

AGRICULTURAL ANALYSIS

GREEN CANYON NORTH

TM 5553 ER 08-02-007

Prepared for

The County of San Diego

Project Proponent

Douglas E. McCormac

16553 2500 Road
Cedaredge, CO
(970) 856-4121

Prepared by

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GLOSSARY OF TERMS AND ACRONYMS

CEQA	California Environmental Quality Act
Cumulative Projects	Projects which meet the criteria to be considered a part of the cumulative effect in the region. This would involve having agriculture on the property, and having at least some amount of Principal Farmlands.
CWA	San Diego County Water Authority
FMMP	Farmlands Mapping and Monitoring Program
Guidelines	This refers to the County of San Diego Guidelines for Determining Significance and Report Format Content Requirements, Agricultural Resources.
LARA Model	Local Agricultural Resource Assessment Model
Principal Farmlands	Important Farmlands with the categories of prime, Statewide Importance, or Unique as found on the Important Farmlands Map as a part of the Farmlands Mapping and Monitoring Program of the California Department of Conservation.
Prime Farmland Soils	Candidate Soils for Prime Farmlands
Statewide Importance Soils	Candidate Soils for Farmlands of Statewide Importance
PACE Program	Purchase of Agricultural Conservation Easement Program
PDS	Planning and Development Services
PVCSD	Pauma Valley Community Services District
SDG&E	San Diego Gas and Electric
ZOI	Zone of Influence boundary as described in the LARA Model

SUMMARY (ABSTRACT)

This project is located in the Fallbrook Area of Northern San Diego County, east of the intersection of Winter Haven Road and Sunnycrest Lane, and is in the unincorporated area of San Diego County. The project proposes a 25 parcel Tentative Map (TM 5553) on 34.06 acres, with 22 lots proposed for residential uses, one for open space, and two road lots. The residential parcels would range in size from 1.006 to 3.02 acres net, and the project will have a density of one dwelling unit per 1.53 acres net.

The site has been used for agriculture in the early 1900's but the large majority of the trees have died, and there is now only a small area of avocados on the southwest portion of the site. The nearest offsite agricultural operation is to the west where there is a citrus grove. This grove, at the nearest point, is 186 feet to the nearest residential pad proposed by this project. To the east is a substantial greenhouse operation, which, at the nearest point, is 610 feet from the nearest residence proposed by this project.

This property has been determined by the San Diego County Agricultural Guidelines LARA Model to be an important agricultural resource, and thus mitigation will take place through on-site preservation and off-site mitigation. Off-site mitigation will take place by the use of one of two options: the first and most preferable would be contributions to the PACE Program; and The second would be purchase of off-site mitigation lands, which must be acceptable to the Director of Planning & Development Services (PDS).

I.0 INTRODUCTION

1.1 Purpose of the Report

The purpose of this report is to determine the importance of on-site agricultural resources, and assess the potential impacts to those resources, as well as to determine any significant cumulative impacts to agricultural resources.

1.2 Project Location and Description

This project is located in the Fallbrook Area of Northern San Diego County, east of the intersection of Winterhaven Road and Sunnycrest Lane, and is in the unincorporated area of San Diego County (See Figures 1 and 2). The current Assessor's Parcel Number is 106-300-41.

The project proposes a 25 lot parcel Tentative Map (TM 5553) on 34.06 acres. Twenty-two of the lots are proposed for residential uses, with two road lots, and one open space lot. The residential parcels would range in size from 1.006 to 3.02 acres net, and the project will have a density of one dwelling unit per 1.55 acres net. See Figure 3.

The nearest offsite agricultural operation is to the west where there is a citrus grove. This grove, at the nearest point, is 186 feet to the nearest residential pad proposed by this project. To the east is a substantial greenhouse operation, which, at the nearest point, is 610 feet from the nearest residence proposed by this project.

There is a 30 foot SDG&E easement skirting the southeast tip of the property and a 20 foot road easement for Sunnyslope Lane, which runs along the western boundary of the property.

There will be 22 additional homes as a result of this subdivision, as well as two 40-foot wide private roads running through the center of the property. It is anticipated that there will be 79,683 cubic yards of cut and 77052 cubic yards of fill with 2,631 cubic yards of export (See Figure 3). The destination of the export material has yet to be determined and will be shown on the final Grading Plan. Access to the project will be to the west, off Sunnycrest Lane, at a point about 167 feet north of the intersection of Sunnycrest and Winterhaven Road, which is a public road. Also, there will be a drainage easement running north and south along the extent of the property just east of the proposed private easement road. That easement will culminate in the detention basin.

There are currently no structures located on the property.

1.3 Analysis Methods

1.3.1 Study Area

The study area includes the subject property to be developed, as well as all parcels within 1,320 feet of the smallest rectangle encompassing the entire subject property (See Figure 4). The subject property comprises 34.06 acres of this area, while the remainder constitutes 420.25 acres for a total of 454.01 acres.

The study area has been prepared in accordance with the County Agricultural Guidelines relating to the ZOI boundary, as part of the LARA Model.

Method:

Agricultural uses and other land uses were determined through a combination of several sources. The primary source was an aerial photo from Google Earth Pro. This photo was enlarged so that agricultural areas, as well as the types of agriculture could be identified. This was supplemented by discussions with the owner and engineer. Please note that the measurements taken from the aerial photo are two-dimensional and do not account for topography. Therefore, there may be slight deviations in some of the acreage figures in rough terrain. However, this method was deemed sufficiently accurate for the broad conclusions desired in this analysis.

Soils information was determined through the San Diego County Important Farmland Map, produced by the California Department of Conservation, and the Soil Survey for the San Diego Area produced by the U.S. Department of Agriculture Soil Conservation Service.

Climatic Data was determined through use of the University of California Extension Service publication entitled, Climates of San Diego County, Agricultural Relationships, as well as through use of the information provided in the above mentioned Soils Survey.

Aerial photos, as well as discussions with the applicant and engineer were used to determine the historical status of agriculture on the property.

For a full listing of sources, please see "References" near the end of this report.

1.4 Environmental Setting (Existing Conditions)

1.4.1 Regional Context

An area was chosen that would function as the regional context, as well as the cumulative study area. The boundaries of this area were established by reviewing features of the landscape, which may isolate agriculture in this vicinity, from other agricultural areas in the County. These landscape features were primarily major areas of steep slope that would separate agricultural areas, major areas where no agricultural activity was taking place, and areas that had had substantial urban development.

The Regional Setting Area coincides with the Cumulative Study Area discussed later in this report. It is some 16,612 acres in size and is shown on Figure 5 in terms of topography. This area is a generally level.

The County General Plan shows regional categories of Semi Rural (SR) and over a large majority of the area with the exception of some Rural Land (RL) in the northern areas. The General Plan Designation for this area is a combination of SR1 and SR2, with some RL 20 and RL40 to the north.

About 55 percent of the cumulative study area is used for agriculture, or roughly 9,136 acres. There are also large areas scattered throughout the cumulative study area that are vacant. Agriculture in this area is primarily avocados and citrus, with and small areas of intensive truck farming and nurseries. The remainder of the area consists of estate homes or vacant land.

Climate in this region is similar to the inland San Diego County with slightly more rainfall and more extremes in climate than the coastal area with some freezes in lower lying areas. However, the climate is still very mild and the mild nature is an important factor for the agriculture that exists in this study area.

About 4,153 acres or 25 percent of the soils in the cumulative study area are classified as Prime or Farmlands of Statewide Importance. Generally the quality of soils in this area vary from fair to good, with the better soils found in the central part of Fallbrook. As indicated in the previous paragraph, climate plays a more important role in the agricultural development of this area than the soils.

Within this area, water supply is provided by the Fallbrook Public Utilities District in the north and the Rainbow Municipal Water District to the south, both of which are members of the San Diego Water Authority.

There is a church adjacent to the subject property to the southeast. This church operates a pre-school five days a week from 8:00 to 2:00 and has a capacity of 64 children. Currently there are 50 pre-school children enrolled. Concurrent with this application will be a boundary adjustment which will transfer 0.61 acre, to the church property.

1.4.2 Onsite Agricultural Resources

Agriculture began on this ranch between 1914 and 1917 in the form of orange production. They were eventually replaced by avocados and lemons until the 1970's, when only avocados were being grown. In the 1980's, the soils became infested with Cinnamoni, a form of root rot, and eventually a large majority of the avocados were removed. The root rot problem has continued to grow, even though the owner has tried different varieties of avocados, other types of plants, and different types of irrigation. At this point, there are only a few avocado trees on the property, which do not cover the cost of their maintenance. For further details, please see "History of Agriculture".

The FMMP designates 66 percent of this property as "Prime Farmlands" and 33% as "Farmlands of Local Importance." These farmlands are described in the FMMP discussion later in this section. Soils are further described in the next paragraph, and Figure 6 indicates those agricultural resources terms of soils found on site.

Soils

Soil Conservation Service:

The U.S. Department of Agriculture, Soil Conservation Service has prepared a Soil Survey for San Diego County. According to this survey two major soils types constitute approximately 99% of the soil formations on the subject and they are described below. There is also one soil type (PeC) occupying less than 1% of the subject property which, because of its insignificant amount, will not be discussed.

FaC: Located in the eastern and western portion(s) of the subject property, this Fallbrook Sandy Loam soil is on 5 to 9% slopes. It occupies approximately 25 acres or 74% of the subject property. The fertility of this moderately sloping soil is rated as "medium," the runoff rate is slow to medium, permeability is moderate, and the erosion hazard is slight to moderate. This soil is rated as "Fair" for avocados, citrus, tomatoes, and truck crops; and is rated "Good" for flowers. The Capability Rating for this soil is Ille-1 (19).

BIC: Located in a north-south strip at the center of the subject property, this Bonsall Sandy Loam soil is on 2 to 9% slopes. It occupies approximately 8.5 acres or 25% of the subject property. The fertility of this gently to moderately sloping soil is rated as "medium," the runoff rate is slow to medium, permeability is very slow, and the erosion hazard is slight to moderate. This soil is

rated by the Soils Survey as “Fair” for flowers, but is not considered suitable for avocados, citrus, tomatoes, or truck crops. The Capability Rating for this soil is Ille-3 (19).

Figure 6 shows the boundaries of soil types found on the property.

FMMP Designations

The California Department of Conservation has classified land into seven “Important Farmlands Categories.” Annotated definitions of the relevant classifications are found below.

