

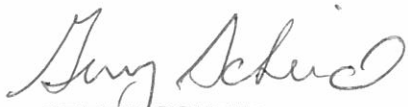
CONCEPTUAL WETLAND REVEGETATION PLAN LILAC HILLS RANCH SAN DIEGO COUNTY, CALIFORNIA

SPECIFIC PLAN
GENERAL PLAN AMENDMENT
REZONE
EIR
TENTATIVE MAP (MASTER)
TENTATIVE MAP (PHASE 1 IMPLEMENTING TM)
MAJOR USE PERMIT

PROJECT APPLICANT:
ACCRETIVE INVESTMENTS, INC.
12275 EL CAMINO REAL, SUITE 110
SAN DIEGO, CA 92130
ATTN: JON RILLING
PH: 858-546-0700

PREPARED FOR:
COUNTY OF SAN DIEGO
5510 OVERLAND AVENUE, THIRD FLOOR
SAN DIEGO, CA 92123
KIVA PROJECT: 09-0112513
SP 3810-12-001
GPA 3800-12-001
REZ 3600-12-003
TM 5571 RPL3 and 5572 RPL3
MUP 3300-12-005

PREPARER:



GERRY SCHEID
COUNTY-APPROVED BIOLOGIST

RECON ENVIRONMENTAL, INC.
1927 FIFTH AVENUE
SAN DIEGO, CA 92101
619-308-9333

MAY 23, 2013

THIS PAGE IS INTENTIONALLY BLANK.

TABLE OF CONTENTS

CHAPTER 1.0	DESCRIPTION OF THE DEVELOPMENT PROJECT/IMPACT SITE FOR WHICH COMPENSATORY MITIGATION IS REQUIRED	1
1.1	<u>Responsible Parties</u>	1
1.2	<u>Location of the Development Project</u>	1
1.3	<u>Summary of Overall Development Project with Proposed Mitigation</u>	4
1.3.1	Enviromental Setting and Site Conditions	4
1.3.2	Project Impacts Resulting in Revegetation Requirement	11
CHAPTER 2.0	GOALS OF THE COMPENSATORY MITIGATION PROJECT	12
2.1	<u>Responsibilities</u>	12
2.1.1	Project Designer	12
2.1.2	Installation Contractor	12
2.1.3	Revegetation Monitor	13
2.1.4	Revegetation Maintenance Contractor	13
2.2	<u>Type(s) and Area(s) of Habitat to be Established, Revegetated, Restored, Enhanced, and/or Preserved</u>	13
2.2.1	Revegetation Design Concept	13
2.2.2	Agency Coordination	14
2.3	<u>Functions and Values</u>	14
2.4	<u>Time Lapse</u>	15
2.5	<u>Cost</u>	15
CHAPTER 3.0	DESCRIPTION OF THE PROPOSED COMPENSATORY MITIGATION SITE	15
3.1	<u>Site Selection</u>	15
3.1.1	Physical Factors	15
3.1.2	Biological Factors	16
3.1.3	Logistical Factors	16
3.1.4	Historical Factors	16
3.2	<u>Location and Size of Compensatory Mitigation Site</u>	16
3.3	<u>Functions and Values</u>	17
3.4	<u>Jurisdictional Delineation</u>	17
3.5	<u>Present and Proposed Uses</u>	17
3.6	<u>References Site(s)</u>	17

CHAPTER 4.0	IMPLEMENTATION PLAN FOR THE COMPENSATORY MITIGATION SITE	19
4.1	<u>Rationale for Expecting Implementation Success</u>	19
4.2	<u>Financial Assurances</u>	19
4.3	<u>Schedule</u>	19
4.4	<u>Site Preparation</u>	20
4.5	<u>Planting Plan</u>	22
4.6	<u>Irrigation Plan</u>	22
CHAPTER 5.0	MAINTENANCE DURING MONITORING	23
5.1	<u>Maintenance Activities</u>	23
5.1.1	Supplemental Irrigation	23
5.1.2	Weed Control	23
5.1.3	Native Plant Replacement	23
5.1.4	Vegetation Clearing and Trash Removal	24
5.1.5	Pest Control	24
5.2	<u>Schedule</u>	24
CHAPTER 6.0	MONITORING PLAN FOR THE COMPENSATORY MITIGATION SITE	24
6.1	<u>Performance Standards for Target Dates and Success Criteria</u>	24
6.2	<u>Target Functions and Values</u>	25
6.3	<u>Target Hydrologic Regime</u>	25
6.4	<u>Target Acreages</u>	25
6.5	<u>Monitoring Methods</u>	26
6.5.1	Qualitative Monitoring	26
6.5.2	Quantitative Monitoring	26
6.6	<u>Monitoring Schedule</u>	26
6.7	<u>Monitoring Reports</u>	27
CHAPTER 7.0	COMPLETION OF COMPENSATORY MITIGATION	27
CHAPTER 8.0	CONTINGENCY MEASURES	27
8.1	<u>Initiating Contingency Procedures</u>	27
8.2	<u>Alternative Locations for Contingency Compensatory Mitigation</u>	28
8.3	<u>Funding</u>	28
CHAPTER 9.0	REFERENCES CITED	28

FIGURES

1:	Regional Location	2
2:	Project Location on USGS Map	3
3:	Project Location on Aerial Photograph	5
4a:	Vegetation Communities/Land Cover Types within Biological Open Space and Location of Wetland Mitigation	7
4b:	Vegetation Communities/Land Cover Types within Biological Open Space and Location of Wetland Mitigation	9
5:	Biological Open Space Trail and Signage Map	18

TABLES

1:	Existing On-Site Habitat/Vegetation Communities	4
2:	Summary of Direct Impacts to Jurisdictional Waters within the Project Area	11
3:	Summary of Wetland Impacts and Mitigation	14
4:	Wetland Creation Area Container Stock Southern Willow Riparian Habitat Species and Densities per Acre	21
5:	Restoration/Enhancement Area Container Stock Southern Coast Live Oak Riparian Woodland Species and Densities per Acre	22
6:	Five-Year Maintenance Schedule	24
7:	Five-Year Success Criteria/Performance Standards for Wetland Creation and Restoration/Enhancement Areas	25
8:	Five-Year Monitoring Schedule	27

THIS PAGE IS INTENTIONALLY BLANK.

CHAPTER 1.0 DESCRIPTION OF THE DEVELOPMENT PROJECT/IMPACT SITE FOR WHICH COMPENSATORY MITIGATION IS REQUIRED

The Lilac Hills Ranch project proposes the development of a new mixed-use master planned community. The proposed Specific Plan includes a maximum of 1,746 dwelling units with varying lot sizes, a neighborhood-serving commercial village center, public parks, retail uses, and a school site. Also, proposed on-site are a recycling collection facility, a wastewater reclamation facility, active orchards, and other supporting infrastructure. A Rezone is proposed to implement the Specific Plan by changing the existing Use and Development Regulations from A70 (Limited Agricultural) Zoning and RR (Rural Residential) to commercial and residential zones. The project would also include the submittal of a Master Tentative Map, Implementing Tentative Map, and a Major Use Permit.

The proposed project will permanently impact a total of 2.2 acres of Resource Protection Ordinance (RPO) wetland on-site. A 3:1 mitigation ratio is required for impacts to County RPO wetlands. Of this mitigation ratio, a minimum of 1:1 creation must be achieved while the remaining 2:1 of the ratio may be satisfied through restoration/enhancement of existing disturbed wetlands. The proposed on-site mitigation will involve the creation of a minimum of 6.0 acres of wetland and the restoration/enhancement of approximately 12 acres of disturbed wetland habitat. Southern willow riparian habitat is the target vegetation for the wetland creation and the restoration/enhancement of existing disturbed wetlands will involve the removal and control of non-native plant species and the reintroduction of native wetland plant species.

1.1 Responsible Parties

The owner/project proponent will be responsible for the development of the Lilac Hills Ranch project and the funding of the long-term maintenance, monitoring, and remedial actions in relation to the implementation of this revegetation plan. The owner/project proponent shall provide detailed construction drawings, accurate timelines, and written project specifications in conformance with the approved final revegetation plan. The owner/project proponent shall be responsible for coordination between the grading contractor and project biologist to ensure the implementation of the final revegetation plan will occur on the proper schedule.

The owner/project proponent shall manage project activities in the best interest of the project goals. The owner/project proponent will be solely responsible for administration of project contracts. Decisions to stop work are the responsibility of the owner/project proponent and the designated project manager. The owner/project proponent shall have sole authority in decisions to suspend payment or terminate such contracts. This includes all phases of project installation, long-term maintenance, and biological monitoring. The owner/project proponent may, with sole discretion at any time, replace any of these parties if necessary.

