. The table identifies and describes each zone and justification for the associated rating.⁸ Detailed descriptions of the Sunset Zones in San Diego County are included in Attachment B.

⁸ All Sunset Zones in the County are not included in the table. Zone 22 is a small area that occurs entirely within Camp Pendleton, therefore no rating is assigned to this zone. Zone 24 is the maritime influenced zone. Only limited portions of unincorporated communities exist in this zone (County Islands in National City and the west Sweetwater area). Although this zone is valuable for certain high value crops, it is not assigned any importance rating due to the very small area of unincorporated land that occurs in this zone and the fact that the land is fully urbanized.

Table 6. Climate Rating

Climate (Sunset Zone) Description	Rating	Justification
Zone 23 represents thermal belts of the Coastal Areaclimate and is one of the most favorable for growing subtropical plants and most favorable for growing avocados. Zone 23 occurs in coastal incorporated cities and also occurs in the unincorporated communities of Fallbrook, Rainbow, Bonsall, San Dieguito, Lakeside, western portions of Crest and Valle De Oro, Spring Valley, Otay, and western portion of Jamul-Dulzura.	High	Zone 23 is rated high because this climate zone is the most favorable for growing some of the County's most productive crops. Year round mild temperatures allow year round production and the proximity to urban areas and infrastructure facilitates efficient delivery to market.
Zone 21 is an air drained thermal belt that is good for citrus and is the mildest zone that gets adequate winter chilling for some plants. Low temperatures range from 23 to 36 degrees F, with temperatures rarely dropping far below 30 degrees.	High	Zone 21 is rated high because of the mild year round temperatures and lack of freezing temperatures that allow year round production of high value crops. The importance of this zone is also related to the conversion pressure that exists due to urban encroachment. Preserving agriculture in Zone 21 is essential to maintain the high returns per acre that are common in this County. Climate is the essential factor that allows high value production. The loss of significant agricultural lands in Zone 21 would eventually relegate agriculture to areas further east where most of the County's high value crops cannot be viably produced. Zone 21 is also favorable due to its location close to urban areas and transportation infrastructure which facilitates product delivery to market.
Zone 20 is a cold air basin that may be dominated by coastal influence for a day, week or month and then may be dominated for similar periods of time by continental air. Over a 20 year period, winter lows in Zone 20 ranged from 28 to 23 degrees F.	High	Zone 20 occurs the Ramona area. Citrus groves are common in Zone 20 in addition to a concentration of animal agriculture operations and vineyards. Most of Zone 20 falls within the 89,000-acre Ramona Valley viticultural area which was designated as its own appellation in 2006 and contains 17 vineyards currently cultivating an estimated 45 acres of wine grapes. The distinguishing factors of the Ramona Valley viticultural area include its elevation, which contrasts with the surrounding areas, and climatic factors related to its elevation and inland location. Due to the favorable climate, proximity to urban areas, and its potential to become a more widely recognized viticultural area, Zone 20 is rated as a climate of high importance.
Zone 19 is prime for citrus, and most avocados and macadamia nuts can also be grown here.	High	Zone 19 is rated high due to the suitability for growing the County's high value crops and its location close to urban areas.

Zone 18 is a mountainous zone subject to frosts. Citrus can be grown in Zone 18, but frosts require the heating of orchards to reduce fruit loss. Zone 18 is the home of Julian's apple orchards.	Moderate	Zone 18 is assigned a medium rating due to its frost susceptibility, reducing its potential for supporting year round production and frost sensitive crops. However, the ability to produce crops that require winter chilling makes it a climate zone of moderate importance.
Zone 13 covers low elevation desert areas (considered subtropical) and is the most extensive of the County's desert Plantclimate zones. Zone 13 includes the extensive agricultural uses in the Borrego Valley.	Moderate	Zone 13 is assigned a moderate rating due to the temperature extremes characteristic of this zone. These temperature extremes exclude some of the subtropicals grown in Zones 22 to 24, however numerous subtropicals with high heat requirements thrive in this climate such as dates, grapefruit, and beaumontia and thevetia (ornamentals).
Zone 11 is located below the high elevation Zone 3 and above the subtropical desert Zone-13.	Low	Zone 11 is assigned a low climate rating due the agricultural hazards of the climate including late spring frosts and desert winds.
Zone 3 occurs in the high elevation Palomar Mountains in addition to high elevation areas east of the Tecate Divide. These are locations where snow can fall and wide swings in temperature occur.	Low	Most of these lands are public lands, reducing their potential for commercial agriculture. The wide swings in temperature, including freezing temperatures in winter make this zone of low importance agriculturally. This zone is also far from transportation infrastructure; an important consideration for crop delivery to market.

While it is anticipated that the climate ratings would normally not be modified, it is important to acknowledge that microclimate conditions do exist that cannot be captured in the Sunset Zone definitions. For example, topography can create certain microclimate conditions such as frost susceptibility that could downgrade the climate importance of a site to marginal if frost tolerant crops cannot be grown at the site. Any downgrading or upgrading of a climate rating must be accompanied by site specific climate data to support the modification, and any identified climate limitations must be based on the range of crops that could be viable at the site. For example, if frost sensitive crops are the only crop identified to be viable at the site and the site would be subject to frequent frosts, this should be documented and a lower rating may be applied. It is not anticipated that climate modifications would be commonly used given the diversity of crops that a site would usually be able to support.