Prime Farmland: Land with the best combination of physical and chemical characteristics able to sustain long-term production of agricultural crops.

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.

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 non-irrigated 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.

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.

There are also Categories of Grazing Land, Other Land, and Water that have not been defined.

Figure 7 indicates that only two Important Farmland Categories are found on the subject property. White represents “Farmlands of Local Importance and constitutes 33 percent or 11.27 acres. Green on this Figure represents Prime Farmland, which is 66 percent of the subject property or 22.49 acres.

History of Agricultural Use

Agriculture on this ranch started over the period of 1914 through 1917 in the form of oranges. During the 1920's and 30's, oranges were becoming more and more unsuccessful due to periodic freezes and the quality of soils. Lemons were then planted in the freeze areas. In the mid 1940's, avocados began to be planted in place of the oranges, on a rolling basis. By the mid 1950's, the ranch was planted in the high areas with avocados, the lower areas with oranges, and the lower areas that had better soils with lemons. Those areas in the hard freeze zone and poorer soils were left fallow.

By the 1960's, oranges were becoming economically less viable, so most of the citrus was removed and replaced with Tangelos and other citrus. None of these citrus crops were successful and by the late 1970's, the ranch was mostly avocados. At present there is only a small area of avocados being grown on the site, but the production does not equal the costs of maintenance. The next Section provides further background related to the reason for this.

Avocado Root Rot (Phytophthora Cinnamomi)

By the mid 80's a serious problem with soil contamination from root rot (Cinnamoni) was beginning to develop and was having a gradual and devastating effect on the Avocado Crop. With the advice of the University of California Riverside Extension Service and others, test plantings of varieties of avocados that were thought to be resistant to Cinnamoni were planted. None of these proved to be economically viable. There were also trial treatments to eradicate the Cinnamoni, but none of these treatments worked. Converting to drip irrigation was suggested to reduce the spread, but the irrigation was not sufficient to keep the avocados producing. Persimmons and Apple Pears were tried, but they also proved to be uneconomical

Eventually the increasing Cinnamoni problem, reducing avocado prices, and increasing costs of water caused the owners to stop watering the trees. The owner has been alert for advances that might result in a solution of the Cinnamoni problem, but none have surfaced that would result in the economically viable production of avocados.

Cinnamoni does not affect all plants. Citrus, Cherimoya, vegetables, annual flowers, and deciduous fruit and nut trees are generally not susceptible.

Climate

Information for Micro Climates in San Diego County is contained in the [Climates of San Diego County Agricultural Relationships](#), published by the University of California Agricultural Extension Service. At the time of the publication of this

document, the nearest Weather Reporting Station to the subject property with precipitation data was the Fallbrook station and closest temperature data available was from the weather station in Vista.

The Fallbrook station is the closest with average monthly and seasonal precipitation data indicating average annual rainfall of 13.71" with 10.2" of the total coming just during the months of December, January, February and March.

The Vista Weather Station indicates an annual average maximum mean temperature of 74 degrees with an extreme high of 107 degrees and an extreme low of 27 degrees. The earliest estimated date of the first freeze was during November and the last estimated freeze is April.

Thus, the mildness of the microclimate of this area would be advantageous to the growing of semi-tropical crops.

Water

This property is entirely within the Fallbrook Public Utilities District. This District is a member of the County Water Authority and has direct access to imported water. There is a 12-inch water main in Winterhaven Road, along the south boundary of the property and a two inch water meter on the subject property.

Williamson Act Contracts and Agricultural Preserves

The subject property is not and has never been in under a Williamson Act Contract or within an Agricultural Preserve.

1.4.3 Offsite Agricultural Resources

Offsite resources have been reviewed in terms of the study area previously discussed.

There are no properties, within the study area, which are under a Williamson Act Contract nor are there any properties within an Agricultural Preserve.

Figure 8 shows FMMP Designations for the Study Area. Twenty-one percent of the study area is in Prime Farmland, 10 percent is in Farmlands of Statewide Importance, while 16 percent is in Farmlands of Local Importance, and 52 percent is in Urban and Built-Up Lands and Other Lands respectively.

Thus 52 percent of the Study Area is in a FMMP Designation, which is not considered an agricultural land.

In terms of agricultural operations, there are 50.04 acres or 11.9 percent of the study area in agriculture. Of the 50.04 acres, 17.5 or 35 percent are Avocado

Groves, primarily found to the far west of the subject property. There are 12.45 acres or 25 percent in Citrus Groves, primarily to the immediate west of the subject property, and 20.9 acres devoted to nurseries, found to the east of the subject property. The smallest distance between a proposed home pad and an existing agricultural operation would be approximately 186 feet.

Figure 9 shows agricultural operations within the study area.

1.4.4 Zoning and General Plan Designation

The property is zoned A70 (1 acre), Limited Agriculture with a minimum parcel size of 1 acre. The intent of the A70 Use Regulation is to create and preserve areas intended primarily for agricultural crop production.

The Regional Category of the General Plan for this property is SR, Semi Rural while the Designation is "SR 1", Semi Rural with a density of 1 dwelling unit per acre.

2.0 ONSITE AGRICULTURAL RESOURCES

2.1 Local Agricultural Resources Assessment (LARA) Model

2.11 LARA Model Factors

The County of San Diego has approved a local 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 takes into account six factors including the required factors of water, climate, soil quality, and the complementary factors of surrounding land uses, land use consistency, and slope in determining the importance of agricultural resources.

The following subheadings include a description of the project site's rating for each LARA Model factor, including justification for the factor ratings assigned to the project site. Each factor receives a rating of high, moderate, or low importance based on site specific information as detailed in the LARA Model Instructions (Section 3.1 LARA Model Instructions, from the Agricultural Guidelines for Determining Significance). The factor ratings for the project site are summarized in Table 2, LARA Model Interpretation of LARA Model Results.

Water

The water rating for this project is "high". This site is within the Fallbrook Public Utilities District and has imported water available, as well as an on-site water meter.

Climate

The climate rating for this project is “high”. It is located within Sunset Climate Zone 23. According to the Guidelines, property within this zone would be rated as “high”.

Soil Quality

The project’s soil quality rating is based on the presence of soils that meet the quality criteria for Prime Farmland or Farmland of Statewide Significance as defined by the Farmland mapping and Monitoring Program that are available for agricultural use and that have been previously used for agriculture.

Essentially all of the property was used for agricultural purposes and is still available for agricultural production, with the exception of a drainage area, in the western portions of the property. The site is not developed, except for some trails, and contains some citrus and avocado trees. The two on-site soils are Fallbrook Sandy Loam (FaC) and Bonsall Sandy Loam (BIC). The FMMP designates the FaC soil as a Prime Farmland Soil and the BIC as a soil of Statewide Significance. One factor in Table 2 is "Areas Unavailable for Agriculture," which are shown in Figure 10.

The acreage of each is shown in Table 2. The Soils Score for this property would be 0.986, which results in a "high" rating.

Table 2

Soil Type	Acreage of Soil Type	Unavailable for Agricultural Use	Available for Agricultural Use	Proportion of Project Site	Candidate for Prime or SW	Score
FaC	25.08	0.09	24.99	74.07%	1	0.741
PeC	0.11	0	0.11	0.33%	0	0
BIC	8.55	0.27	8.28	24.54%	1	0.245
Total	33.74	.36	25.1	98.93%	Matrix Score	0.986

Surrounding Land Use

It was determined that of the 454.01 acres of the ZOI, 198.44 acres or 44 percent of this area was considered compatible with agriculture. Therefore according to the Guidelines, this project would have a rating of “moderate”.

Land Use Consistency

The median parcel size of this project is 1.095 acres while the median parcel size of the ZOI minus the subject property is 1.24 acres. Therefore, since the median parcel size proposed for the project is less than the median parcel size within the ZOI, this project would have a rating of “high”.

Slope

The average slope for this property in terms of Land Available for Agriculture is 10.11 percent. Therefore, according to the Guidelines, it would have a rating of “high”.

2.1.2 LARA Model Results

This site was rated as high in all factors with the exception of Surrounding Land Use, which was rated Moderate.

Table 2 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 not an important agricultural Resource
Scenario 6	All other model results		

Since all of the Required Factors are rated as high and all of the complementary are rated high or moderate, this project would fall within Scenario 1 and the interpretation of the LARA Model is that the site is an important agricultural resource.

2.2 Guidelines for the Determination of Significance

“The following significance guideline is the basis for determining the significance of impacts to important onsite agricultural resources, as defined by the LARA Model, 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 Results

The LARA Model has determined that this site is an important agricultural resource. There will be 7.26 acres of no impact with the presumption that the FaC soils will be backfilled onto the affected lots after the installation of the leach fields. This will leave 26.06 acres of direct impacts to agricultural resources, which will be mitigated as described in Section 2.4.

2.4 Mitigation Measures and Design Considerations

Since the LARA Model has determined that this site is an important resource, mitigation will be necessary. On-site mitigation amounts to 6.27 acres and those areas are shown on Figure 11. This will leave off-site mitigation in the amount of 9.88 acres using a ratio of 1/2:1 if the off-site lands may also be used for Non-Native Grasslands (NNG) foraging habitat, and which functions in the same biological manner as NNG habitat, or 19.1 acres at a ratio of 1:1, if the rationale for using the 1/2:1 ratio cannot be shown. This mitigation measure is in the form of two options. The first and most preferable option would be fair-share monetary contributions to the PACE Program, and the second option would be the purchase of off-site mitigation lands acceptable to the Director of PDS.

2.5 Conclusions

There will be direct impacts to agricultural resources on-site, which will be mitigated through the options described above in Section 2.4.

3.0 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 proposed 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 resource 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. The project would propose a non-agricultural use or land under a Contract, within a quarter mile of an active agricultural operation but will not result in conflicts that are likely to occur and could result in the conversion of agricultural resources to a non-agricultural use for the following reasons.
 1. The project is over a quarter mile to the east and north of the two existing Contract lands, in the study area. Based on the distance separating the proposed project and these Contract lands (over a quarter mile), there is no impact to the Contract lands and conversion of agricultural operations on those Contract Lands is less than significant. Further, there is a considerable separation between the residential uses proposed and the agricultural uses within the ZOI. The two closest active agricultural operations are to the west and east. To the west is a grove which is 186 feet from the nearest residential pad. To the east is a substantial nursery operations which, at the nearest point, is 610 feet from

the nearest residential pad. Further, as stated in the County Agricultural Guidelines, avocado and citrus operations typically have fewer compatibility issues, when located near residential development.