1.2 Location of the Development Project

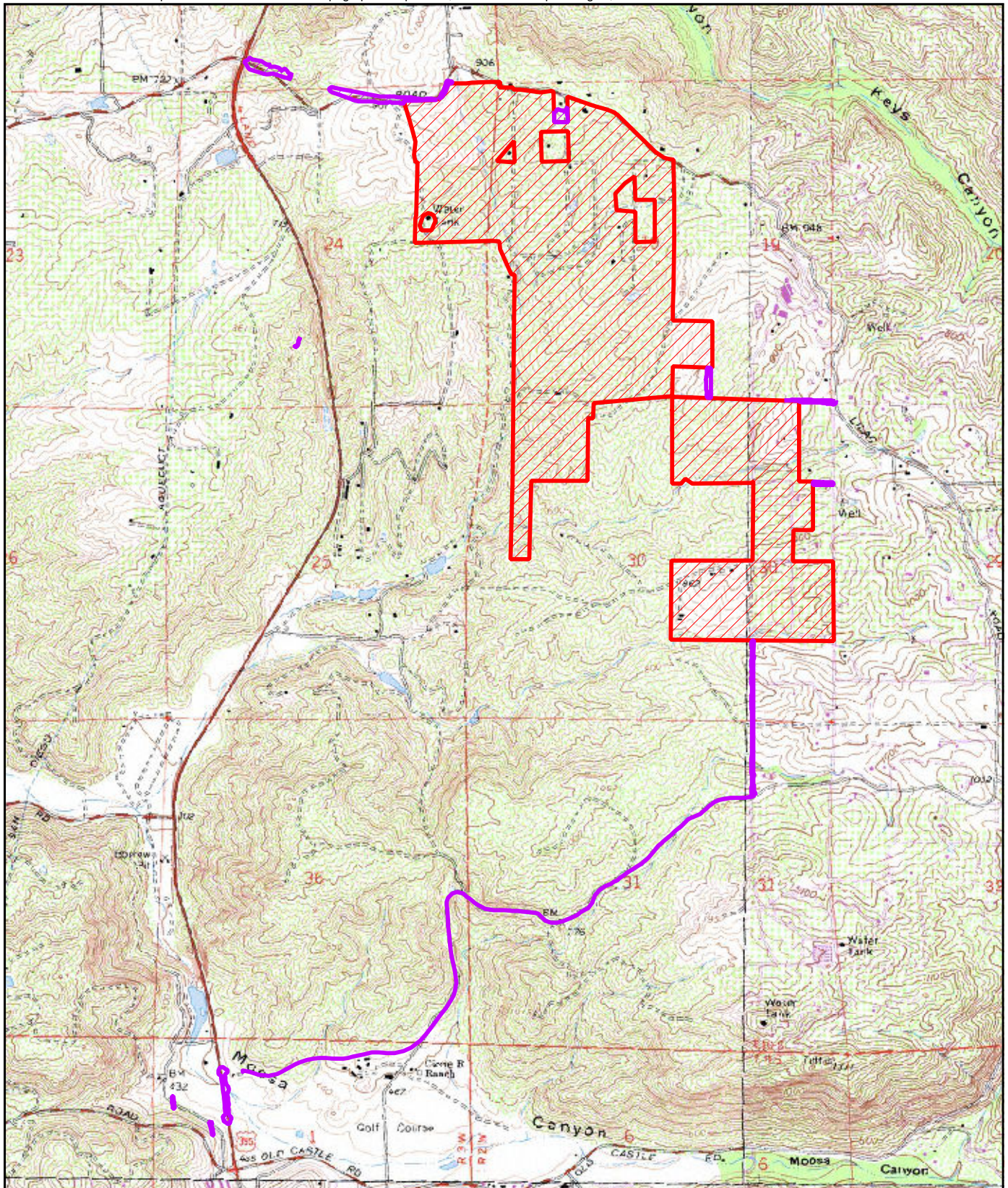
The proposed Lilac Hills Ranch project area is approximately 608 acres composed of 59 contiguous properties and is located in northern unincorporated San Diego County (Location: Thomas Guide 1049 A7, B7; 1069 B1, B2, C1, C2; Figures 1 and 2). The



 Project Location

FIGURE 1

Regional Location



0 Feet 2,000



-  Project Boundary
-  Off-site Improvement Areas

FIGURE 2

Project Location on USGS Map

project occurs within the Bonsall and Valley Center community planning areas. West Lilac Road serves as the northern and eastern boundary of the project site (Figure 3). The western boundary of the project runs along Standel Lane, and Circle R Drive is less than a half-mile south of the project boundary.

The locations of the proposed on-site revegetation work occur along and adjacent to the drainage courses being preserved within biological open space (Figure 4a and 4b). Wetland habitat creation is proposed at a location in the southern portion of the project. Wetland habitat restoration and enhancement areas occur along portions of drainage courses throughout the site.

1.3 Summary of Overall Development Project with Proposed Mitigation

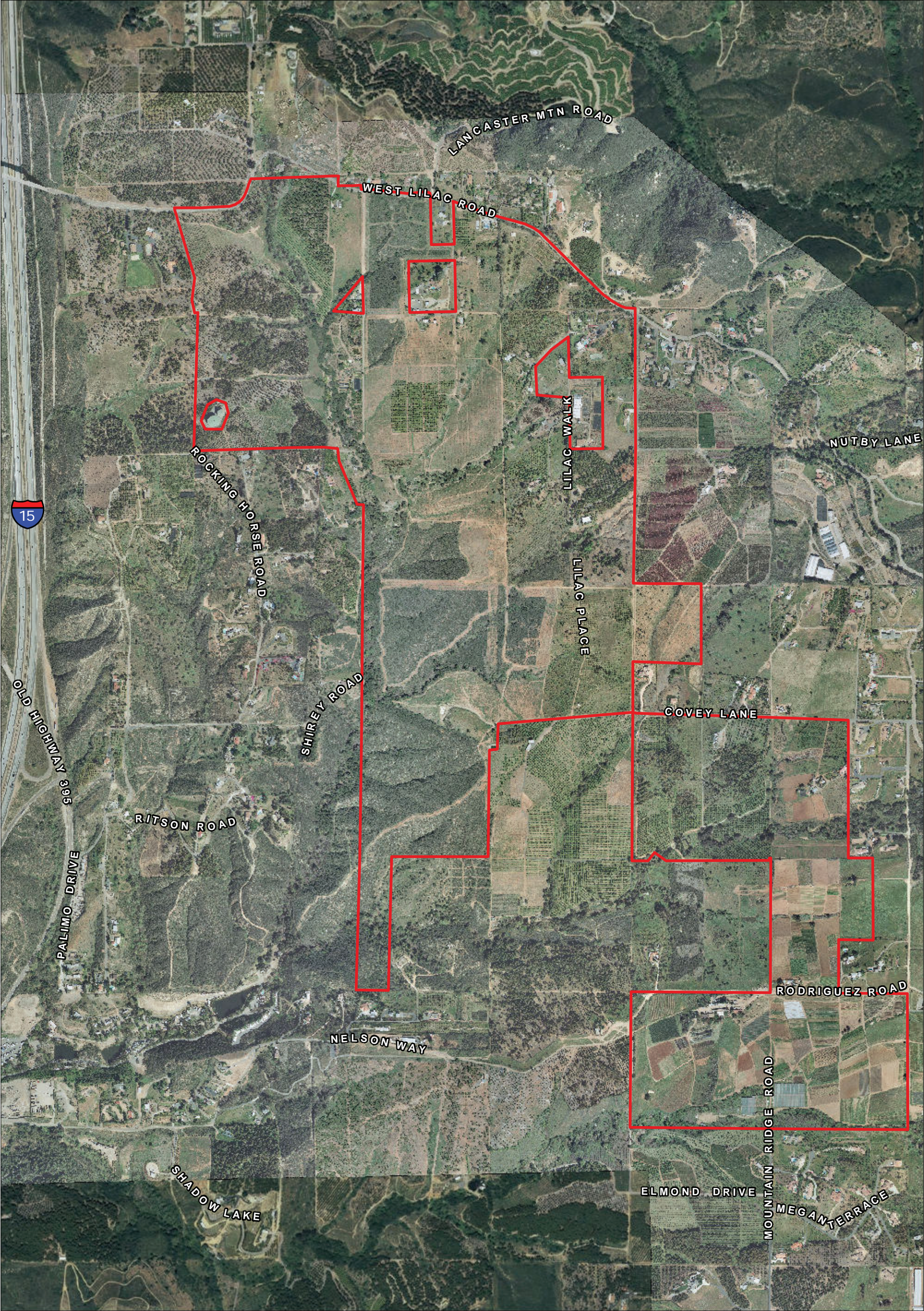
1.3.1 Environmental Setting and Site Conditions

The Lilac Hills Ranch project site consists of approximately 608 acres of inland foothills and valleys. The project site includes topography consisting of a series of rolling hills dissected by drainage courses and a valley bottom that drain primarily to the south and southwest. Two agricultural ponds occur in the project area that store water for irrigation purposes.

A total of 17 primary habitat types and vegetation communities were identified in the project survey area and 100-foot buffer survey area (Table 1). Some areas of these habitat types have portions that were characterized as disturbed.