Sunset Zones are used as a standard measure of climate suitability due to the variability of microclimate conditions that the Sunset zones take into account. Recognizing that the Sunset Zones were not developed as a tool to determine the suitability for commercial agricultural production, their use is not intended to determine suitability for specific crops, rather they are a measure of overall climate suitability for the typical agricultural commodities produced in San Diego County. For example, the Sunset Zone designations take into account the USDA hardiness rating which identifies the lowest temperature at which a plant will thrive. Sunset Zones start with the USDA hardiness zones and add the effects of summer heat in ranking plant suitability for an area. The American Horticulture Society (AHS) heat zone map ranks plants for suitability to heat, humidity and dryness. The AHS heat zone map was developed under the direction of

Dr. H. Marc Cathey, who was instrumental in the organization of the USDA Plant Hardiness Map. Each AHS heat zone has "heat days," those days with temperatures of 86° F or above. 86° F is the point at which some plants suffer damage to cellular proteins. The USDA plant hardiness zone maps and/or the AHS heat zone map may be used to supplement the Sunset Zone information if the Sunset Zone descriptions are not accurate.

3.1.3 Soil Quality

The project's soil quality rating is based on the presence of Prime Farmland Soils or Soils of Statewide Significance (Attachment C) that are available for agricultural use and that have been previously used for agriculture. Land covered by structures, roads, or other uses that would preclude the use of the land for agriculture, are not typically considered in the soil quality rating. To determine the soil quality rating, the soil types on the project site must be identified. The soils data for the project site must be entered into Table 7, Soil Quality Matrix as detailed in the steps below:

Step 1.

Identify the soil types that are on the project site. Enter each soil type in Rows 1 through 13 of Column A. If the site has more soil types than available rows, add additional rows as needed.

Step 2.

Calculate the acreage of each soil type that occurs on the project site and enter the acreage of each in Column B. Enter the total acreage in Row 14, Column B. This number should equal the total acreage of the project site.

Step 3.

Calculate the acreage of each soil type that is unavailable for agricultural use⁹ and enter the total in the corresponding rows of Column C.

Step 4.

Subtract the values in Column C from the acreages of each soil type identified in Column B. Enter the result in Column D.

⁹ Soils unavailable for agricultural use include: 1) lands with existing structures (paved roads, homes, etc.) that preclude the use of the soil for agriculture, 2) lands that have been disturbed by activities such as legal grading, compaction and/or placement of fill such that soil structure and quality have likely been compromised (e.g., unpaved roads and parking areas), 3) lands that are primarily a biological habitat type that have never been used for agriculture, and 4) lands constrained by biological conservation easements, biological preserve, or similar regulatory or legal exclusion that prohibits agricultural use. The distinction between agriculture and biological resources is not always clear because agricultural lands commonly support sensitive biological species. Agricultural lands that incidentally support sensitive species should still be considered an agricultural resource; however, biological habitats that have never been used for agriculture should not be considered an agricultural resource. It is possible that non-native grasslands will be classified as both a biological resource and an agricultural resource since many non-native grasslands have been established based on a history of agricultural use.

Step 5.

Sum the acreage values in Column D and enter the total in Column D, Row 14.

Step 6.

Divide the acres of each soil type in Column D by the total acreage available for agricultural use (Column D, Row 14) to determine the proportion of each soil type available for agricultural use on the project site. Enter the proportion of each soil type in the corresponding row of Column E.

Step 7.

Determine whether each soil type is a soil candidate for Prime Farmland or Farmland of Statewide Importance. If yes, enter 1 in the corresponding row of Column F. If no, enter zero in the corresponding row of Column F.

Step 8.

Multiply Column E x Column F. Enter the result in the corresponding row of Column G.

Step 9.

Sum the values in Column G and enter the result in Column G, Row 15 to obtain the total soil quality matrix score.

Step 10.

Based on the total soil quality matrix score from Table 7, identify the corresponding soil quality rating using Table 8 Soil Quality Matrix Interpretation

Table 7. Soil Quality Matrix

	Column A	Column B	Column C	Column D	Column E	Column F	Column G
	Soil Type	Size of project site (acreage)	Unavailable for agricultural use	Available for agricultural use	Proportion of project site	Is soil candidate for prime farmland or farmland of statewide significance? (Yes = 1, No = 0)	Multiply Column E x Column F
Row 1							
Row 2							
Row 3							
Row 4							
Row 5							
Row 6							
Row 7							
Row 8							
Row 9							
Row 10							
Row 11							
Row 12							
Row 13							
Row 14	Total		Total				
Row 15	Soil Quality Matrix Score						

Table 8. Soil Quality Matrix Interpretation

Soil Quality Matrix Score	Soil Quality Rating
The site has a Soil Quality Matrix score ranging from 0.66 to 1.0 and has a minimum of 10 acres of contiguous Prime Farmland or Statewide Importance Soils	High
The site has a Soil Quality Matrix score ranging from 0.33 to 0.66 or the site has a minimum of 10 acres of contiguous Prime Farmland or Statewide Importance Soils	Moderate
The site has a Soil Quality Matrix score less than 0.33 and does not have 10 acres or more of contiguous Prime Farmland or Statewide Importance Soils	Low

Soil Quality Rating Justification

The presence of Prime Farmland Soils or Soils of Statewide Significance is used as the measure of quality soil in the LARA soil quality rating based on their use in defining soil candidates for the FMMP Farmland categories of Prime Farmland and Farmland of Statewide Importance. Soil candidates for the FMMP Prime Farmland designation are soils with the best combination of physical and chemical characteristics for the production of crops. Soil candidates for the FMMP Farmland of Statewide Importance designation are similar to the soil criteria for Prime Farmland, but include minor shortcomings, such as greater slopes or less ability to store soil moisture. Soil candidates for Farmland of Statewide Importance do not have any restrictions regarding permeability or rooting depth. Soil candidates for Farmland of Statewide Significance are included in this rating to capture quality soils with minor shortcomings that may not have been included, if the typical definition of Prime Agricultural Land as stated in Government Code Section 51201(c) was used. Soil criteria used in Government Code Section 51201(c) identifies any land with a LCC rating of I or II or a Storie Index Rating from 80 to 100 as land that meets the definition of prime agricultural land. Because San Diego County has limited quantities of soils that meet these criteria, locally defined NRCS soil candidates for Prime Farmland and Farmland of Statewide Importance are included to define quality soils in this locale given that 70% of these soils have LCC higher than I or II and 88% have SI ratings below 80. Details regarding the soil criteria that determine the applicability of a soil for the respective Farmland designation is included in Attachment C, Soil Candidate Criteria and Candidate Listing for Prime Farmland and Farmland of Statewide Importance.