2. The parcels within the study area have already been partially developed at near the density proposed by this project. The median parcel size of this project is 1.095 acres while the median parcel size for the ZOI is 1.24. Additionally, of the 198 parcels in the ZOI, 171 or 86 percent of the parcels are under two acres. Thus, this project will be consistent with the existing development pattern, which has not resulted in conflicts that have caused the conversion of agricultural land.

3. The San Diego County Board of Supervisors, on February 12, 2003, amended the San Diego County Code of Regulatory Ordinances to require purchasers to be notified in writing that agricultural uses may exist near to property that the buyer is purchasing (Agricultural Enterprises and Consumer Information Ordinance (Section 64.401)). The buyer must acknowledge by signature that such agricultural uses are likely to be nearby that may expose the buyer to certain irritations and inconveniences. Thus, anyone purchasing a parcel of this development must be notified of the near agricultural uses and the potential for irritations and inconveniences.

- b. The project proposes 21 additional single family residences. It does not propose a school, church, day care or other use that involves a concentration of people at certain times. However, a church already exists to the southeast, adjacent to the subject property.
- c. The project would not involve other changes to the existing environment, which due to their location or nature, could result in the conversion of offsite agricultural resource. This is currently vacant land which will be changed to single family residences. The possibility of conflicts between these residences and the agriculture in the vicinity has previously been discussed.

3.3 Mitigation Design Considerations

It has been determined that mitigation for off-site impacts will not be necessary. This is due to the distances between the proposed residential uses and existing agricultural operations, the consistency with the parcels in the ZOI and the proposed development, and the requirement that purchasers of residential uses in agricultural areas be notified of the potential for irritations and inconvenience.

3.4 Conclusions

In accordance with the stated significance guidelines it has been determined that the project as proposed will have a “less than significant effect” on agricultural resources.

4.0 CONFORMANCE WITH AGRICULTURAL POLICIES

General Plan conformance will be addressed in the CEQA analysis of Land Use and Planning. There is no specific agricultural analysis that must be done to determine compliance with a policy.

5.0 CUMULATIVE IMPACTS

5.1 Guidelines for the Determination of Significance

The guidelines for determining the significance of cumulative impacts are based upon the same guidelines used to determine the significance of project level impacts except that the analysis will consider the significance of the cumulative impact of the individual project impact in combination with the impacts caused by the projects in the cumulative study area that would also impact important agricultural resources.

5.2 Analysis of Project Effects

Methodology

A list of cumulative projects has been compiled which are based upon past, present, and probable future projects that could cumulatively contribute to the projects impacts. Projects were considered which:

1. Have agricultural resources on site.
2. Fall within the Important Farmlands Categories of Prime Farmlands, Farmlands of Statewide Importance, or Unique Farmlands (referred to Principal Farmlands in this report) pursuant to the CEQA Guidelines, Appendix G. where one of the questions is

“Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide importance as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?”

Projects that meet these criteria are listed in Appendix C, with more detailed information listed in Appendix D, Tables 1, 2, 3.

These projects were determined through the following methodology.

An area was chosen that would function as a cumulative study area and is coterminous with the Area shown on Figure 5. The boundaries of this area were established by reviewing features of the landscape, which may isolate agricultural in this vicinity from other agricultural areas in the county. These landscape features were primarily major areas of steep slope that would separate agricultural areas, major areas where no agricultural activity was taking place, and areas that had had substantial urban development.

The cumulative study area was superimposed on the San Diego County GIS Discretionary Permit Map. This map indicates Major and Minor-Subdivisions, Major Use Permits, General Plan Amendments (GPA's), and Plan Amendment Authorizations (PAA's) both requested and approved since approximately January of 2000. Major Use Permits for cellular antenna sites were not included due to the very small area that is affected with these projects. This results in a gross number of projects of any type in the cumulative study area. In this way the selected projects could be identified that had been approved and were contemplated over the last 9 years.

A map of the cumulative study area was overlain with the County Vegetation Map to determine which of the selected projects identified in the study area occurred on lands used for agriculture. To make this determination, any project occurring on vegetation classified as agriculture or developed and disturbed land was considered. Disturbed and developed land was considered because the land may have originally been in agriculture, with the developed classification being a result of the selected projects. Since the GIS Map only used points to identify projects, any projects even remotely close to agriculture or urban vegetation types were considered.

The next step was to identify those approved and proposed projects that are occurring on land currently used for agriculture that have or would have an effect on principal farmlands within the cumulative study area. (For purposes of this study, the term "principal farmlands" refers to the land referenced in question one of the CEQA Guidelines, reproduced on the first page of this Section. These lands would include Prime Agricultural Lands, Agricultural Lands of Statewide Importance, and Unique Farmlands per the California Department Important Farmlands Map 2008). This was done by overlaying the cumulative study area with the appropriate portions of the important farmlands map. Projects not within a principal farmland were also eliminated from consideration. As above, the GIS Map only used points to identify projects, and selected projects even remotely close to principal farmlands were considered.

The plot plans and maps for those projects meeting both of the above tests were then obtained from the County Project Processing Counter or website (For

purposes of this study, this last grouping of projects will be termed “Cumulative Projects”). The maps were then superimposed on the vegetation and farmlands maps to determine the principal farmlands in agriculture that were affected by the project.

Additionally, the maps were reviewed in conjunction with aerial photos to determine the type of agricultural activity occurring and how the project might have indirect impacts to the surrounding area. Finally, the maps were reviewed in terms of water availability, climate, and soils to determine if the project area was an important resource.

Results of the Cumulative Analysis

This area of Fallbrook is primarily devoted to avocados, citrus crops, and nursery products. The following statistics relate to San Diego County in its entirety and reflect the latest statistics available. In 2009, there were 24,684 acres of avocados planted with a value of \$130,498,067. In 2010, there were 19,133 acres planted with a value of \$147,051,864. Thus while the acreage during this time span decreased 5,551 acres, the value of avocados increased \$16,553,797.

In terms of all citrus, in 2009, there were 13,550 acres planted with a value of \$60,615,936. In 2010, there were 14,287 acres planted with a value of \$78,482,839. Thus, during this time span, the acreage for citrus crops increased by 737 acres, while the value increased \$17,866,903.

In terms of nursery products, in 2009, there were 11,498 acres with a value of \$1,054,314,220. In 2010, there were 12,606 acres planted with a value of \$1,107,558,336. Thus, during this time span, the acreage for nursery products increased by 1108 acres, while the value increased \$53,244,116.

Thus all three of the primary agricultural products in this part of Fallbrook have increased in value County-wide between 2009 and 2010, and 2 of the 3 have increased in acreage.

In terms of this cumulative area, specific information from this analysis by project is shown in Appendix D. Figure 12 shows the location of each project identified. It was determined that there were 27 projects meeting the criteria for the Cumulative Project List. The projects have been analyzed in terms of agricultural resources on site, if the site is an important agricultural resource, what the estimate of direct agricultural impacts is, and estimate of potential indirect impacts.

Agricultural Resources:

Table one of Appendix D shows that nine of these projects were engaged in the production of citrus crops, four in the production of avocados, with the remainder having no agriculture. The different factors reviewed are discussed below.

Is the Project an Important Agricultural Resource?

The question of whether a site would be considered an important agricultural resource was based upon a general analysis of soils, water, and climate.

In terms of water, the projects were given a score of "1" if the project was within a district that was a member of the County Water Authority and a score of "0" if the project was not within such a district. In this case, all projects were within the County Water Authority and received a rating of 1.

Climate was graded as a "1" if the property within in the Sunset Climate Zones of 13, 18-21, or 23 and a "0" if it is within any other zone. In this case all of the projects were in Climate Zone 23, and all received a score of "1".

Projects with candidate soil types are shown on Appendix D, Table 2. The results were based on the existence of soils that are candidates for prime farmland or farmland of statewide importance which cover more than 50 percent of the property and which received a score of "1". All others received a score of "0".

Eight projects had prime or statewide importance soils covering more than 50% of the property and together constitute 71.9 acres. Thus, these projects are considered important agricultural resources.

Direct Project Estimate:

As far as could be determined, none of the projects have had an agricultural analysis prepared. For the 27 projects, that amount of the project in soils of prime farmlands and soils of Farmlands of Statewide were considered direct impacts. This came to 100.82 acres as shown in Appendix D, Table 1.

Potential Indirect Impact Estimate:

Potential indirect impact estimates were quantified by assuming that any area adjacent to the project that is in agriculture will have an indirect impact to a depth of 50 feet. Thus by locating the project and determining the length of the adjacent agriculture, multiplying by 50 and dividing by 43,560, the acreage of indirect impacts could be determined. In this case the indirect impact estimate was 6.32 acres.

Cumulative Effects

The direct and indirect impacts of the cumulative projects will be 100.82 acres or 2.4 percent of areas in soils of Prime and Statewide Importance Farmlands. When the subject property's 26.07 acres of direct impacts is added, the total becomes 126.89 acres. Since the subject property will not have an indirect impact on agriculture, and there is an indirect impact from other projects of 6.32 acres, 133.21 acres constitutes the total cumulative impact at this point. Since there are presently 4,153 acres of Prime and Statewide Importance soils in the cumulative study area, this amounts to a cumulative impact of 3.2 percent.

The cumulative effect is not considerably cumulative for the following reasons.

1. The amount of direct and indirect cumulative impacts is 133.21 acres. With the cumulative area having 4,153 acres of Prime and Statewide Importance soils, this amounts to approximately 3.2 percent of the existing of Prime and Statewide Importance soils. It does not appear that there is significant pressure to convert land to non-agricultural uses or that this conversion is leading to conflicts between residential and agricultural land uses which then result in the conversion of agricultural land.

2. More of the project had Citrus than any other crop. Citrus at the present time in San Diego County has a value of \$5493 per acre, with the average value for all agricultural products is \$5459 per acre. Thus, citrus would not be considered a high value crop, but slightly higher than average. As an average value crop, impacts will be less significant than impacts to high value crops.

3. At an average value of \$4,559 per acre, the value of the cumulative projects direct and indirect impacts would be \$607,304 per year. In 2010, the value of San Diego Agriculture was \$1,652,422,032 which means these cumulative projects have or will impact .037% of the total value of agriculture in San Diego County.