**TABLE 1
EXISTING ON-SITE HABITAT/VEGETATION COMMUNITIES**

Habitat/Vegetation Communities	Acres
Coast live oak woodland (71160)	3.6
Coastal sage scrub (32520)	19.6
Disturbed coastal sage scrub (32520)	2.9
Disturbed coastal/Valley freshwater marsh (52410)	0.6
Eucalyptus woodland (79100)	1.7
Southern coast live oak riparian woodland (61310)	22.5
Disturbed southern coast live oak riparian woodland (61310)	1.9
Southern mixed chaparral (37120)	75.4
Disturbed southern mixed chaparral (37120)	6.0
Southern willow riparian woodland (62500)	4.7
Southern willow scrub (63320)	6.1
Disturbed southern willow scrub (63320)	0.3
Mule fat scrub (63310)	0.1
Open water – fresh water (64140)	0.5
Disturbed wetland (11200)	0.4
Extensive agriculture – row crops (18320)	90.5
Intensive agriculture – nursery (18200)	9.2
Vineyard (18100)	0.7
Orchard (18100)	291.9
Disturbed habitat (11300)	44.0
Developed (12000)	25.7
TOTAL	608.3




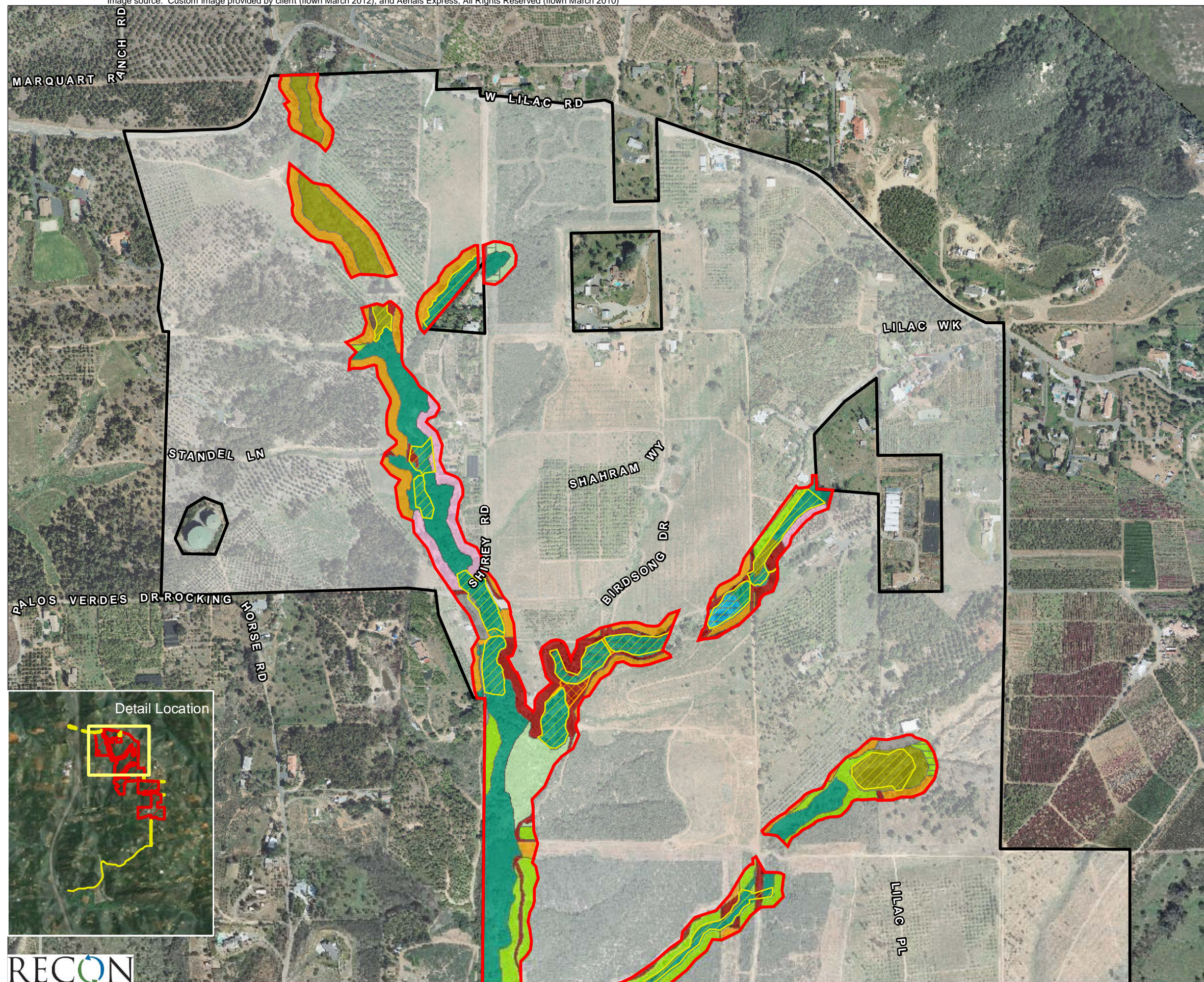
 Project Boundary

FIGURE 3

THIS PAGE IS INTENTIONALLY BLANK.

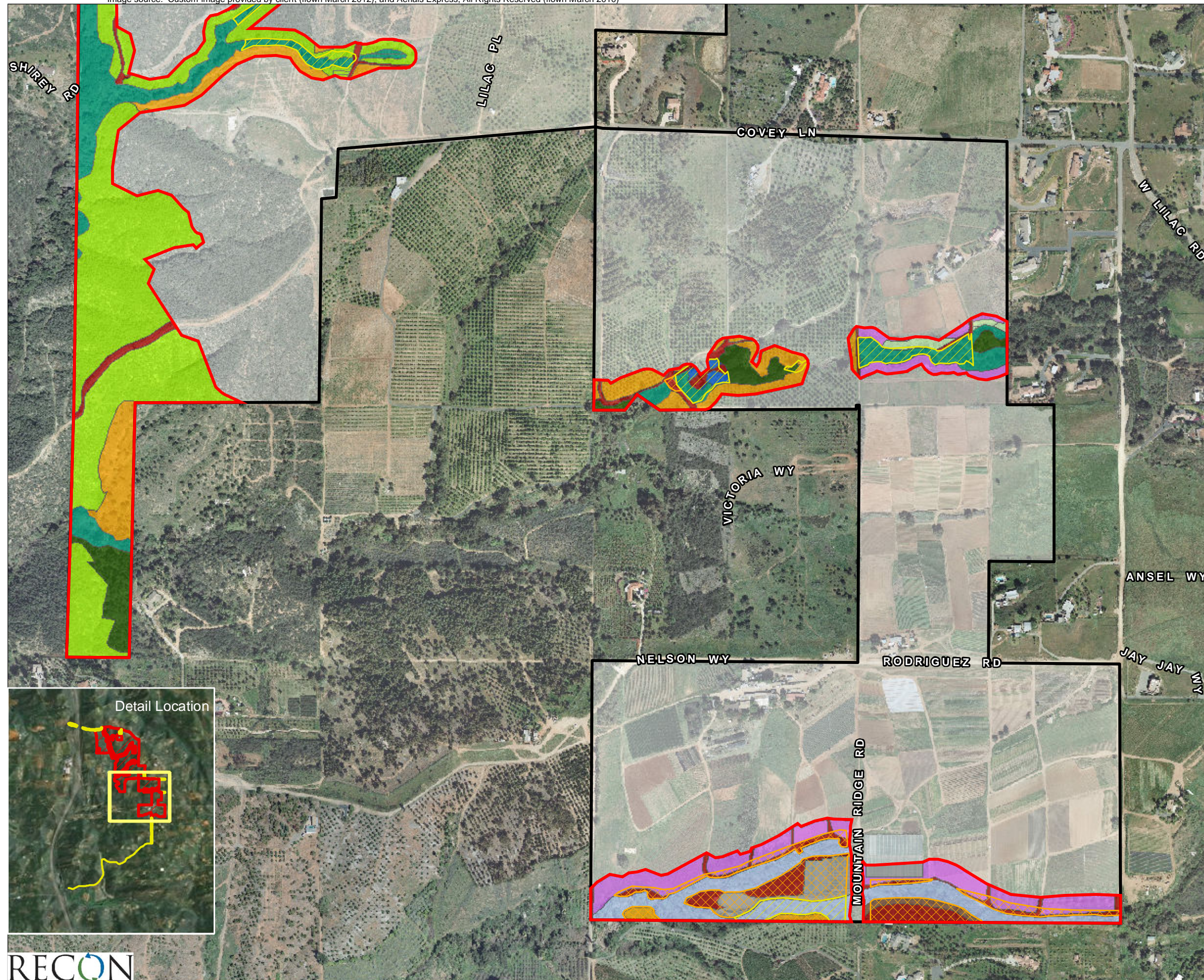


- Project Boundary
 - Biological Open Space Boundary
 - Wetland Creation
 - Wetland Enhancement
- Vegetation Communities and Landcover Type**
- Coastal Sage Scrub (32520)
 - Disturbed Coastal Sage Scrub (32520)
 - Disturbed Coastal/Valley Freshwater Marsh (52410)
 - Eucalyptus Woodland (79100)
 - Southern Coast Live Oak Riparian Woodland (61310)
 - Disturbed Southern Coast Live Oak Riparian Woodland (61310)
 - Southern Mixed Chaparral (37120)
 - Disturbed Southern Mixed Chaparral (37120)
 - Southern Willow Riparian Woodland (62500)
 - Intensive Agriculture - Nursery
 - Orchard (18100)
 - Vinyard (18100)
 - Disturbed Habitat (11300)
 - Developed (12000)



FIGURE 4a
Vegetation Communities/Land Cover Types
within Biological Open Space and Location
of Potential Wetland Mitigation

THIS PAGE IS INTENTIONALLY BLANK.



- Project Boundary
 - Biological Open Space Boundary
 - Wetland Creation
 - Wetland Enhancement
- Vegetation Communities and Landcover Type**
- Coastal Sage Scrub (32520)
 - Disturbed Coastal Sage Scrub (32520)
 - Coast Live Oak Woodland (71160)
 - Coastal/Valley Freshwater Marsh (52410)
 - Disturbed Wetland (11200)
 - Eucalyptus Woodland (79100)
 - Southern Coast Live Oak Riparian Woodland (61310)
 - Disturbed Southern Coast Live Oak Riparian Woodland (61310)
 - Southern Mixed Chaparral (37120)
 - Disturbed Southern Mixed Chaparral (37120)
 - Southern Willow Scrub (63320)
 - Extensive Agriculture - Row Crops (18320)
 - Orchard (18100)
 - Disturbed Habitat (11300)
 - Developed (12000)

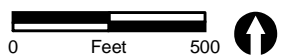


FIGURE 4b
Vegetation Communities/Land Cover Types
within Biological Open Space and Location
of Potential Wetland Mitigation

THIS PAGE IS INTENTIONALLY BLANK.