Table 8, Soil Quality Matrix Interpretation, identifies high, moderate, or low importance ratings based on the soil quality matrix score from Table 7. The maximum possible soil quality matrix score is one and the minimum is zero because the score is based on the amount of the agricultural resources onsite that are Prime and Statewide Importance soil candidates. A site with a soil quality matrix score of 0.66 or higher means that two-thirds of the agricultural resources onsite have soils that meet the soil quality criteria for Prime Farmland or Farmland of Statewide Importance. A minimum of 10 contiguous acres is required for a site to be assigned the highest soil quality rating to reflect the need for high quality soils to be contiguous in order for them to be considered useful

agriculturally. If the site has a soil quality score from 0.33 to 0.66 or has 10 acres or more of contiguous soils that meet the soil quality criteria for Prime Farmland or Farmland of Statewide Importance, the site is assigned the moderate importance rating. If less than one-third of the site or less than 10 contiguous acres of the agricultural resources onsite have soils that meet the Prime or Statewide Importance soil criteria, the site is assigned the low importance rating for soil quality. A ten acre threshold is included in the ratings to capture the potential for a large project site to have a substantial quantity of high quality soils and still receive a low importance rating due to the project's size in relation to the acreage of quality soils. Ten acres is an appropriate acreage to use in this context because ten acres would typically be able to support a wide range of agricultural uses in San Diego County. Furthermore, to be eligible for a Williamson Act Contract in an Agricultural Preserve, the County of San Diego Board of Supervisor's Policy I-38 (Agricultural Preserves) recommends various minimum ownership sizes, with ten acres being the minimum, to be eligible for a contract. Ten acres is listed as the minimum size for various agricultural activities including poultry, tree crops, truck crops, and flowers. The requirement that the land be contiguous recognizes that small, scattered pockets of high quality soils are less valuable for agricultural use than an area of contiguous high quality soils.

3.1.4 Surrounding Land Use

Surrounding land use is a factor in determining the importance of an agricultural resource because surrounding land uses that are compatible with agriculture make a site more attractive for agricultural use due to lower expectations of nuisance issues and other potential impacts from non-farm neighbors. This factor also accounts for the degree to which an area is primarily agricultural, assigning a higher rating to areas dominated by agricultural uses than an area dominated by higher density, urban development. Surrounding land use is a complementary factor in the LARA model because the presence of compatible surrounding land uses can support the viability of an agricultural operation; however a lack of compatible surrounding land uses would not usually prohibit productive agriculture from taking place (depending on the type of production). Similarly, agriculture can be viable among urban uses, but its long term viability would generally be less than an agricultural operation conducting operations in an area dominated by agricultural uses because of lesser economic pressures to convert to urban uses. To determine the surrounding land use rating, the following information must be determined:

Step 1.

Calculate the total acreage of lands compatible with agricultural use¹⁰ within the defined Zone of Influence (ZOI).¹¹ The location of agricultural lands can be determined using information from the DOC's Important Farmland Map Series, agricultural land use data available from the DPLU, aerial photography, and/or direct site inspection. Land within a ZOI that is observed to be fallow or with a history of agricultural use will usually be considered agricultural land, unless there is evidence that it has been committed to a non-agricultural use (such as having an approved subdivision map). The Department of Planning and Land Use may consult the Department of Agriculture, Weights and Measures if there are disputed interpretations.

Step 2.

Calculate the percentage of the acreage within the project's ZOI that is compatible with agricultural use.

Step 3.

Based on the proportion of lands within the ZOI that are compatible with agricultural use, identify the appropriate surrounding land use rating in accordance with Table 9, Surrounding Land Use Rating.

Table 9. Surrounding Land Use Rating

Percentage of Land within ZOI that is Compatible with Agriculture	Surrounding Land Use Rating
50% or greater	High
Greater than 25% but less than 50%	Moderate
25% or less	Low

Considering surrounding land uses within the ZOI is intended to provide a measurement of the long term sustainability of agriculture at the project site. Agriculture is generally

¹⁰ Lands compatible with agricultural uses include existing agricultural lands, protected resource lands, and lands that are primarily rural residential. Protected resource lands are those lands with long-term use restrictions that are compatible with or supportive of agricultural uses including but not limited to Williamson Act contracted lands; publicly owned lands maintained as park, forest, open space, 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. For the purposes of this factor rating, rural residential lands include any residential development with parcel sizes of two acres or greater and that contain elements of a rural lifestyle such as equestrian uses, animal raising, small hobby type agricultural uses, or vacant lands. Residential parcels with swimming pools, children's play areas, second dwelling units, or other accessory uses that occupy a majority of the usable space of a residential parcel should not be identified as land compatible with agriculture.