4. As per the description above, eight of the 27 Cumulative Projects or 71.9 acres are estimated to be an important agricultural resource. The acreage is less than 1 percent of the area being used for agriculture in the Cumulative Area.

5.3 Mitigation Measure and Design Considerations

No significant impacts have been identified in terms of cumulative effects and no mitigation measures or design considerations are proposed.

5.4 Conclusions

For reasons stated previously, the conclusion is that there will not be significant cumulative impacts as a result of this project.

6.0 SUMMARY OF PROJECT IMPACTS AND MITIGATION

Impacts have been identified, and mitigation measures are proposed. On-site mitigation amounts to 6.27 acres and those areas are shown on Figure 11. This will leave off-site mitigation in the amount of 9.88 acres using a ratio of 1/2:1 if the off-site lands may also be used for Non-Native Grasslands (NNG) foraging habitat, and which functions in the same biological manner as NNG habitat, or 19.1 acres at a ratio of 1:1, if the rationale for using the 1/2:1 ratio cannot be shown. This mitigation measure is in the form of two options. The first and most preferable option would be monetary contributions, to the PACE Program, and the second option would be the purchase of off-site mitigation lands acceptable to the Director of PDS.

7.0 REFERENCES

Written Works:

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Problem Diagnosis for Avocados, UC California Master Gardener's Handbook

University of California, Agricultural Extension Service. Climates of San Diego County—Agricultural Relationships, November 1970.

United States Department of Agriculture, Soil Conservation Service and Forest Service. Soil Survey-San Diego Area, California. December 1973

California Department of Conservation, Division of Resource Protection, Farmland Mapping and Monitoring Program. Soil Candidate Listing for Prime Farmland and Farmland of Statewide Importance—San Diego County

California Department of Conservation, Division of Resource Protection, Farmland Mapping and Monitoring Program. 2000-2002 Land Use Conversion, Table A-26, San Diego County.

County of San Diego, Department of Public Works, Mapping Section. Aerial Photos from 1973, 1979, and 1989

Maps:

California Department of Conservation, Division of Resource Protection,
Farmland Mapping and Monitoring Program. San Diego County Important
Farmland 2008

County of San Diego, Department of Public Works, Mapping Section. Fallbrook
Community Plan.

County of San Diego, Department of Public Works, Mapping Section. County of
San Diego General Plan.

County of San Diego, Department of Public Works, Mapping Section. County of
San Diego—Agricultural Preserves.

SanGis, County of San Diego General Plan 2020 Reference Maps for Fallbrook
as Follows:

Parcelization
Vegetation
Topography
Fallbrook Discretionary Project Status, October 2012

8.0 LIST OF PREPARERS AND PERSONS AND ORGANIZATION CONTACTED

James Chagala—Principal Author. Placed on the San Diego County
Environmental Consultant List in the field of Agriculture on November 14, 2001.
Recertified on this Consultant List in spring of 2007.