The habitats in the project area support a diverse assemblage of wildlife species, with 59 bird, 18 invertebrate, 3 amphibian, 10 reptile, and 7 mammal species identified in the project area. A total of 13 sensitive species were observed in the project area—red diamond rattlesnake (*Crotalus ruber*), Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*), coastal western whiptail (*Cnemidophorus multiscultatus tigris*), Cooper's hawk (*Accipiter cooperii*), white-tailed kite (*Elanus leucurus*), turkey vulture (*Cathartes aura*), loggerhead shrike (*Lanius ludovicianus*), yellow warbler (*Dendroica petechia*), yellow-breasted chat (*Icteria virens auricollis*), western bluebird (*Sialia mexicana occidentalis*), southern mule deer (*Odocoileus hemionus fuliginata*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), and San Diego desert woodrat (*Neotoma lepida intermedia*).

A total of three sensitive plant species were observed in the project area—prostrate spineflower (*Chorizanthe procumbens*), southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*), and Engelmann oak (*Quercus engelmannii*). All three species occur on List D of the County sensitive species list. Additionally, Engelmann oak has a California Native Plant Society (CNPS) rare plant ranking of 4.2.

For a complete discussion of the existing biological resources and project impacts, see the Biological Resources Report for Lilac Hills Ranch (RECON 2013).

1.3.2 Project Impacts Resulting in Revegetation Requirement

The proposed project would impact jurisdictional waters, including wetlands, across the site. These impacts to jurisdictional waters and wetlands require revegetation to meet the mitigation requirements to compensate for the impacts. Jurisdictional waters and wetlands covered under the authority of the U.S. Army Corps of Engineers (USACE; waters of the U.S.), California Department of Fish and Game (CDFG; waters of the state), Regional Water Quality Control Board (RWQCB; waters of the state), and County of San Diego (RPO wetlands) would be impacted. Acreages for direct impacts to jurisdictional waters, including wetlands, are summarized by jurisdiction in Table 2.

TABLE 2
SUMMARY OF DIRECT IMPACTS TO
JURISDICTIONAL WATERS WITHIN THE PROJECT AREA
(acres)

Jurisdictional Waters	Existing (acres)	Impacts (acres)	Offsite Impacts (acres)
USACE Jurisdiction			
Non-wetland waters of the U.S.	4.69	2.92	
Wetlands	13.44	1.30	0
USACE Total Jurisdiction	18.13	4.22	0
CDFG/RWQCB Jurisdiction			
Streambed	4.18	3.1	
State Wetlands (Riparian habitat)	39.35	3.45	0
CDFG Total Jurisdiction¹	43.52	6.55	0
County of San Diego RPO Wetlands	37.64	2.23	0

Functions and values of habitat to be impacted vary with the particular location of impact. The majority of impacts to wetlands would be due to road crossings needed for transportation circulation within the project. Impacts to other non-wetland jurisdictional

waters would result from general project grading. In general, the habitats supported by these jurisdictional waters and wetlands function to provide wildlife habitat for local animal species, erosion control, and provide water quality benefits (i.e., uptake of pollutants). Habitat value for the jurisdictional waters and wetlands are overall moderate, but range from low values for areas affected by adjacent agricultural activities to high values for the larger, mature riparian woodlands.

CHAPTER 2.0 GOALS OF THE COMPENSATORY MITIGATION PROJECT

2.1 Responsibilities

The owner/project proponent will be responsible for funding long-term maintenance, monitoring, and remedial actions as determined by the County. The owner/project proponent shall provide detailed construction drawings, accurate timelines, and written project specifications in conformance with the approved final revegetation plan. The owner/project proponent shall be responsible for coordination between the grading contractor and project biologist to ensure the implementation of the final revegetation plan will occur on the proper schedule.

The owner/project proponent shall manage project activities in the best interest of the project goals. The owner/project proponent will be solely responsible for administration of project contracts. Decisions to stop work are the responsibility of the owner/project proponent and the designated project manager. The owner/project proponent shall have sole authority in decisions to suspend payment or terminate such contracts. This includes all phases of project installation, long-term maintenance, and biological monitoring. The owner/project proponent may, with sole discretion at any time, replace any of these parties if necessary.

The County of San Diego (County) will be responsible to ensure that the revegetation plan is implemented according to the agreed requirements and schedule. The County, in coordination with other resource agencies, will have final approval authority in determining the success of the revegetation effort in relation to meeting the success criteria for the compensatory mitigation.

2.1.1 Project Designer

The preparation of the construction drawings and landscape plans used to implement the wetland revegetation plan shall be the responsibility of a qualified engineer and landscape architect. The project engineer and landscape architect shall consult with the project biologist during the preparation of the construction/landscape plans to ensure that the site preparation grading, plant palettes, plant installation instructions, and maintenance/monitoring requirements outlined in the final wetland revegetation plan are incorporated into the plans.

2.1.2 Installation Contractor

The installation contractor shall be responsible for the implementation of the project construction (e.g., site preparation) and landscape plans (e.g., plant installation). The installation contractor shall have a minimum of five years of experience in the revegetation, restoration, and enhancement of native wetland plant species and habitat.

2.1.3 Revegetation Monitor

The revegetation monitor will be responsible for monitoring and consulting on the implementation of the revegetation plan. The revegetation monitor shall be a biologist with a minimum of five years of experience in the revegetation, restoration, and enhancement of wetland plants and habitats. The revegetation monitor responsibilities shall include:

- Coordinate with the project engineer and landscape architect during the preparation of the construction plans to be used to implement the final wetland revegetation plan.
- Attend pre-grading and pre-construction meetings to consult with the owner/project proponent and grading contractor, and to educate the contractors on project goals and habitat sensitivity.
- Monitor the site preparation, installation of native plant materials, and monitoring of qualified subcontractors in execution of aspects of this plan.
- Consult with the contractor on any activities that may be disruptive to the mitigation.
- Overseeing and performing the required biological monitoring and reporting in accordance with the procedures established in this plan.

2.1.4 Revegetation Maintenance Contractor

The revegetation maintenance contractor shall have a minimum of five years' experience in upland and stream/wetland habitat restoration. The maintenance contractor will be responsible for implementing the tasks outlined in this plan under the supervision of the project biologist.

- Maintain site as outlined in this plan in coordination with the project biologist.
- Perform remedial measures as prescribed by the project biologist and approved by the owner/project proponent (e.g., control non-native plants, plant supplemental native plants, repair irrigation system, remove trash, etc.).

2.2 Type(s) and Area(s) of Habitat to be Established, Revegetated, Restored, Enhanced, and/or Preserved

2.2.1 Revegetation Design Concept

One element of the revegetation design concept for this wetland revegetation plan is the creation of wetlands on-site in an area that will add to existing wetlands. The purpose of this wetland creation is to replace functions and habitat values lost by impacts to jurisdictional wetlands. The term creation implies a newly constructed wetland area that aims to replace habitat functions and values of the impacted wetland. The quality of the created habitat will exceed that of the existing impacted wetland habitat. A total of 6.0 acres of wetland/riparian habitat will be created on-site in the southern portion of the project area. A breakdown of habitat types and mitigation required is given in Table 3.

TABLE 3
SUMMARY OF WETLAND IMPACTS AND MITIGATION

Vegetation Community	Agency Jurisdiction	Impact (acres)	Mitigation Ratio	Total Mitigation Requirement (acres)
Southern Coast Live Oak Riparian Woodland (61310)	ACOE, CDFG, County of San Diego ¹	1.9	3:1	5.7
Coastal/Valley Freshwater Marsh (52410)	ACOE, CDFG, County of San Diego ¹	0.2	3:1	0.6
Southern Willow Riparian Woodland (62500)	ACOE, CDFG, County of San Diego ¹	0.5	3:1	1.5
Mule Fat Scrub (63310)	ACOE, CDFG, County of San Diego ¹	0.1	3:1	0.3
Southern Willow Scrub (63320)	ACOE, CDFG, County of San Diego ¹	0.6	3:1	1.8
Disturbed Wetland (11200)	ACOE, CDFG, County of San Diego ¹	0.1	3:1	0.3
Non-wetland Waters/Streambed	ACOE, CDFG	3.1	1:1	3.1
TOTAL		6.5		13.3

¹Where RPO wetlands occur.

The second element of the revegetation design concept for this wetland revegetation plan is the restoration/enhancement of existing disturbed wetlands being preserved in biological open space in the project area. The purpose of the restoration/enhancement is to increase the functions and values of the existing disturbed riparian habitat on-site. Enhancement activities will include the removal of non-native species, planting of native species, restoration of hydrological connections, and removal of trash. This mitigation would provide an increase in habitat values beyond extant conditions. A total of 12 acres of preserved wetland/riparian habitat will be restored/enhanced within the biological open space.

2.2.2 Agency Coordination

Agency coordination (i.e., USACE, CDFG, RWQCB) will occur as project design is completed and the final impacts are approved by the County of San Diego. Permit conditions and requirements of other resource agencies will be provided once consultation with these agencies has occurred. An environmental impact report is being prepared for this project, which will include a copy of this conceptual wetland revegetation plan, when approved.