¹¹ Attachment F details the steps required to determine the Zone of Influence (ZOI). The ZOI methodology is taken from the Department of Conservation's Land Evaluation Site Assessment (LESA) model and includes a minimum area of ¼ mile beyond project boundaries and includes the entire area of all parcels that intersect the ¼ mile boundary. The ZOI developed by the Department of Conservation is the result of several iterations during development of the LESA model for assessing an area that would generally be a representative sample of surrounding land use. For example, a 160 acre project site would have a ZOI that is a minimum of eight times greater (1280 acres) than the project itself.

compatible with other agricultural land uses because they are more likely to be tolerant of the typical activities and nuisances associated with agricultural operations than urban land uses would be. Primarily rural residential lands are included as a land use compatible with agriculture because rural residential lands are already common among agricultural uses and most active farms also have residences on the site. Although not all types of agriculture are compatible with rural residential land uses (i.e. confined animal facilities); many typical San Diego County farming operations are compatible with rural residential land uses as is evidenced by the existing viability of agricultural operations that are located among rural residential land uses. For example, in many North County communities, small parcels (two acres, for example) with a single family residence and a small orchard or other farming or equestrian use are common. These residential uses, due to their direct involvement in agriculture or a rural lifestyle, would tend to be more compatible with agriculture than a high density development where homeowners would be less likely to be directly involved in rural lifestyle activities (e.g. agriculture, equestrian, animal raising, etc.). Occupants of higher density residential uses are more likely to be disturbed by noise, dust, pesticides or other nuisances that do not fit with the peaceful perceptions of living in the countryside.

3.1.5 Land Use Consistency

The median parcel size associated with the project site compared to the median parcel size of parcels located within the ZOI is a complementary factor used in the LARA model. In order to determine the land use consistency rating for the project, the following information must be determined:

Step 1.

Identify the median parcel size associated with the proposed project if the proposed project consists of at least three parcels. If the proposed project consists of two parcels, use an average. If the proposed project consists of only one parcel, then no median or average is needed.

Step 2.

Identify the median parcel size of the parcels located within the project's ZOI.

Step 3.

Considering the project's median parcel size and the ZOI median parcel size, identify the land use consistency rating in accordance with Table 10.

Table 10. Land Use Consistency Rating

Project's median parcel size compared to ZOI median parcel size	Land Use Consistency Rating
The project's median parcel size is smaller than the median parcel size within the project's ZOI	High
The project's median parcel size is up to ten acres larger than the median parcel size within the project's ZOI	Moderate
The project's median parcel size is larger than the median parcel size within the project's ZOI by ten acres or more	Low

Land use consistency is used as a measure of importance to recognize the effect that surrounding urbanization has on the viability of ongoing agricultural uses and to recognize that as urbanization surrounds agricultural lands, opportunity costs¹² for agricultural operators increase, thus reducing the viability of an agricultural operation. A site surrounded by larger parcels indicates that the site is located in an area that has not already been significantly urbanized and the area is more likely to continue to support viable agricultural uses. On the other hand, a site surrounded by smaller parcels indicates a lower likelihood of ongoing commercial agriculture viability considering the greater expectations of land use incompatibilities that the site is likely to experience and the reduction in economic viability when considering forgone opportunity costs. The median parcel size is used instead of an average to account for the potential for a very large or very small parcel to exist that would skew the result if using an average.

3.1.6 Slope

To determine the Slope Rating for the site, the average slope for the area of the site that is available for agricultural use must be determined. Refer to Column D of Table 7, Soil Quality Rating Matrix, for the areas of the site considered available for agricultural use. When the average slope of the areas of the site that is available for agricultural use is determined, identify the corresponding topography rating as outlined in Table 11, below.

Table 11. Slope Rating

Average Slope	Topography Rating
Less than 15% slope	High
15% up to 25% slope	Moderate
25% slope and higher	Low Importance

¹² Opportunity cost is an economic term. It means the cost of something in terms of an opportunity foregone (and the benefits that could be received from that opportunity), or the most valuable foregone alternative. For example, if a land owner decides to farm his land, the opportunity cost is the value of one or more alternative uses of that land, such as a residential subdivision. If he continues to farm the land, the opportunity cost is the revenue that he does not receive from building houses. Thus, as opportunity costs rise, the viability of continuing the current action (i.e. agricultural use) decreases. This conclusion is based on the fact that agricultural use of land is primarily an economic decision. When factors, such as increased opportunity costs, make use of the land for agriculture less profitable than other uses, the long term viability of agriculture decreases.

Slope is included as a complementary factor in the LARA model to account for the importance that slope plays in the viability of a piece of land for agricultural production, a flat site allowing a greater range of potential agricultural uses and facilitating mechanization of operations. Gentle topography has other benefits such as reduced difficulty in managing irrigation runoff and reduced soil erosion as compared to more steep sites. Topography is not a required factor for a determination of importance because topography limitations can be overcome at a cost if the expected return on investment is high enough to warrant the expense (i.e. container based production, mass grading).

4.0 TYPICAL ADVERSE EFFECTS AND GUIDELINES FOR DETERMINING SIGNIFICANCE

4.1 Typical Adverse Effects

Typical adverse effects to agricultural resources are best considered in relation to the various types of impacts that are considered under CEQA: direct, indirect and cumulative. Direct impacts are straightforward: important agricultural resources are converted to a non-agricultural use, significantly reducing or eliminating the productive capacity of the land. Indirect effects are widely varied and require careful analysis of particular site conditions and farming operations. Indirect effects include significant impacts to active agricultural operations, Williamson Act Contracts, or to the viability of important agricultural resources. Indirect effects can result from growth inducement and the associated extension of infrastructure that can change rural character and increase the likelihood of agriculture urban interface conflicts. Indirect impacts can be caused by significant economic impacts to active agricultural operations that compromise their ongoing viability and result in increased likelihood of conversion. Significant cumulative impacts result when a project's impacts are considerable when viewed in connection with the effects of past, present and probable future projects. Cumulative impacts are difficult to assess given the market driven and adaptable nature of agriculture. For example, a loss of agricultural land may occur in one area, while new land is converted to agriculture use elsewhere. Similarly, changes in agricultural commodity market prices could result in a shift in the type of agricultural commodities produced locally. Changes in the agricultural industry that result from external market factors could appear to be significant cumulative impacts to agriculture when they may only be a result of market adaptation to external economic conditions.