Jerry Chagala—Planning Technician

Eric Chagala—Planning Technician

Douglas McCormac--Owner

TECHNICAL APPENDICES / ATTACHMENTS

Appendix A

Figures

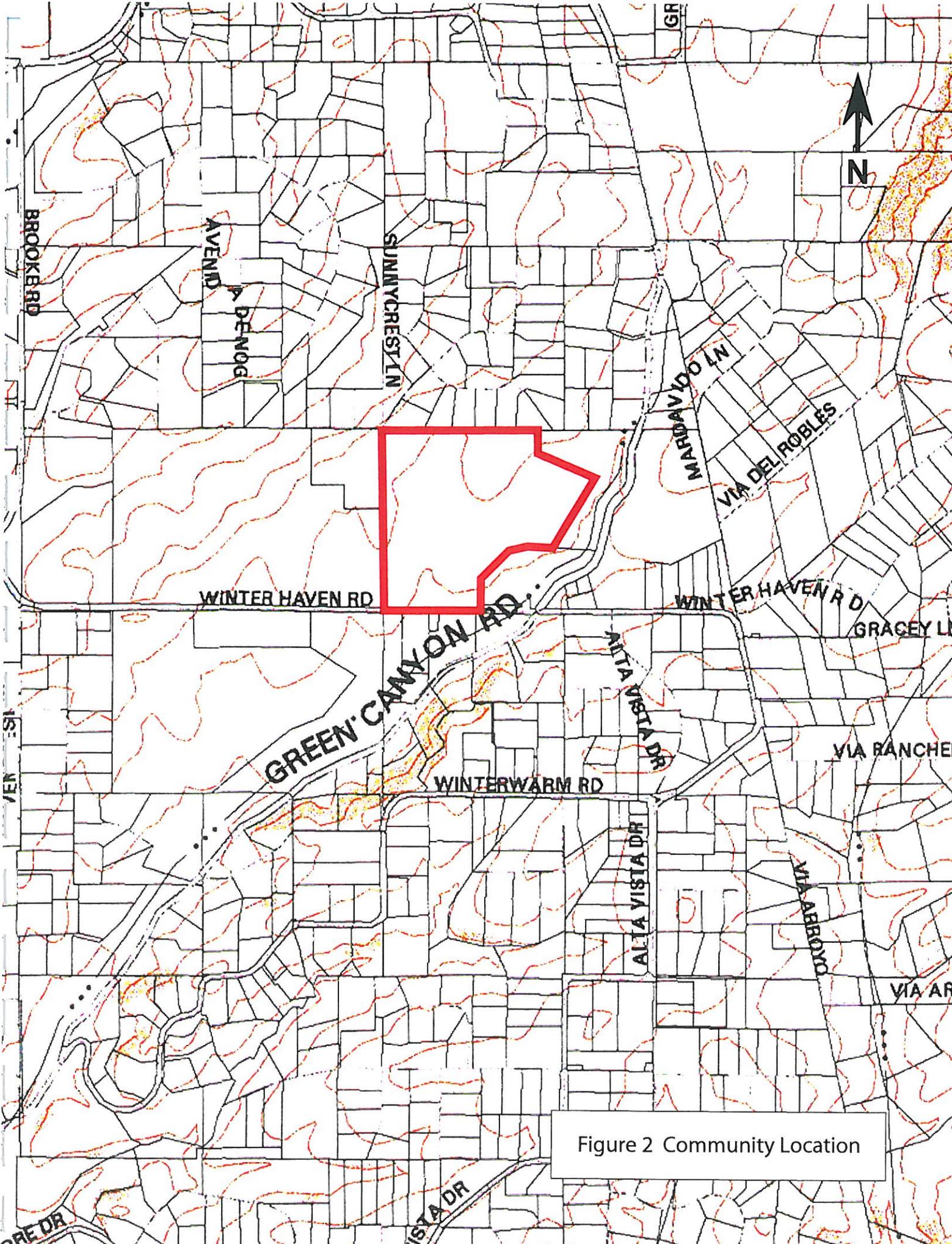


Figure 2 Community Location