2.3 Functions and Values

The establishment of wetland habitat in the southern portion of the project site will increase the habitat functions and values of the adjacent riparian habitat that is being preserved at the location. The added acreage of wetland habitat will increase the value of the riparian corridor for wildlife species by providing additional habitat structure for nesting, feeding, and shelter. Increased erosion protection, decreased sedimentation, better nutrient and pollutant uptake, and a more stable hydrologic regime are habitat functions that will benefit from the additional established wetlands.

The restoration and enhancement of the wetlands and riparian habitat along the drainage courses being preserved as part of the project will also benefit the existing functions and values of these habitat areas. Removal of invasive plant species such as

pampas grass and giant cane, in conjunction with the removal of trash and the restoration of hydrologic connections through the elimination of existing road crossings no longer needed will increase the value of the habitat for wildlife. Restoring the disturbed areas with native riparian plant species will improve erosion control, decrease sedimentation, improve nutrient cycling and pollutant absorption, and improve the hydrologic functions of the drainage systems.

2.4 Time Lapse

Implementation of compensatory mitigation for impacts to wetlands will occur in the same calendar year as the impacts occur. It is expected to take five years after implementation of the revegetation effort to achieve compensatory mitigation success.

2.5 Cost

The cost estimate for wetland revegetation program will be determined once project approvals have been received from the County of San Diego.

CHAPTER 3.0 DESCRIPTION OF THE PROPOSED COMPENSATORY MITIGATION SITE

3.1 Site Selection

Suitability of the proposed revegetation areas for wetland creation and restoration/enhancement was based on factors including physical factors (i.e., soils, landscape position, hydrology, topography), biological factors (i.e., existing vegetation, adjacent wetland habitat), logistical factors (i.e., accessibility, site protection), and historical factors (i.e., suitability of the site for restoration). All creation and restoration/enhancement areas will be conserved in biological open space as part of the proposed Lilac Hills Ranch project.

3.1.1 Physical Factors

The soils in the wetland creation areas are likely suitable for the establishment of riparian vegetation as they are adjacent to areas of existing riparian vegetation on the same soil type. It is important that in areas where the ground elevations will be lowered that the upper 12 inches of topsoil be removed, stockpiled separately, and then spread over the graded creation site to ensure good topsoil for establishment of the native vegetation to be installed. However, should it be determined during site preparation that suitable topsoil is not present on-site, the project biologist will determine the soil amendments and/or additives (i.e., fertilizer, mycorrhiza, organic matter) to be added prior to installation of the native plant materials.

It is assumed that soils in the wetland restoration/enhancement areas are suitable for the establishment of riparian vegetation as these areas already support native riparian plants. The use of soil amendments or additives, such as fertilizer or mycorrhiza, is not anticipated for these areas.

The wetland creation areas will be located adjacent to existing southern willow riparian habitat in the southern portion of the Lilac Hills Ranch project area (see Figures 4a and 4b). Creation of wetland will occur in areas adjacent to the existing riparian habitat in

areas that are currently characterized as disturbed, developed, or under extensive agriculture. Contouring during site preparation will lower the topography of the creation areas to spread out existing surface flows and to bring the elevation of the site closer to the groundwater table to ensure adequate surface and subsurface hydrologic connections to support the new wetland vegetation after supplemental irrigation is removed. The elimination of adjacent agricultural activities and the maintenance of natural freshwater inputs will reduce/eliminate any salinity issues.

The location of the wetland restoration/enhancement areas will occur in existing drainages that contain disturbed southern coast live oak riparian woodland dominated by pampas grass and other invasive plant species. It is assumed that the existing drainages contain suitable hydrology to support the restored/enhanced southern coast live oak riparian woodland vegetation due to the existing natural surface and subsurface hydrology.

3.1.2 Biological Factors

The wetland creation areas are proposed to be constructed adjacent to an existing drainage course that supports similar riparian habitat. After the initial installation of the native plant materials, the site will be maintained for a period of five years to control invasion of the site by non-native plant species and to increase the resiliency of the riparian habitat to resist future invasions by these non-native species. Use of the existing riparian habitat by wildlife will benefit from the addition of more riparian habitat. Restoration and enhancement of preserved riparian habitat in the biological open space areas of the project contain suitable native riparian habitat.

3.1.3 Logistical Factors

The wetland creation areas are located in an area in the southern portion of the project site where accessibility will not be an issue during the implementation, maintenance, and monitoring period. Restoration and enhancement areas that occur throughout the site will have easy access for the removal of non-native plants species, reintroduction of native plant species, and maintenance and monitoring. Site protection during the establishment, restoration, and enhancement of the riparian habitats will be achieved through the use of signage and fencing that will restrict access to the mitigation areas. Long term site protection will be enforced by the entity approved to manage the biological open space areas within the project.

3.1.4 Historical Factors

The proposed wetland creation areas will be located in areas adjacent to existing riparian habitat where past and current agricultural activities have removed native habitat over time. A low elevation landscape position with minor topographic modifications will create a local environment that has the hydrology and soils characteristics conducive to the establishment of wetland/riparian habitat.

3.2 Location and Size of Compensatory Mitigation Site

The proposed on-site compensatory mitigation will involve the creation of a minimum of 6.0 acres of wetland and the restoration/enhancement of approximately 12 acres of disturbed wetland habitat. Southern willow riparian habitat is the target vegetation for the

wetland creation revegetation sites that will be located in the southern portion of the project site (see Figure 4b). The sites where restoration/enhancement of existing disturbed wetlands will occur are located along drainage courses throughout the project site that are being preserved (see Figures 4a and 4b) and will involve the removal and control of non-native plant species and the reintroduction of native wetland plant species.

3.3 Functions and Values

The baseline condition of the proposed wetland creation areas is land that has been disturbed by agricultural activities. Current habitat functions and values of the areas where wetland will be established are low due to the lack of native plant species. Non-native plant species, primarily row crops, and a lesser amount of weed species (less than 10 percent cover) dominate the area. Native plant and animal species diversity is relatively low in the agricultural fields.

Restoration and enhancement areas occur on existing drainages that support riparian habitats such as southern coast live oak riparian woodland. Habitat functions and values are those described above in Section 2.3. Native plant cover is generally high, except in portions of the drainages where invasive species have colonized localized areas.

3.4 Jurisdictional Delineation

A jurisdictional delineation was conducted within the Lilac Hills Ranch project site (RECON 2012). The area where wetland creation will occur is an upland area. Drainages and riparian habitat being preserved in open space are either wetland, riparian, or consist of upland vegetated non-wetland waters.

3.5 Present and Proposed Uses

Presently, the proposed revegetation creation site and adjacent land is zoned for agricultural use and is actively being planted with a rotation of row crops. The drainages containing the proposed restoration/enhancement areas are also in an area zoned for agricultural use; however, the drainages are adjacent to active agricultural operations (i.e., orchards, nursery crops, etc.) and are only indirectly affected by this land use (e.g., trash, irrigation runoff, invasive species, road crossings).

All wetland revegetation creation, restoration, and enhancement areas that are part of this revegetation plan will be within the biological open space dedicated as part of the project approval. The biological open space containing the revegetation areas and other habitat types being preserved will be protected under a covenant of easement. Signage will be used to delineate the preserved biological open space areas to limit damage from human encroachment on the preserved habitats (Figure 5).

3.6 References Site(s)

A nearby reference site for the southern willow riparian wetland creation area will be selected by the project biologist prior to the start of construction. The reference community will be chosen based on proximity to the project site and similarity, based on slope, aspect, and soils. Characteristics of the reference site will be used to track the