4.1.1. Direct Impacts

Direct impacts occur when a project would adversely impact locally important agricultural soils on a site that is determined to be important pursuant to the County LARA model. In San Diego County, important agricultural soils include not only soils with the USDA LCC ratings of I and II or Storie Index ratings of 80 or higher, but also includes soils of lesser quality as defined by the soil candidate listing for Prime Farmland and Farmland of Statewide Importance compiled by the USDA NRCS for San

ATTACHMENT B

Important Farmland Mapping Categories

IMPORTANT FARMLAND MAPPING CATEGORIES

The following definitions are used in preparing the Important Farmland Maps and the Farmland Conversion Report.

The definitions for Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Urban Built-up Land were developed by the USDA-SCS as part of their nationwide Land Inventory and Monitoring (LIM) system.

These LIM definitions have been modified for use in California. The most significant modification is that Prime Farmland and Farmland of Statewide Importance must be irrigated. Farmland of Local Importance has been identified by local advisory committees and vary from county to county, as intended by the LIM. Mapping of Grazing Land as part of an Important Farmland Map is unique to California. The minimum mapping unit is 10 acres unless otherwise specified. Units of land smaller than 10 acres will be incorporated into the surrounding map classifications.

Prime Farmland

Prime Farmland is land which has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. Prime Farmland must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.

Prime Farmland must meet all the following criteria:

a. Water

The soils have xeric, ustic, or aridic (torric) moisture regimes in which the available water capacity is at least 4.0 inches (10 cm) per 40 to 60 inches (1.02 to 1.52 meters) of soil, and a dependable irrigation water supply that is dependable and of adequate quality. A dependable water supply is one which is available for the production of the commonly grown crops in 8 out of 10 years; and

b. Soil Temperature Range

The soils have a temperature regime that is frigid, mesic, thermic, or hyperthermic (pergelic and cryic regimes are excluded). These are soils that, at a depth of 20 inches (50.8 cm), have a mean annual temperature higher than 32°F (0° C). In addition, the mean summer temperature at this depth in soils with an O horizon is higher than 47° F (8° C); in soils that have no O horizon, the mean summer temperature is higher than 59° F (15° C); and

c. Acid-Alkali Balance

The soils have a pH between 4.5 and 8.4 in all horizons within a depth of 40 inches (1.02 meters); and

d. Water Table

The soils have no water table or have a water table that is maintained at a sufficient depth during the cropping season to allow cultivated crops common to the area to be grown; and

e. Soil Sodium Content

The soils can be managed so that, in all horizons within a depth of 40 inches (1.02 meters), during part of each year the conductivity of the saturation extract is less than 4 mmhos/cm and the exchangeable sodium percentage is less than 15; and

f. Flooding

Flooding of the soil (uncontrolled runoff from natural precipitation) during the growing season occurs infrequently, taking place less often than once every two years; and

g. Erodibility

The product of K (erodibility factor) multiplied by the percent of slope is less than 2.0; and

h. Permeability

The soils have a permeability rate of at least 0.06 inch (0.15 cm) per hour in the upper 20 inches (50.8 cm) and the mean annual soil temperature at a depth of 20 inches (50.8 cm) is less than 59° F (15° C); the permeability rate is not a limiting factor if the mean annual soil temperature is 59° F (15° C) or higher; and

i. Rock Fragment Content

Less than 10 percent of the upper 6 inches (15.24 cm) in these soils consists of rock fragments coarser than 3 inches (7.62 cm); and

j. Rooting depth

The soils have a minimum rooting depth of 40 inches (1.02 meters).

Farmland of Statewide Importance

Farmland of Statewide Importance is land other than Prime Farmland which has a good combination of physical and chemical characteristics for the production of crops. It must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.

Farmland of Statewide Importance must meet all the following criteria:

a. Water

The soils have xeric, ustic, or aridic (torric) moisture regimes in which the available water capacity is at least 3.5 inches (8.89 cm) within a depth of 60 inches (1.52 meters) of soil; or within the root zone if it is less than 60 inches (1.52 meters) deep. They have a developed irrigation supply that is dependable and of adequate quality. A dependable water supply is one which is available for the production of the commonly grown crops in 8 out of 10 years; and

b. Soil Temperature Range

The soils have a temperature regime that is frigid, mesic, thermic, or hyperthermic (pergelic and cryic regimes are excluded). These are soils that, at a depth of 20 inches (50.8 cm), have a mean annual temperature higher than 32° F (0° C). In addition, the mean summer temperature at this depth in soils with an O horizon is higher than 47° F (8° C); in soils that have no O horizon, the mean summer temperature is higher than 59° F (15° C); and

c. Acid-Alkali Balance

The soils have a pH between 4.5 and 9.0 in all horizons within a depth of 40 inches (1.02 meters) or in the root zone if the root zone is less than 40 inches (1.02 meters) deep; and

d. Water Table

The soils have no water table or have a water table that is maintained at a sufficient depth during the cropping season to allow cultivated crops common to the area to be grown; and

e. Soil Sodium Content

The soils can be managed so that, in all horizons within a depth of 40 inches (1.02 meters), or in the root zone if the root zone is less than 40 inches (1.02 meters) deep, during part of each year the conductivity of the saturation extract is less than 16 mmhos/cm and the exchangeable sodium percentage is less than 25; and

f. Flooding

Flooding of the soil (uncontrolled runoff from natural precipitation) during the growing season occurs infrequently, taking place less often than once every two years; and

g. Erodibility

The product of K (erodibility factor) multiplied by the percent of slope is less than 3.0; and

h. Rock Fragment Content

Less than 10 percent of the upper 6 inches (15.24 cm) in these soils consists of rock fragments coarser than 3 inches (7.62 cm).

Farmland of Statewide Importance does not have any restrictions regarding permeability or rooting depth.

Unique Farmland

Unique Farmland is land which does not meet the criteria for Prime Farmland or Farmland of Statewide Importance, that has been used for the production of specific high economic value crops at some time during the two update cycles prior to the mapping date. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality and/or high yields of a specific crop when treated and managed according to current farming methods. Examples of such crops may include oranges, olives, avocados, rice, grapes, and cut flowers. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use.