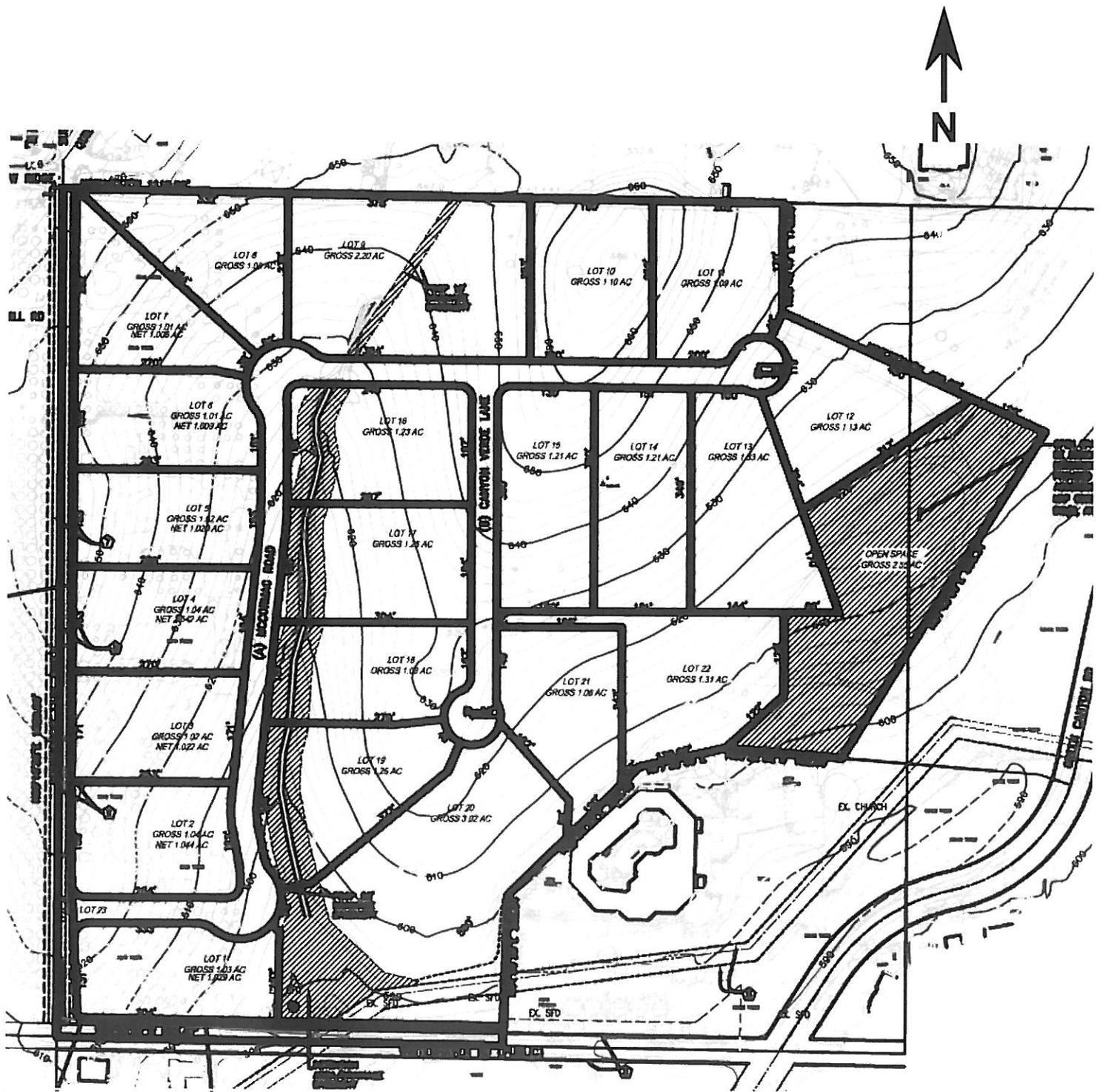


Figure 3 Land Plan

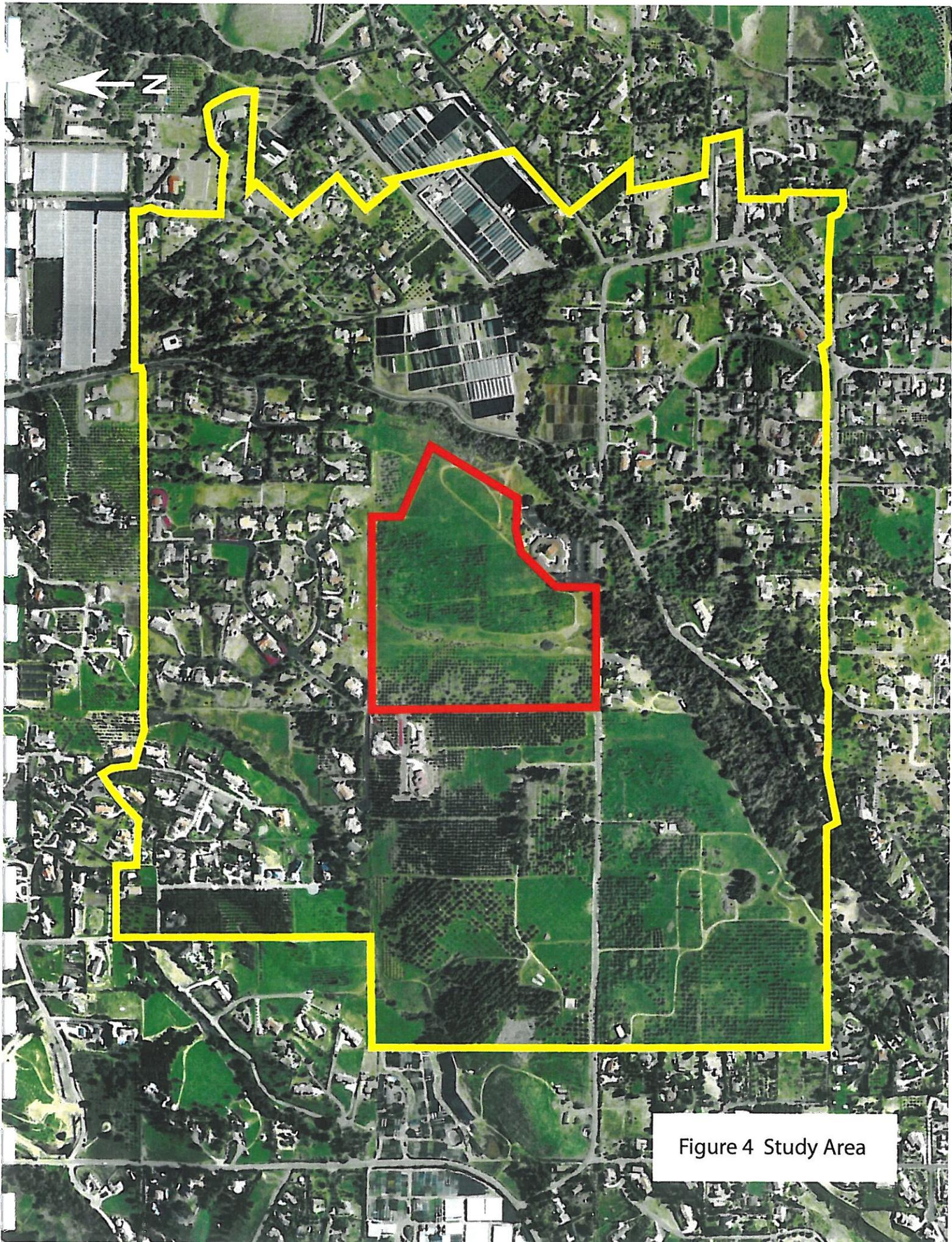


Figure 4 Study Area

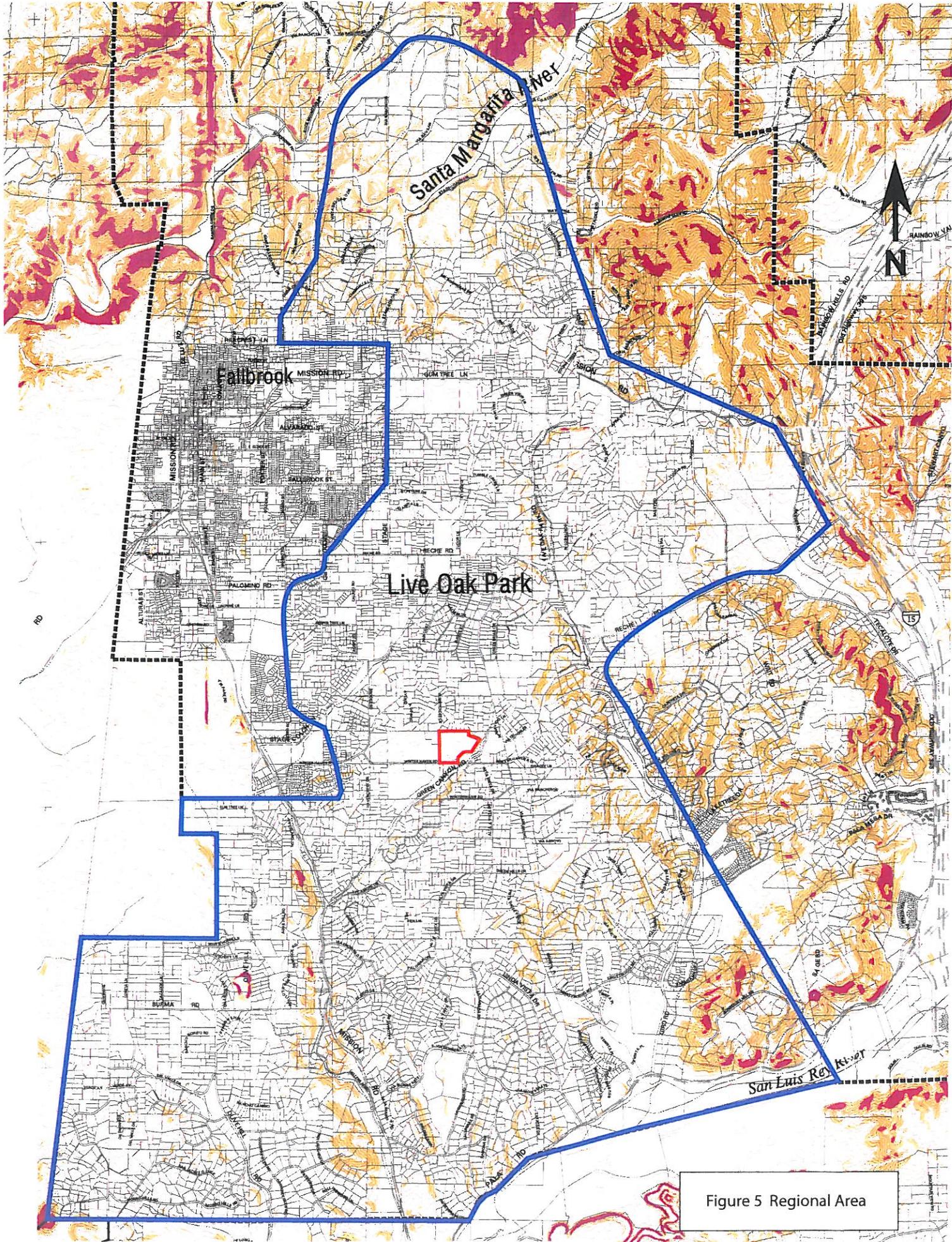


Figure 5 Regional Area