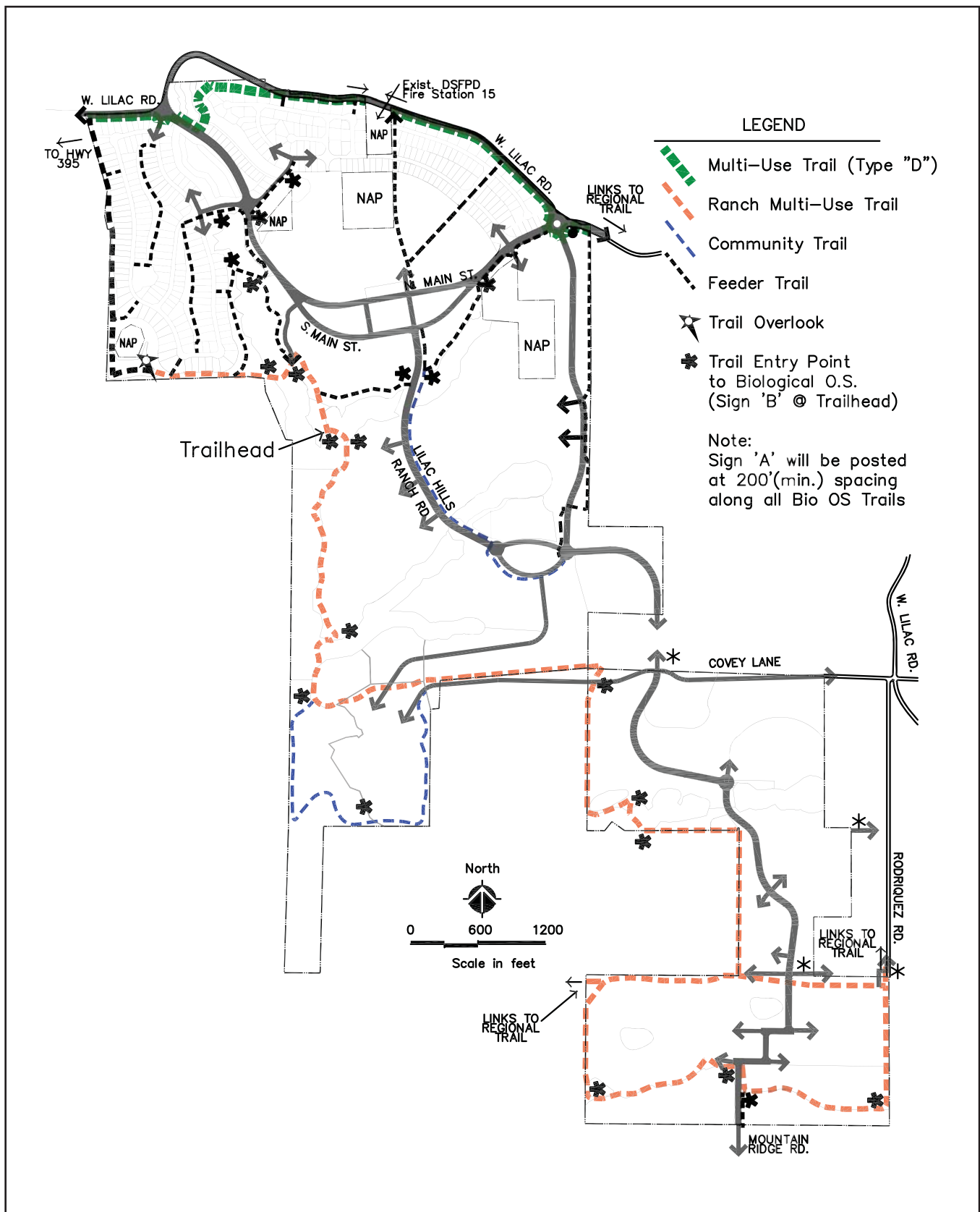


FIGURE 5
Biological Open Space Plan

progress of the habitat development of the mitigation areas during the five-year maintenance and monitoring period.

The southern portion of the project area currently supports southern willow riparian habitat that will be adjacent to the wetland creation areas. This willow riparian habitat is appropriate to serve as the reference area for the wetland creation (see Figure 4b). Native species cover is relatively high, invasive species cover relatively low, and species diversity of native plants and animals is moderate under current conditions.

A site visit with staff from the County of San Diego will be required for final approval of the reference site. Once the reference site is approved, it will be sampled once using the same qualitative and quantitative methods to be used on the wetland creation sites with enough sample replication to adequately capture the desired habitat characteristics. Baseline data for the percent native plant cover, percent non-native plant cover, and native plant density/diversity will be collected on the reference site. This baseline information will be used for comparison to the similar data collected for the vegetation at the wetland creation site.

CHAPTER 4.0 IMPLEMENTATION PLAN FOR THE COMPENSATORY MITIGATION SITE

4.1 Rationale for Expecting Implementation Success

The rationale for expecting implementation success for the proposed revegetation project to meet compensatory mitigation requirements is based on the location and characteristics of the revegetation sites. The establishment of wetland/riparian vegetation will occur adjacent to an existing drainage course that supports similar riparian habitat. The active floodplain of the drainage course will be widened to provide the needed surface flows and these flows in conjunction with the relatively high groundwater levels at this location will provide the hydrology to support wetland/riparian vegetation growth. Soils at this location are similar to those currently supporting wetland/riparian habitat. Revegetation areas where restoration and enhancement will occur are located on existing drainage courses that support wetland/riparian vegetation. These areas contain the necessary soils and hydrology to support wetland/riparian vegetation.

4.2 Financial Assurances

The project proponent/owner at the time of implementation of this revegetation plan will be responsible for providing all necessary funds to cover costs associated with the requirements of the revegetation plan. Sufficient funds will be provided to cover the implementation of the plan (e.g., site preparation, control of non-native plants, native plant installation, etc.), the five-year maintenance and monitoring program, any remedial measures required, and report preparation. A revegetation agreement shall be signed and notarized by the property owner following approval of this revegetation plan and accompanied by the required security as agreed upon by the County of San Diego.

4.3 Schedule

The schedule for the implementation of the required mitigation outlined in this plan has yet to be determined.

4.4 **Site Preparation**

The planting of native riparian plants should occur in the winter or spring months to take advantage of natural rainfall and optimal native plant growing conditions. Work in each of the wetland revegetation areas will be commenced prior to or concurrent with the development phase that requires mitigation for impacts to wetlands. The final wetland revegetation plan will provide more specific start and completion dates by phase for the implementation of the wetland revegetation program.

The wetland creation areas will require minor grading to lower the existing topography to expand the active floodplain of the existing drainage course. Site preparation will require the use of standard grading equipment (i.e., bulldozer, backhoe, excavator, etc.) to recontour the revegetation areas to the desired elevations and grade. Some restoration/enhancement areas may require the use of a small bulldozer or excavator to help remove heavy infestations of non-native plants. The addition of seed to the revegetation sites will be either hand broadcast or sprayed from a hydroseed truck. Access to the wetland creation and restoration/enhancement areas will be provided by way of existing roads and/or overland travel through adjacent areas during mass grading for the project. Access will not require additional impacts to wetland vegetation.

Prior to grading for the wetland creation site and for restoration/enhancement activities in existing disturbed riparian areas, any existing sensitive biological resources not authorized for impacts will be flagged and monitored for avoidance during construction. A limit fence delineating the grading limits or limits of restoration/enhancement activities will be installed to demarcate and further protect the adjacent sensitive habitat.

CREDIT
403.1 (2)

Once the revegetation project is complete, the wetland revegetation sites will be part of the biological open space conserved as part of the Lilac Hills Ranch project. This open space will have an easement restricting land use within the open space areas. Perimeter barriers associated with the proposed development are expected to limit access to the habitat creation areas. Protective fencing, gates, and signage will be used to identify sensitive biological resource areas and encourage pedestrians to stay on identified trails.

During and after site preparation, appropriate best management practices (BMPs) will be used as needed to prevent sediment from moving off-site. These BMPs will be included in the revegetation site grading plans and Storm Water Pollution Prevention Plan (SWPPP) for the project. If fiber rolls or straw bales are used, rice straw is recommended over wheat straw because it is less likely to carry imported seed, which can grow and reproduce in the mitigation sites.

Control of invasive exotic weeds will be important, during both establishment and the long-term maintenance period, to achieving the final performance standards. During the revegetation site preparation stage, weeds may be removed by hand, mechanical means, or sprayed with herbicide prior to planting to eradicate and prevent the establishment of weed species prior to the installation of the native plant species. A pre-emergent herbicide will be used in the revegetation areas in order to prevent the germination of weed species contained in the topsoil. For both the site preparation stage and the plant establishment and long-term maintenance stages, the project biologist will be responsible for directing the appropriate timing and application of any herbicides. An herbicide approved for use in aquatic sites will be used when appropriate for weed

control and applied by a licensed applicator. When herbicide is used, there must be little to no wind present, as overspray may potentially harm native plants.

The wetland creation and restoration/enhancement program will make use of rooted cuttings and plant materials collected from the local vicinity, as well as nursery-grown container plants grown from locally collected seed and/or cuttings. The native plants recommended for the container stock in this plan were selected based on their presence in the reference site and their value for developing an appropriate vegetation community structure to support wildlife species.

Cuttings and seed used to produce plants for the project will be collected from existing riparian areas on the project site or within two miles of the project site when feasible. All cuttings will be rooted in one-gallon containers and inoculated with mycorrhiza prior to planting. Cuttings and container plant densities for the wetland/riparian vegetation types are presented in Tables 4 and 5. Plants shall be spaced on a 3-foot radius across the revegetation areas.

TABLE 4
WETLAND CREATION AREA CONTAINER STOCK
SOUTHERN WILLOW RIPARIAN HABITAT SPECIES AND
DENSITIES PER ACRE

Species	Size	Number/Acre
<i>Artemisia douglasii</i> Mugwort	1-gallon	25
<i>Baccharis salicifolia</i> Mule fat	1-gallon	100
<i>Iva hayesiana</i> San Diego marsh elder	1-gallon	50
<i>Oenothera elata</i> ssp. <i>hookeri</i> Hooker's evening primrose	1-gallon	25
<i>Rosa californica</i> Wild rose	1-gallon	25
<i>Rubus ursinus</i> Wild blackberry	1-gallon	25
<i>Salix gooddingii</i> Black willow	1-gallon	100
<i>Salix exigua</i> Narrow-leaved willow	1-gallon	50
<i>Salix laevigata</i> Red willow	1-gallon	75
<i>Salix lasiolepis</i> Arroyo willow	1-gallon	150
TOTAL		625

TABLE 5
RESTORATION/ENHANCEMENT AREA CONTAINER STOCK
SOUTHERN COAST LIVE OAK RIPARIAN WOODLAND SPECIES
AND DENSITIES PER ACRE

Species	Size	Number/Acre
<i>Artemisia douglasii</i> Mugwort	1-gallon	25
<i>Baccharis salicifolia</i> Mule fat	1-gallon	100
<i>Iva hayesiana</i> San Diego marsh elder	1-gallon	50
<i>Oenothera elata</i> ssp. <i>hookeri</i> Hooker's evening primrose	1-gallon	25
<i>Rosa californica</i> Wild rose	1-gallon	25
<i>Rubus ursinus</i> Wild blackberry	1-gallon	25
<i>Salix gooddingii</i> Black willow	1-gallon	100
<i>Salix exigua</i> Narrow-leaved willow	1-gallon	50
<i>Salix laevigata</i> Red willow	1-gallon	75
<i>Salix lasiolepis</i> Arroyo willow	1-gallon	150
<i>Quercus agrifolia</i> Coast live oak	1-gallon	150
TOTAL		775

4.5 Planting Plan

Installation of native plants will begin upon completion of site preparation (i.e., grading, initial weed control) for both creation and restoration/enhancement sites. Individual container plants will be distributed on approximately three-foot centers within a particular revegetation site under the direction of the project biologist and in a manner that approximates the natural distribution of the target vegetation community.