Characteristically Unique Farmland:

- a. Is used for specific high value crops; and
- b. Has a moisture supply that is adequate for the specific crop; the supply is from stored moisture, precipitation or a developed irrigation system; and
- c. Combines favorable factors of soil quality, growing season, temperature, humidity, air drainage, elevation, exposure, or other conditions, such as nearness to market, that favor growth of a specific food or fiber crop; and
- d. Excludes abandoned orchards or vineyards, dryland grains, and extremely low yielding crops, such as irrigated pasture, as determined in consultation with the County Cooperative Extension Director and Agricultural Commissioner.

High-value crops are listed in California Agriculture, an annual report of the California Department of Food and Agriculture. In order for land to be classified Unique Farmland, the crop grown on the land must have qualified for the list at some time during the two update cycles prior to the mapping date.

Farmland of Local Importance

Farmland of Local Importance is either currently producing crops, has the capability of production, or is used for the production of confined livestock. Farmland of Local Importance is land other than Prime Farmland, Farmland of Statewide Importance or Unique Farmland. This land may be important to the local economy due to its productivity or value. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use. In a few counties the local advisory committee has elected to additionally define areas of Local Potential (LP) farmland. This land includes soils which qualify for Prime Farmland or Farmland of Statewide Importance, but generally are not cultivated or irrigated. For reporting purposes, Local Potential and Farmland of Local Importance are combined in the acreage tables, but are shown separately on the Important Farmland Map.

Farmland of Local Importance is initially identified by a local advisory committee (LAC) convened in each county by FMMP in cooperation with the USDA-SCS and the county board of supervisors. LAC membership is very similar to the map reviewers list on page 6 of this document. Authority to recommend changes to the category of Farmland of Local Importance rests with the board of supervisors in each county. The FMMP presents each draft map to the board of supervisors for their review. After the presentation of this map, the board of supervisors has a 90-day review period in which to request any needed modifications. An extension may be granted upon request. The board of supervisors may then approve or disapprove the Farmland of Local Importance category. The FMMP will accept the recommendation of the board of supervisors if it is consistent with the general program guidelines.

If no action is initiated by the county to identify or adopt a Farmland of Local Importance definition within a year of contact by FMMP, the county will be deemed to have no adopted definition for Farmland of Local Importance.

Any revision to the initial board of supervisors' action on Farmland of Local Importance will require 30-day written notice to FMMP and members of the LAC. This process may require reconvening of the LAC.

County definitions of Farmland of Local Importance are contained in Appendix C.

Grazing Land

Grazing Land is defined in Government Code §65570(b)(3) as:

"...land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing of livestock."

The minimum mapping unit for Grazing Land is 40 acres.

Grazing Land does not include land previously designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance, and heavily brushed, timbered, excessively steep, or rocky lands which restrict the access and movement of livestock.

The FMMP convenes a grazing land advisory committee in each project county to help identify grazing lands. The committees consist of members of the local livestock ranching community, livestock ranching organizations, and the U. C. Cooperative Extension livestock advisor. The FMMP works with the president of the local Cattlemen's Association and the U.C. Cooperative Extension livestock advisor in selecting members of these committees.

Urban and Built-up Land

Urban and Built-up Land is used for residential, industrial, commercial, construction, institutional, public administrative purposes, railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures, and other development purposes. Highways, railroads, and other transportation facilities are mapped as a part of Urban and Built-up Land if they are a part of the surrounding urban areas.

Units of land smaller than 10 acres will be incorporated into the surrounding map classifications. The building density for residential use must be at least 1 structure per 1.5 acres (or approximately 6 structures per 10 acres). Urban and Built-up Land must contain man-made structures or buildings under construction, and the infrastructure required for development (e.g., paved roads, sewers, water, electricity, drainage, or flood control facilities) that are specifically designed to serve that land. Parking lots, storage and distribution facilities, and industrial uses such as large packing operations for agricultural produce will generally be mapped as Urban and Built-up Land even though they may be associated with agriculture.