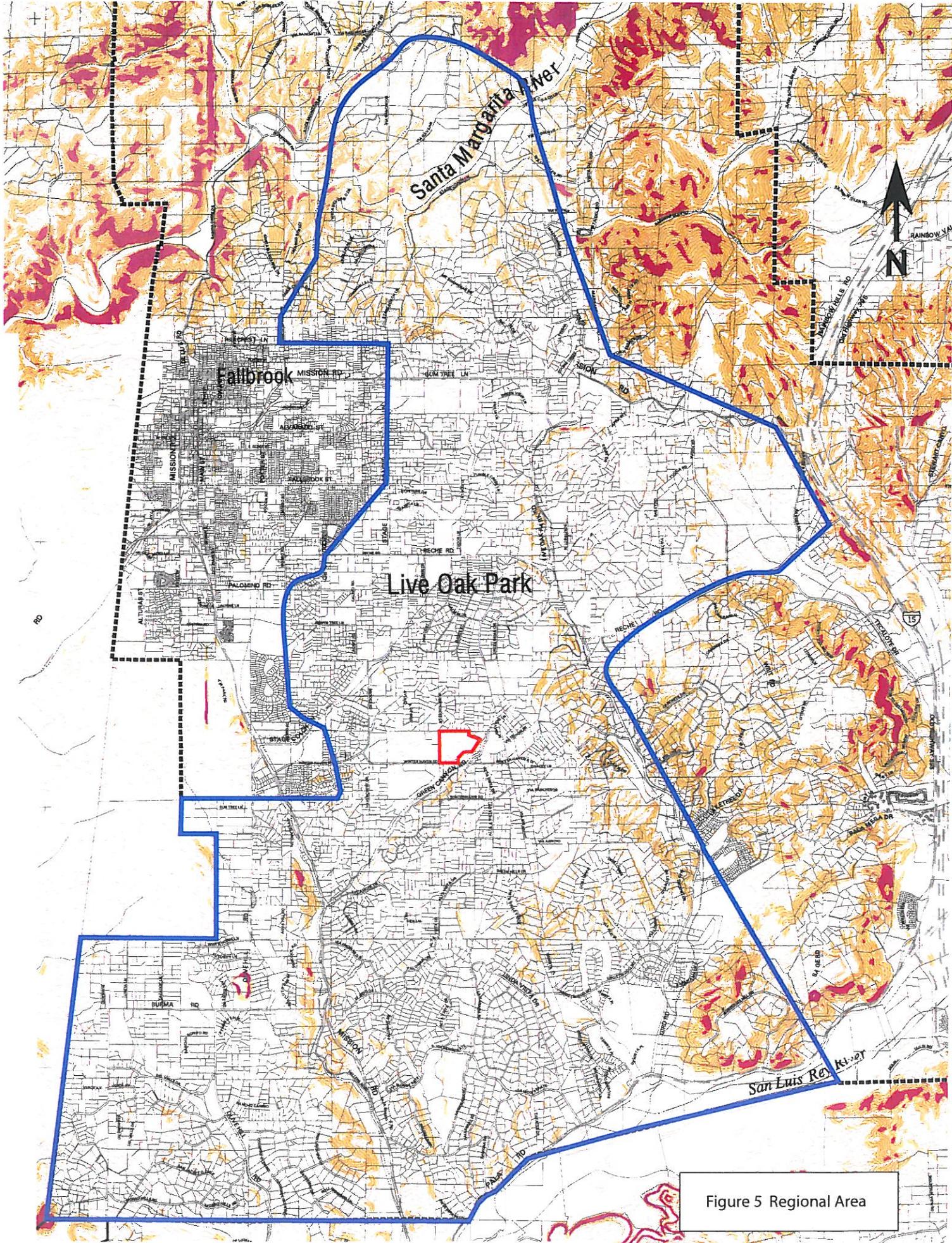


Figure 5 Regional Area

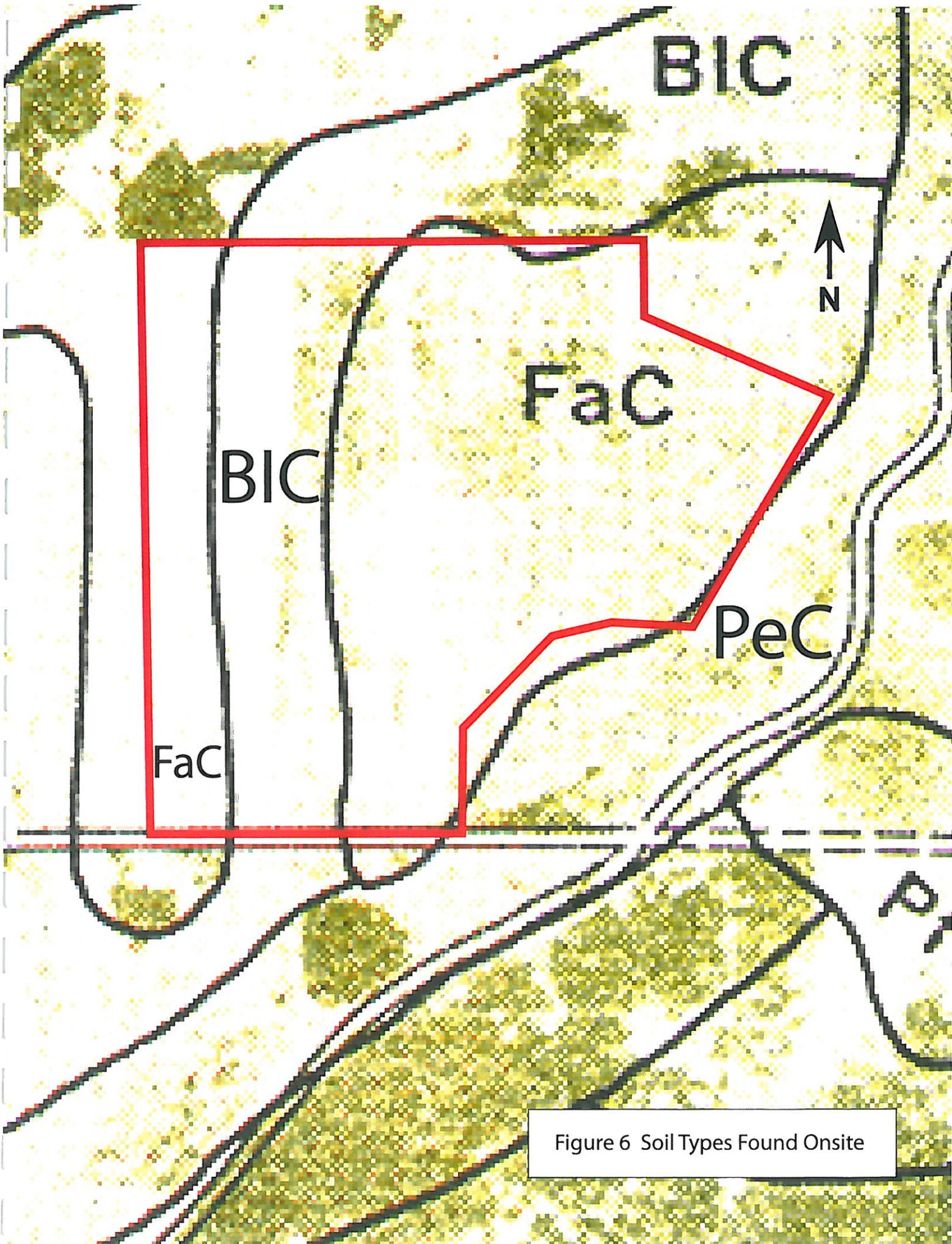


Figure 6 Soil Types Found Onsite

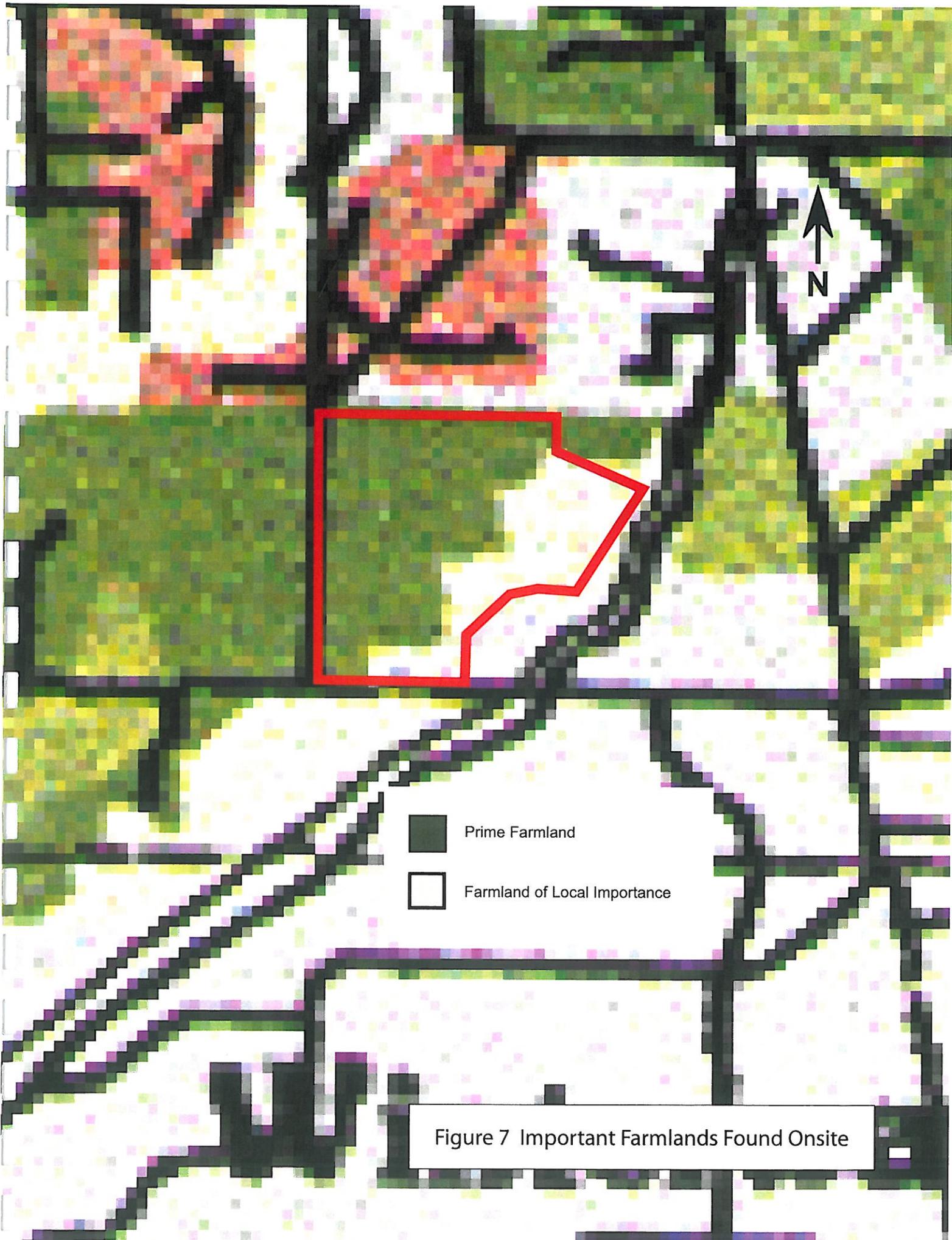
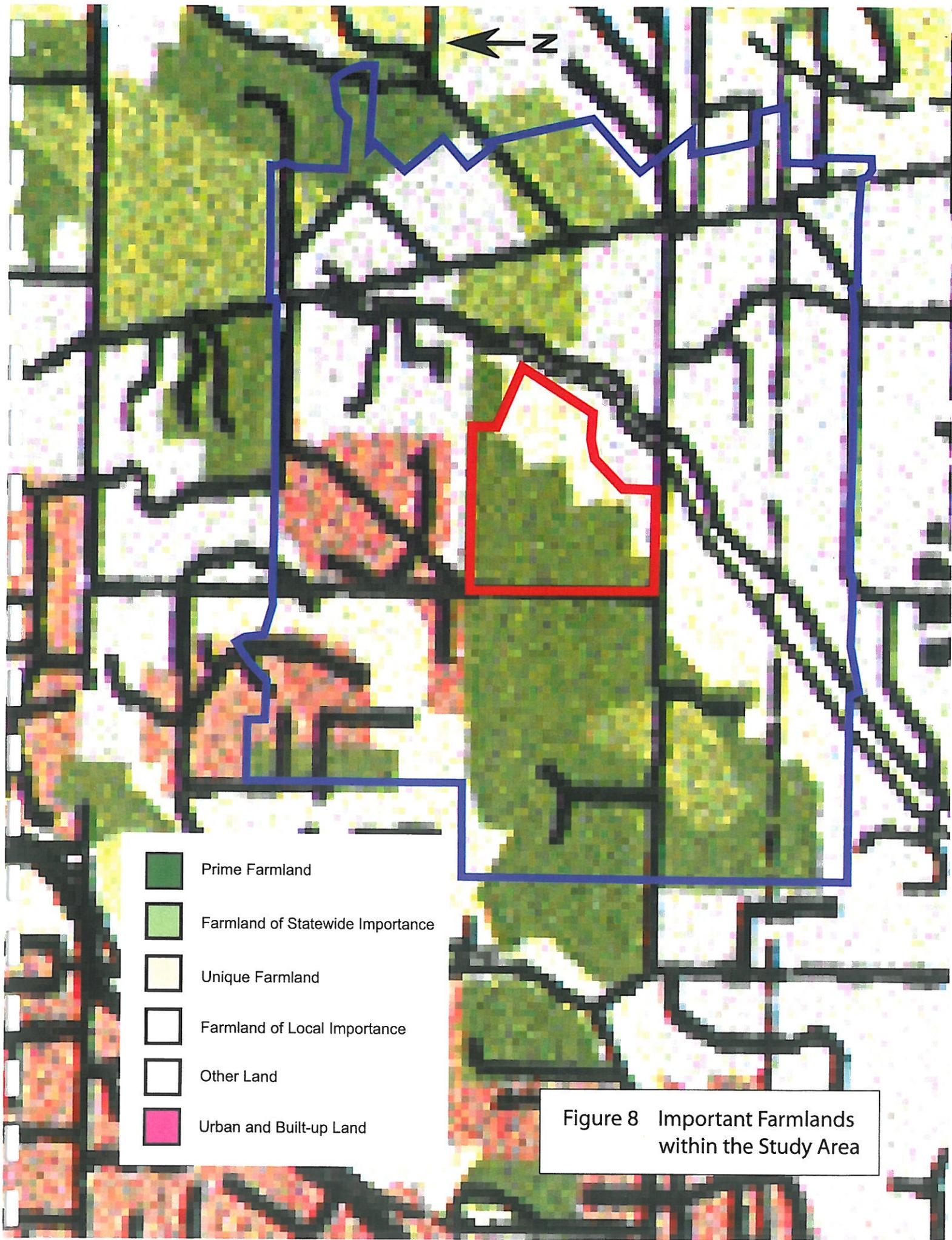