Installation of native plant container stock will be in holes dug to be twice the area of the container and twice as deep. The holes will be partially backfilled and then will receive approximately one gallon of water prior to planting to wet and settle the soil. Plants will then be placed in the holes, backfilled with topsoil, and watered. No fertilizers will be used.

4.6 Irrigation Plan

A temporary surface-mounted overhead spray irrigation system will be installed at each wetland creation area to improve the survival of plantings during the first two to three years of establishment. Supplemental water will be added to the revegetation sites under the direction of the revegetation monitor. The temporary irrigation system will be removed as directed by the revegetation monitor once the plants have become firmly established.

CHAPTER 5.0 MAINTENANCE DURING MONITORING

5.1 Maintenance Activities

The objective of the maintenance program is to ensure that the irrigation system functions properly, weeds are controlled in a timely and thorough manner, and repairs/remedial measures are implemented per the direction of the revegetation monitor. The long-term maintenance for all habitat creation and restoration/enhancement areas will begin when the installation of the native plants is complete and will last for a period of five years as presented. The maintenance program will ensure that debris removal, weed control, replanting and reseeding, site protection, and other tasks are adequately performed. The revegetation monitor will supervise maintenance activities for all mitigation areas.

5.1.1 Supplemental Irrigation

A temporary irrigation system will be installed to ensure survival of plantings as a supplement to natural rainfall inputs. In general, the site will be watered on an as-needed basis, but typically two to three times a week during the warmer spring and summer months. The revegetation monitor will provide recommendations for timing and duration of the application of supplemental water. It is expected that the irrigation system will be used for a period of two to three years depending on seasonal rainfall patterns and how well the target vegetation becomes established. During this time, the maintenance crews should keep the irrigation system in operating condition. Upon completion of the project, the maintenance crews shall remove all above-ground irrigation equipment. Below ground mainlines may be left in place so the soil is not disturbed.

5.1.2 Weed Control

Weed control will continue throughout the five-year monitoring period. Hand weeding or other weed control methods will be performed by maintenance workers familiar with and trained to distinguish weeds from native species. During the first three years after plant installation, weeding will be performed at each revegetation site a minimum of four times a year to keep weeds from producing seeds and to control weed competition during the establishment period of native plants. Weed control will continue up to three times a year for the last two years of the maintenance period.

Weeds will be killed or removed before they set seeds. Appropriate weed control measures will be implemented under the direction of the project biologist. Plant species also present on the Cal-IPC California Invasive Plant Inventory (Cal-IPC 2012) will be targeted for removal. In the event that additional invasive species are encountered, the revegetation monitor shall refine control measures to address the particular infestation.

5.1.3 Native Plant Replacement

The wetland creation and restoration/enhancement revegetation areas will be monitored regularly during the establishment period to identify any areas that have poor plant survival rates. These areas will have the native plants replanted with the appropriate species once or twice a year throughout the maintenance period to “fill in” these areas. Alternate native plant species may be used if it is determined by the revegetation

monitor that the site may not support the plant species originally installed in that particular location. Replanting shall occur within the growing season.

5.1.4 Vegetation Clearing and Trash Removal

Pruning of any native vegetation or removal of dead wood and leaf litter shall generally not be allowed in the revegetation areas. Trash will be removed from the revegetation sites on an as-needed basis. Trash consists of all man-made materials, equipment, or debris left within the revegetation area that is not serving a function related to revegetation.

5.1.5 Pest Control

If during the five-year monitoring period it is determined by the revegetation monitor that herbivory is resulting in significant damage to target species, an active pest control program will be implemented. The pest control program may include any of the following measures: caging seedlings, fence installation, or trapping of pest species.

5.2 Schedule

The proposed maintenance schedule for the revegetation areas is provided in Table 6.

**TABLE 6
FIVE-YEAR MAINTENANCE SCHEDULE**

Tasks	Year 1	Year 2	Year 3	Year 4	Year 5
Weed control	4 times per year	4 times per year	4 times per year	3 times per year	3 times per year
Irrigation*	Two to three times per week based on season	Two to three times per week based on season	Two times per week based on season	--	--
Trash removal	4 times per year	4 times per year	4 times per year	3 times per year	3 times per year
Replanting	Twice per year	Once per year	Once per year	Once per year	--

*Temporary irrigation system is anticipated to be removed at the end of Year 3.

CHAPTER 6.0 MONITORING PLAN FOR THE COMPENSATORY MITIGATION SITE

6.1 Performance Standards for Target Dates and Success Criteria

The wetland creation and restoration/enhancement sites will be considered successful when the success criteria/performance standards have been met. If the minimum levels of native plant development shown in Table 7 are not achieved in any year, the project biologist will recommend remedial actions, such as replanting container stock, to reach the following year's expected levels. Other adaptive management actions (e.g., adjustments to site conditions, adjustment of supplemental irrigation, modifications to invasive species control) may be necessary to bring the revegetation areas into compliance with the success criteria/performance standards.

TABLE 7
FIVE-YEAR SUCCESSION CRITERIA/PERFORMANCE STANDARDS FOR
WETLAND CREATION AND RESTORATION/ENHANCEMENT AREAS

Year	Container Plant Survival	Total Native Plant Cover ¹	Diversity ¹	Density ¹
1	80%	—	—	—
2	100%	50%	50%	50%
3	100%	60%	60%	60%
4	100%	75%	70%	70%
5	100%	80%	70%	70%

¹Measured relative to an appropriate reference site in the project vicinity.

In order to meet the success criteria/performance standards, the wetland revegetation areas must sustain themselves for a minimum of one year (meeting the fifth-year performance standards) in the absence of significant maintenance measures during the final year of monitoring. Significant maintenance includes replanting and eradication of substantial weed infestations. Other maintenance measures, such as minor weed control, may continue until the end of the monitoring period.

The cover of non-native annuals and herbs, as identified by the project biologist, will be no more than 10 percent by the end of the five-year monitoring period. No invasive exotic perennials on the Cal-IPC lists A and B will be permitted on the revegetation sites by the end of the five-year monitoring period.

6.2 Target Functions and Values

The wetland/riparian revegetation mitigation sites will provide habitat functions and values that are equal to or greater than those affected by the project. The wetland/riparian habitat creation areas will increase habitat values (e.g., available habitat for wildlife use, plant community structure) and functions (e.g., erosion control, decrease in downstream sedimentation, increase in nutrient/pollutant uptake) by providing additional acreage of wetland/riparian habitat adjacent to existing wetland/riparian resources. These same habitat functions and values will be increased along portions of other existing wetland/riparian habitats on drainage courses preserved in biological open space through the restoration/enhancement activities that will replace non-native plant infestations and disturbances with native plant cover and restored hydrologic connections.

6.3 Target Hydrologic Regime

The target hydrologic regime for the proposed wetland/riparian revegetation creation areas is comprised of the establishment of connections to existing surface flows and site modifications to allow access to sub-surface groundwater. Minor contour elevation modifications made during site preparation will lower the ground surface in the creation areas to be closer to the existing groundwater table and will expand the active floodplain of the existing drainage course to connect surface flows to the areas.

6.4 Target Acreages

A total of 6 acres of wetland/riparian habitat will be restored on-site in the biological open space located at the southern portion of the project site. A total of 12 acres of

wetland/riparian restoration/enhancement will occur at scattered locations within the biological open space on-site.

6.5 Monitoring Methods

The revegetation areas will be monitored to assess the progress of the mitigation effort and to determine if success criteria/performance standards are being achieved. Qualitative and quantitative monitoring methods will be used.

6.5.1 Qualitative Monitoring

Evaluation of plant health and identifying and correcting any problems are necessary to ensure successful native vegetation establishment. Qualitative monitoring methods will include review of the mitigation areas by the revegetation monitor to examine plant vigor and exotic plant encroachment. Qualitative monitoring will also include observations of erosion, sedimentation, and areas at risk of being eroded. The revegetation monitor will document the findings and make recommendations to the maintenance contractor for remedial actions, if necessary.

Qualitative monitoring will also include the preparation of a list of wildlife species observed on the mitigation sites and a description of wildlife use will be included with each annual report.

6.5.2 Quantitative Monitoring

Quantitative monitoring will be used to sample variables that measure wetland habitat values (including percent native plant cover, diversity, density, survivorship) as well as wetland habitat functions (seedling recruitment and wildlife activity). Quantitative monitoring will measure the development of vegetation in the project area and document achievement of success criteria as defined by the performance standards. Different monitoring techniques (using transects or quadrats) may be employed for each revegetation type as needed to best assess the progress of each vegetation type within the project.

For the wetland revegetation areas, permanent vegetation sampling stations will be established to measure year-to-year changes in native plant cover, non-native plant cover, recruitment of native plant species, and native plant survivorship, density and diversity. Each sampling station will be used as a photo documentation point to record the progress of mitigation over the monitoring period. Results will objectively determine if the project meets the success criteria/performance standards in relation to the same data collected at the reference site.