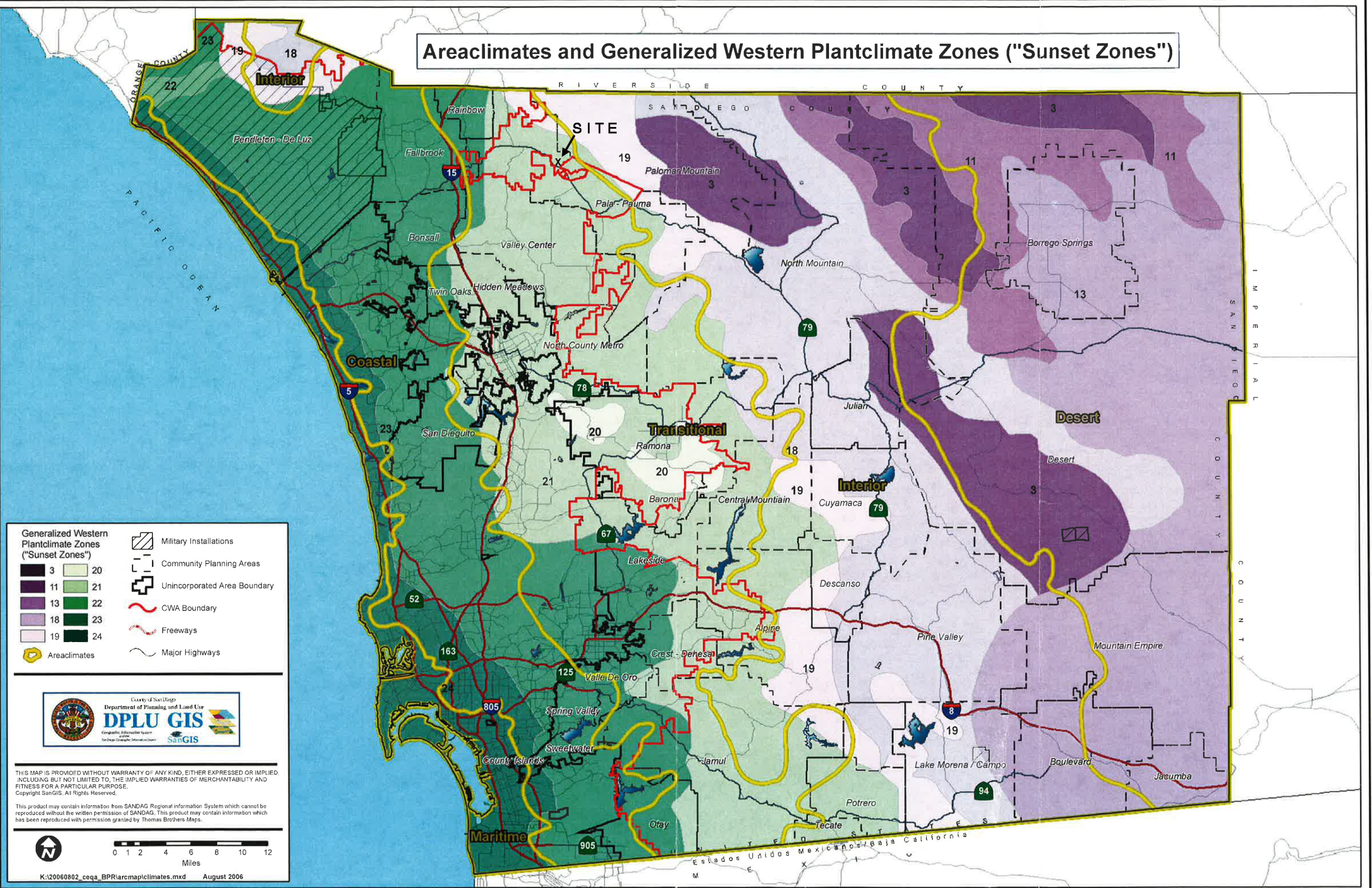
Urban and Built-up Land does not include strip mines, borrow pits, gravel pits, farmsteads, ranch headquarters, commercial feedlots, greenhouses, poultry facilities, or road systems for freeway interchanges outside of areas classified as Urban and Built-up Land areas.

Within areas classified as Urban and Built-up Land, vacant and nonagricultural land which is surrounded on all sides by urban development and is less than 40 acres in size will be mapped as Urban and Built-up. Vacant and nonagricultural land larger than 40 acres in size will be mapped as Other Land.

ATTACHMENT C

Areacimates and Generalized Western Plantclimate Zones

Areacimates and Generalized Western Plantclimate Zones ("Sunset Zones")



Generalized Western Plantclimate Zones ("Sunset Zones")

3	20
11	21
13	22
18	23
19	24

Areacimates

- Military Installations
- Community Planning Areas
- Unincorporated Area Boundary
- CWA Boundary
- Freeways
- Major Highways



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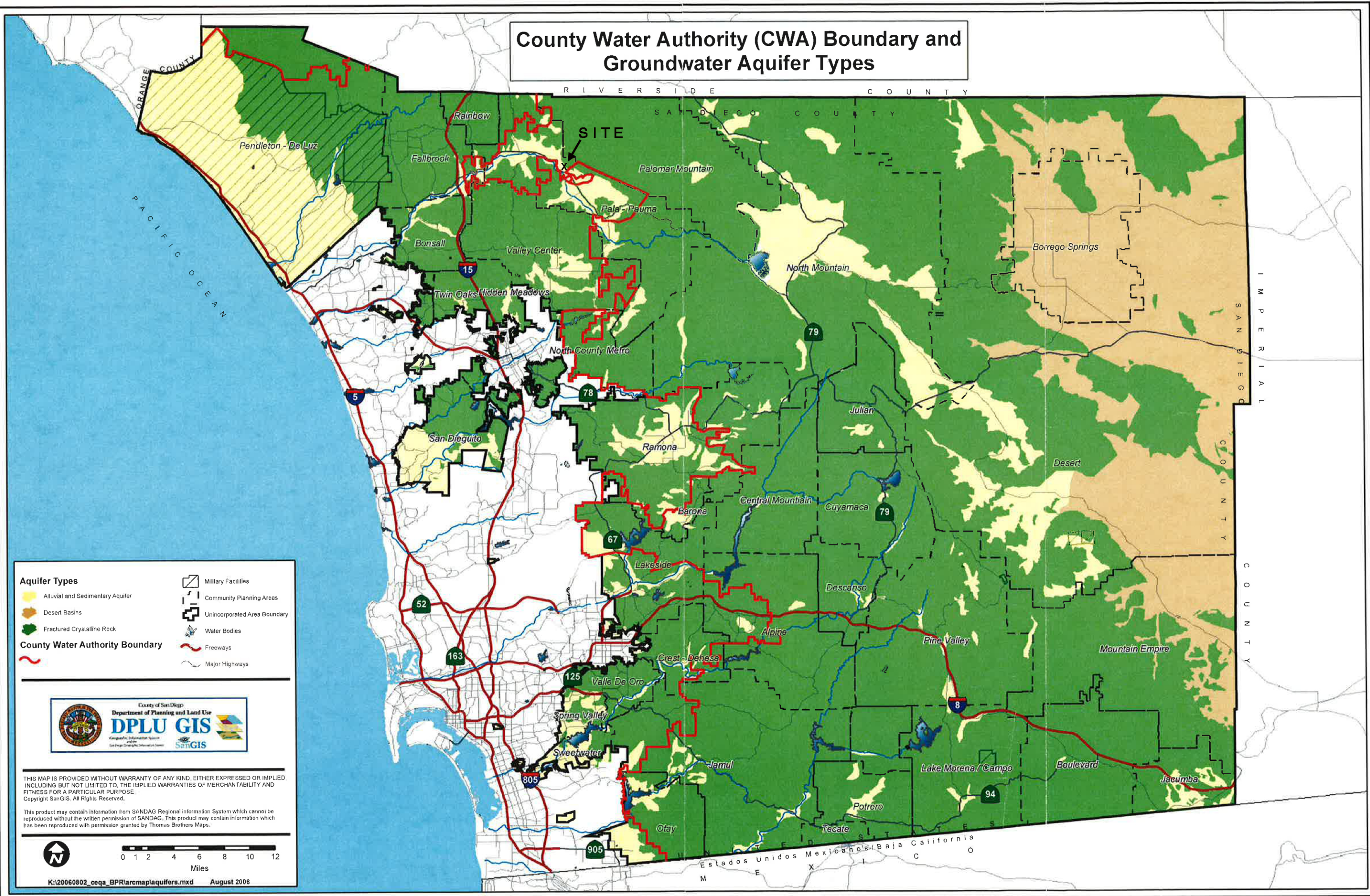
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ATTACHMENT D