Figure 7 Important Farmlands Found Onsite



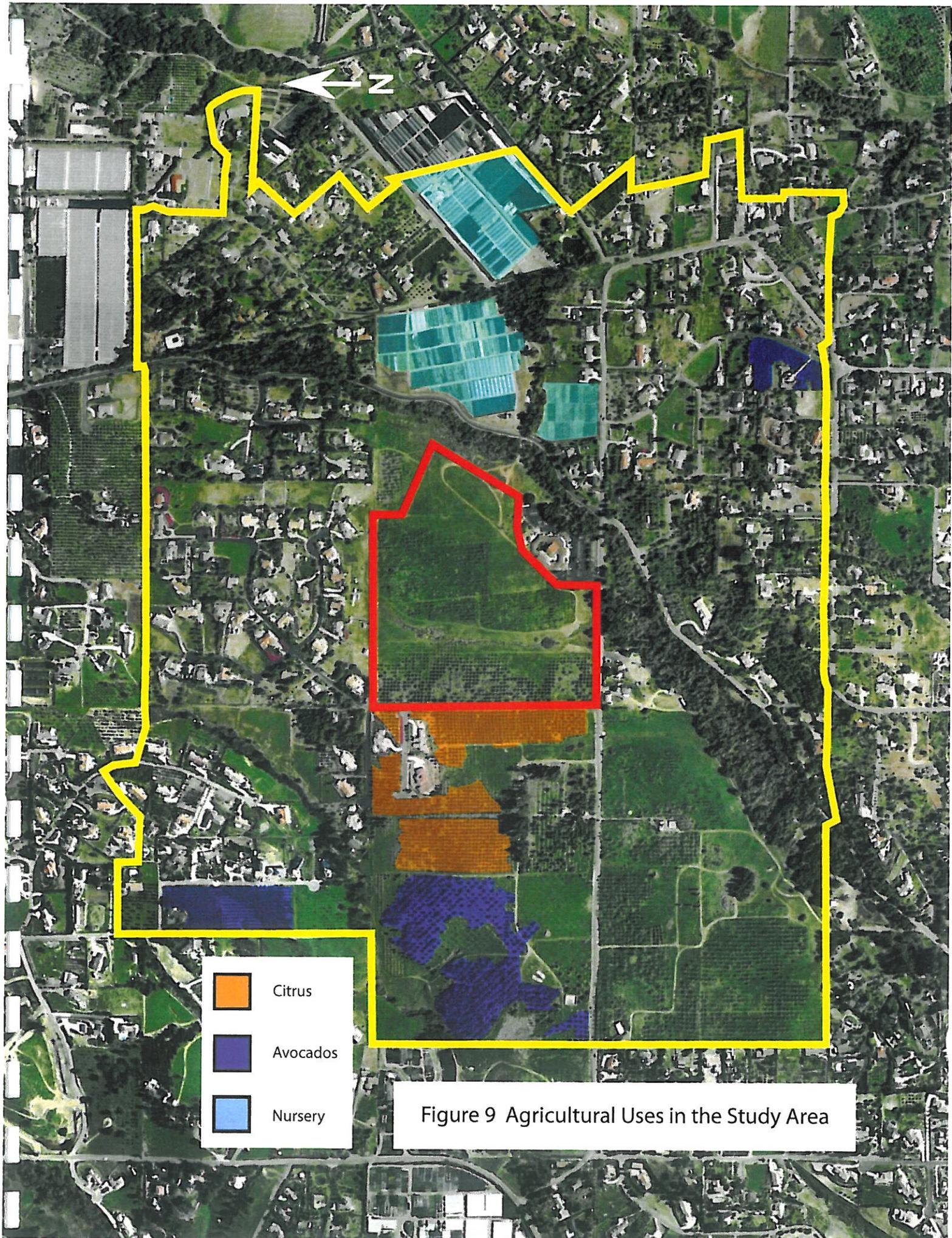




Figure 10 Areas Unavailable for Agriculture

PRELIMINARY GRADING PLAN COUNTY OF SAN DIEGO TRACT 5553

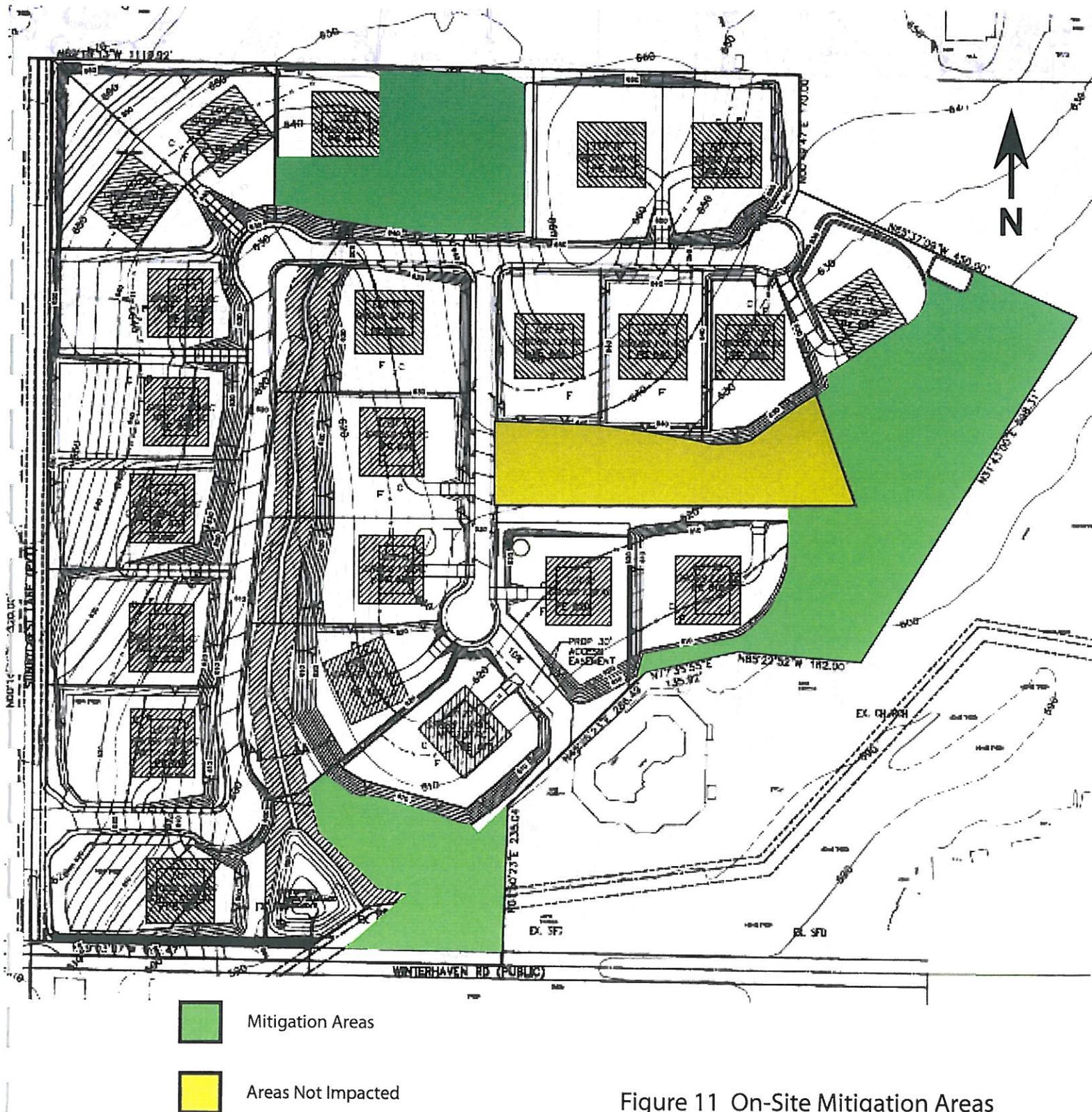


Figure 11 On-Site Mitigation Areas

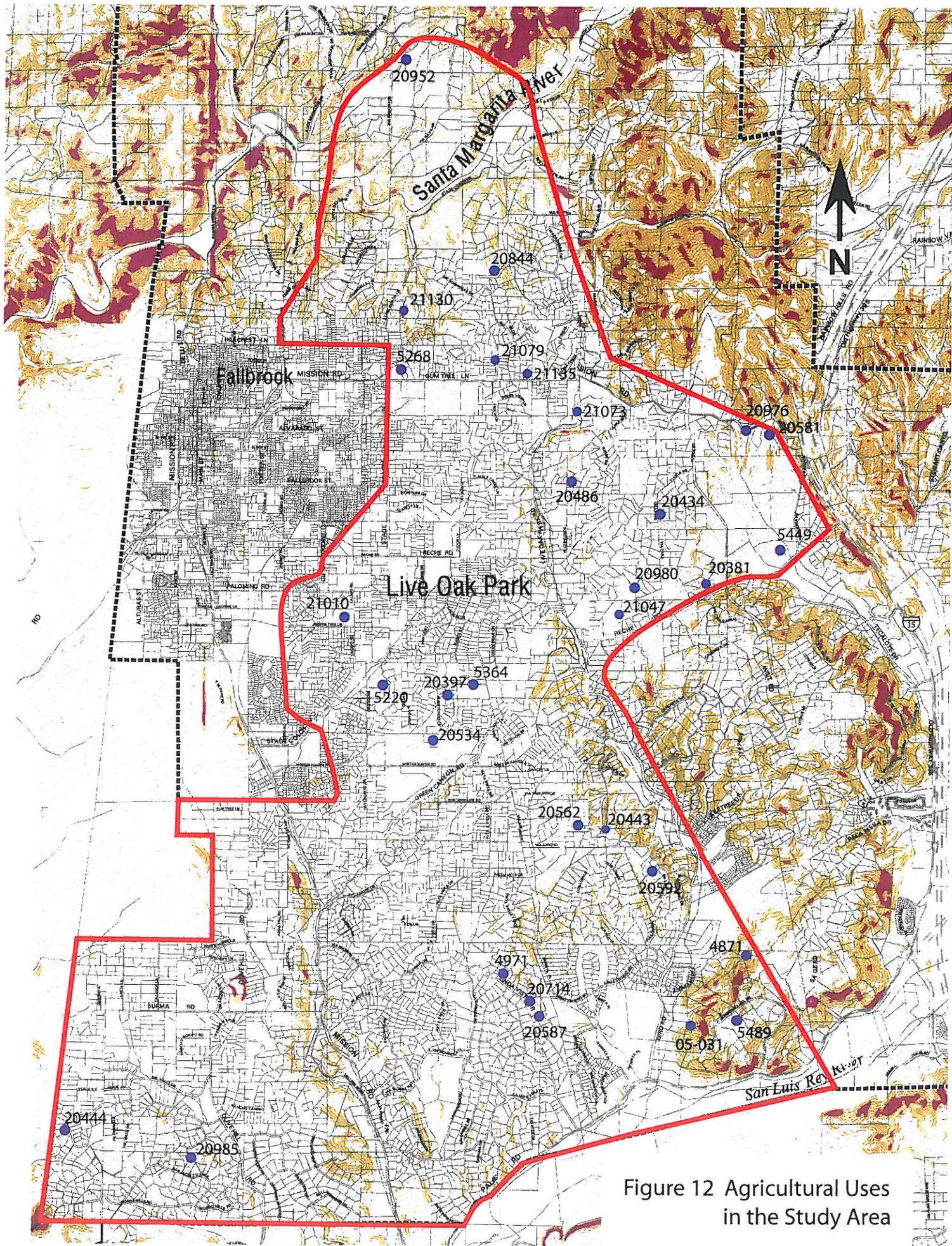


Figure 12 Agricultural Uses in the Study Area

Appendix B

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
<p>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.</p>	<p>High</p>	<p>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.</p>
<p>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.</p>	<p>High</p>	<p>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.</p>
<p>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.</p>	<p>High</p>	<p>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.</p>
<p>Zone 19 is prime for citrus, and most avocados and macadamia nuts can also be grown here.</p>	<p>High</p>	<p>Zone 19 is rated high due to the suitability for growing the County's high value crops and its location close to urban areas.</p>

<p>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.</p>	<p>Moderate</p>	<p>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.</p>
<p>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.</p>	<p>Moderate</p>	<p>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).</p>
<p>Zone 11 is located below the high elevation Zone 3 and above the subtropical desert Zone 13.</p>	<p>Low</p>	<p>Zone 11 is assigned a low climate rating due the agricultural hazards of the climate including late spring frosts and desert winds.</p>
<p>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.</p>	<p>Low</p>	<p>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.</p>

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

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).

Appendix C

Cumulative Project List

Type	Project Number
3100	4971
3100	5220
3100	5268
3100	5364
3100	5449
3200	20381
3200	20434
3200	20443
3200	20444
3200	20486
3200	20562
3200	20581
3200	20587
3200	20592
3200	20714
3200	20844
3200	20952
3200	20976
3200	20980
3200	21010
3200	21047
3200	21073
3200	21079
3200	21130
3200	21135
3200	20534
3200	20985

Appendix D

Cumulative Analysis Work Sheets

Cumulative Project List

Table 1

TM 5553

Type	Project Number	Agricultural Resources on Site	Important Agricultural Resource?¹	Direct Impact Estimate²	Potential Indirect Impact Estimate³
3100	4971	None	1	2.43	0
3100	5220	None	1	16.24	0
3100	5268	None	1	1.29	0
3100	5364	Citrus	1	14.18	0
3100	5449	Citrus	1	12.9	0
3200	20381	None	0	0	0
3200	20434	None	0	0	26400
3200	20443	None	1	6.786	0
3200	20444	None	1	3.15	0
3200	20486	Avocados	0	0	0
3200	20562	None	1	2.64	0
3200	20581	Citrus	0	0	49100
3200	20587	None	0	0	0
3200	20592	Avocados	0	0	33950
3200	20714	Citrus	1	0.76	0
3200	20844	Citrus	0	0	14950
3200	20952	Avocados	0	0	45050
3200	20976	Citrus	1	2.8	0
3200	20980	Citrus	1	6	68300
3200	21010	Citrus	1	3.13	0
3200	21047	None	1	14.175	0
3200	21073	None	1	8.74	0
3200	21079	Citrus	0	0	12600
3200	21130	Avocados	0	0	0
3200	21135	None	0	0	0
3200	20534	Citrus	0	5.59	25100
3200	20985	None	0	0	0
Totals				100.811	6.323461892

Total Project Impact

107.1344619

- 1 See Table 2
- 2 Where there has been no agricultural study and where the entire site was either Prime Farmlands, Farmlands of Statewide Importance, or Unique Farmlands, and the entire site in agricultural operations, site was viewed as a direct impact. If neither situation existed the calculation was made pursuant to the explanation in the text.
- 3 Indirect impacts were quantified by considering a 50 foot wide area along any boundary where the property adjoins areas currently in agriculture. Other than total, measurements are in square feet.

Appendix D Page 2

Cumulative Project List Table 2 Determination of Important Resource

Type	Project	Water ¹	Climate ²	Soils ³	Resource? ⁴
3100	4971	1	1	1	1
3100	5220	1	1	1	1
3100	5268	1	1	1	1
3100	5364	1	1	1	1
3100	5449	1	1	1	1
3200	20381	1	1	0	0
3200	20434	1	1	0	0
3200	20443	1	1	1	1
3200	20444	1	1	1	1
3200	20486	1	1	0	0
3200	20562	1	1	1	1
3200	20581	1	1	0	0
3200	20587	1	1	0	0
3200	20592	1	1	0	0
3200	20714	1	1	1	1
3200	20844	1	1	0	0
3200	20952	1	1	0	0
3200	20976	1	1	1	1
3200	20980	1	1	1	1
3200	21010	1	1	1	1
3200	21047	1	1	1	1
3200	21073	1	1	1	1
3200	21079	1	1	0	0
3200	21130	1	1	0	0
3200	21135	1	1	0	0
3200	20534	1	1	0	0
3200	20985	1	1	0	0

1. If the project is within a district that is a member of the County Water Authority, there will be a 1, if not a 0
2. If the project is within Sunset Climate Zones 13 ,18-21 and 23, a 1, if any other, a 0
3. See Table 3
4. If any factor is rated 0, the property is not an important resource. If all are rated 1, it is an important resource.

Cumulative Project List Table 3 Soils

Type	Project	Soil Types ¹	Acreage of Project	Portion of Project	Acreage	Rating ²
3100	4971	1	48.68	0.05	2.434	0
3100	5220	1	16.24	1	16.24	1
3100	5268	1	12.9	0.1	1.29	0
3100	5364	1	14.18	1	14.18	1
3100	5449	1	28.67	0.45	12.9015	0
3200	20381	0	24.5	0	0	0
3200	20434	0	9.78	0	0	0
3200	20443	1	11.31	0.6	6.786	1
3200	20444	1	4.2	0.75	3.15	1
3200	20486	0	6.41	0	0	0
3200	20562	1	5.28	0.5	2.64	1
3200	20581	0	21.81	0	0	0
3200	20587	0	4.06	0	0	0
3200	20592	0	7.29	0	0	0
3200	20714	1	8.48	0.09	0.7632	0
3200	20844	0	9.33	0	0	0
3200	20952	0	18.67	0	0	0
3200	20976	1	23.34	0.12	2.8008	0
3200	20980	1	10	0.6	6	1
3200	21010	1	11.17	0.28	3.1276	0
3200	21047	1	20.25	0.7	14.175	1
3200	21073	1	11.65	0.75	8.7375	1
3200	21079	0	3.77	0	0	0
3200	21130	0	9.53	0	0	0
3200	21135	0	5.5	0	0	0
3200	20534	0	5.59	1	5.59	0
3200	20985	0	4.34	0	0	0
Totals			356.93		100.8156	8

1. Only soils that are candidates for prime farmland or farmland of statewide importance. "1" if candidate soils exist on the property, "0" if none exist.
2. If portion equals .5 or above and there is at least 10 contiguous acres, rating will be 1. If portion is below .5 and there is less than 10 contiguous acres, rating will be 0.