County Water Authority Boundary and Groundwater Aquifer Types

County Water Authority (CWA) Boundary and Groundwater Aquifer Types



Aquifer Types

- Alluvial and Sedimentary Aquifer
- Desert Basins
- Fractured Crystalline Rock

County Water Authority Boundary

- Military Facilities
- Community Planning Areas
- Unincorporated Area Boundary
- Water Bodies
- Freeways
- Major Highways



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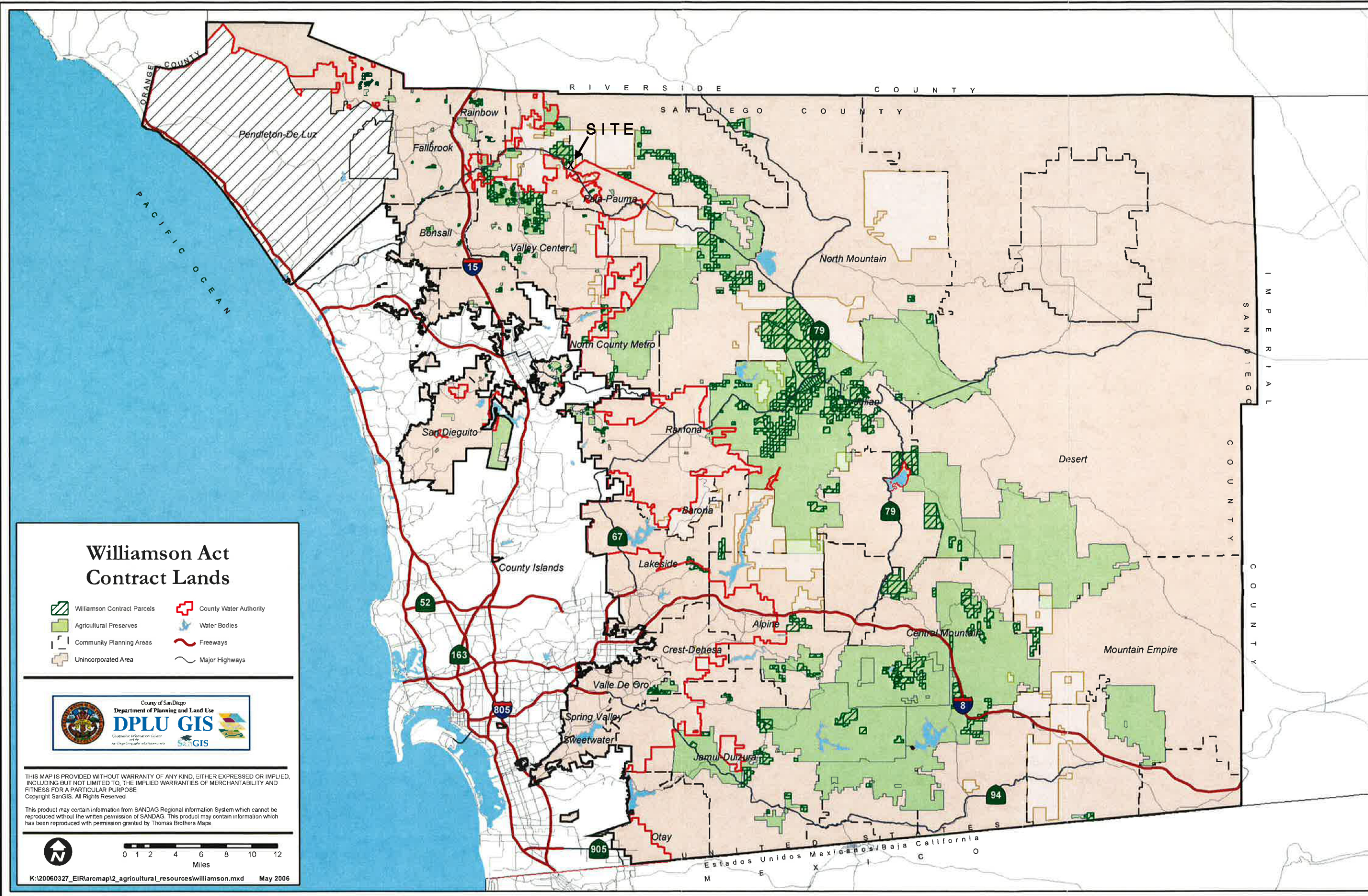
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ATTACHMENT E

Williamson Act Contract Lands



Williamson Act Contract Lands

- Williamson Contract Parcels
- Agricultural Preserves
- Community Planning Areas
- Unincorporated Area
- County Water Authority
- Water Bodies
- Freeways
- Major Highways



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