6.6 Monitoring Schedule

The revegetation sites will be monitored according to the schedule presented in Table 8. Qualitative site assessments will be conducted at a greater frequency the first two years after native plant installation as any site modifications or adjustments to native plants and supplemental irrigation made early will increase the probability of meeting the five year success criteria/performance standards. Qualitative monitoring will begin starting in Year 2, allowing the native plants to become established and time for sufficient growth to meet the early success criteria/performance standards.

TABLE 8
FIVE-YEAR MONITORING SCHEDULE

Task	Year 1	Year 2	Year 3	Year 4	Year 5
Qualitative monitoring	Minimum One Visit Every Month	Minimum One Visit Every Month	Minimum One Visit Every Three Months	Minimum One Visit Every Three Months	Minimum One Visit Every Three Months
Quantitative monitoring	None	Spring	Spring	Spring	Spring

6.7 Monitoring Reports

Monitoring reports will be prepared and submitted to the County of San Diego on an annual basis with the Year 1 report being a Year-End Report. The annual reports will include the results of the qualitative data (wildlife observations, qualitative evaluation of invasive species, maintenance activities, interim remedial measures) and quantitative data (sampling methods, data summary analysis, success criteria/performance standards comparison and discussion, remedial action discussion, recommendations, and photo documentation) collected during the year for the revegetation sites. Monitoring and maintenance field data shall be included in an appendix to the report. The annual monitoring reports for Years 3–5 will compare findings of the current year with those in previous years. Annual monitoring reports shall be completed at the end of the monitoring year and submitted to the County of San Diego no later than the first week of January.

Any significant issue or contingency that arises on the job site (e.g., plant survival issues, fire, or flooding) shall be reported in writing to the County of San Diego within two weeks from the date of the incident. Accompanying the report shall be a plan for remediation, with an implementation schedule and a monitoring schedule.

CHAPTER 7.0 COMPLETION OF COMPENSATORY MITIGATION

A written notification of completion will be provided to the County of San Diego once the mitigation areas have achieved the five-year success criteria/performance standards and resource agency confirmation of completion of project compensatory mitigation requirements has been issued.

CHAPTER 8.0 CONTINGENCY MEASURES

8.1 Initiating Contingency Procedures

If the success criteria/performance standards are not achieved at the end of each year or by the end of the fifth year of the monitoring program, the owner/project proponent and revegetation monitor will consult with the County of San Diego and pertinent resource agencies to develop appropriate contingency procedures. Contingency procedures may involve remedial measures such as replanting areas, continued weed control, or finding alternative revegetation sites. The project proponent understands that failure of any significant portion of the wetland revegetation areas may result in a requirement to replace or revegetate that portion of the site.

8.2 Alternative Locations for Contingency Compensatory Mitigation

If it is decided that an alternative location is required to complete compensatory mitigation requirements, then the project proponent/owner shall coordinate with the County of San Diego and pertinent resource agencies to locate an approved site. Alternative locations for mitigation sites may be found on-site in other portions of the biological open space preserve, off-site at a suitable location, or as credits purchased from an approved off-site wetland mitigation bank.

8.3 Funding

The project proponent/owner will be responsible for providing all necessary funds to cover costs associated with any required contingency compensatory mitigation. Sufficient funds will be provided to cover the implementation of the contingency mitigation plan, associated maintenance and monitoring program, and report preparation. A contingency revegetation agreement shall be signed and notarized by the property owner following approval of remedial measures and accompanied by the required security as agreed upon by the County of San Diego.

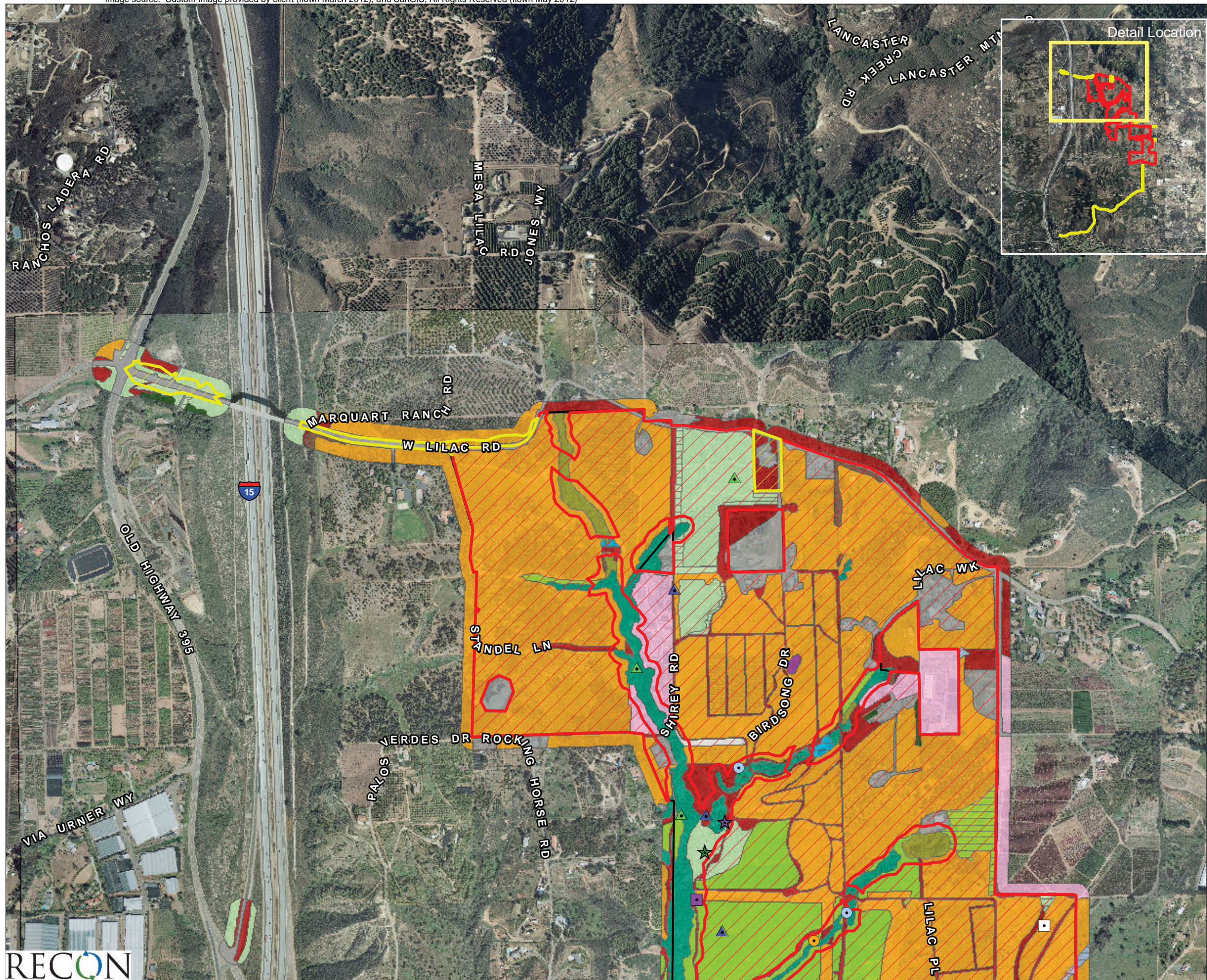
CHAPTER 9.0 REFERENCES CITED

California Invasive Plant Council (Cal-IPC)

- 2012 California Invasive Plant Inventory Database. 2012. Accessed July 19, 2012 at <http://www.cal-ipc.org/ip/inventory/weedlist.php>.

RECON

- 2012 Jurisdictional/Wetland Delineation Report Lilac Hills Ranch, San Diego County, California. Specific Plan, General Plan Amendment, Rezone, EIR, Tentative Map (Master), Tentative Map (Phase 1 Implementing TM), Major Use Permit. Prepared for the County of San Diego.
- 2013 Biological Resource Report for Lilac Hills Ranch Specific Plan, General Plan Amendment, Rezone, EIR, Tentative Map (Master), Tentative Map (Phase 1 Implementing TM), Major Use Permit. Prepared for the County of San Diego.



- Project Boundary
- Project Impacts
- Off-site Improvement Areas
- Vegetation Communities and Landcover Type**
- Coastal Sage Scrub (32520)
 - Disturbed Coastal Sage Scrub (32520)
 - Coast Live Oak Woodland (71160)
 - Disturbed Coastal/Valley Freshwater Marsh (52410)
 - Eucalyptus Woodland (79100)
 - Mule Fat Scrub (63310)
 - Southern Coast Live Oak Riparian Woodland (61310)
 - Disturbed Southern Coast Live Oak Riparian Woodland (61310)
 - Southern Mixed Chaparral (37120)
 - Disturbed Southern Mixed Chaparral (37120)
 - Southern Willow Riparian Woodland (62500)
 - Southern Willow Scrub (63320)
 - Disturbed Southern Willow Scrub (63320)
 - Open Water - Fresh water Agriculture pond (64140)
 - Intensive Agriculture - Nursery
 - Orchard (18100)
 - Vinyard (18100)
 - Disturbed Habitat (11300)
 - Developed (12000)
- Sensitive Species Observations**
- Birds
- Cooper's Hawk
 - Turkey Vulture
- Reptiles
- Orange-throated Whiptail
 - Red Diamond Rattlesnake
- Mammals
- Southern Mule Deer
 - San Diego Blacktailed Jackrabbit
- Plants
- Spiny Rush
 - Engelmann Oak
- 0 Feet 800

FIGURE 2.5-2a
Vegetation Communities/Land Cover Types
and Sensitive Species Locations
(Northern Project Area)

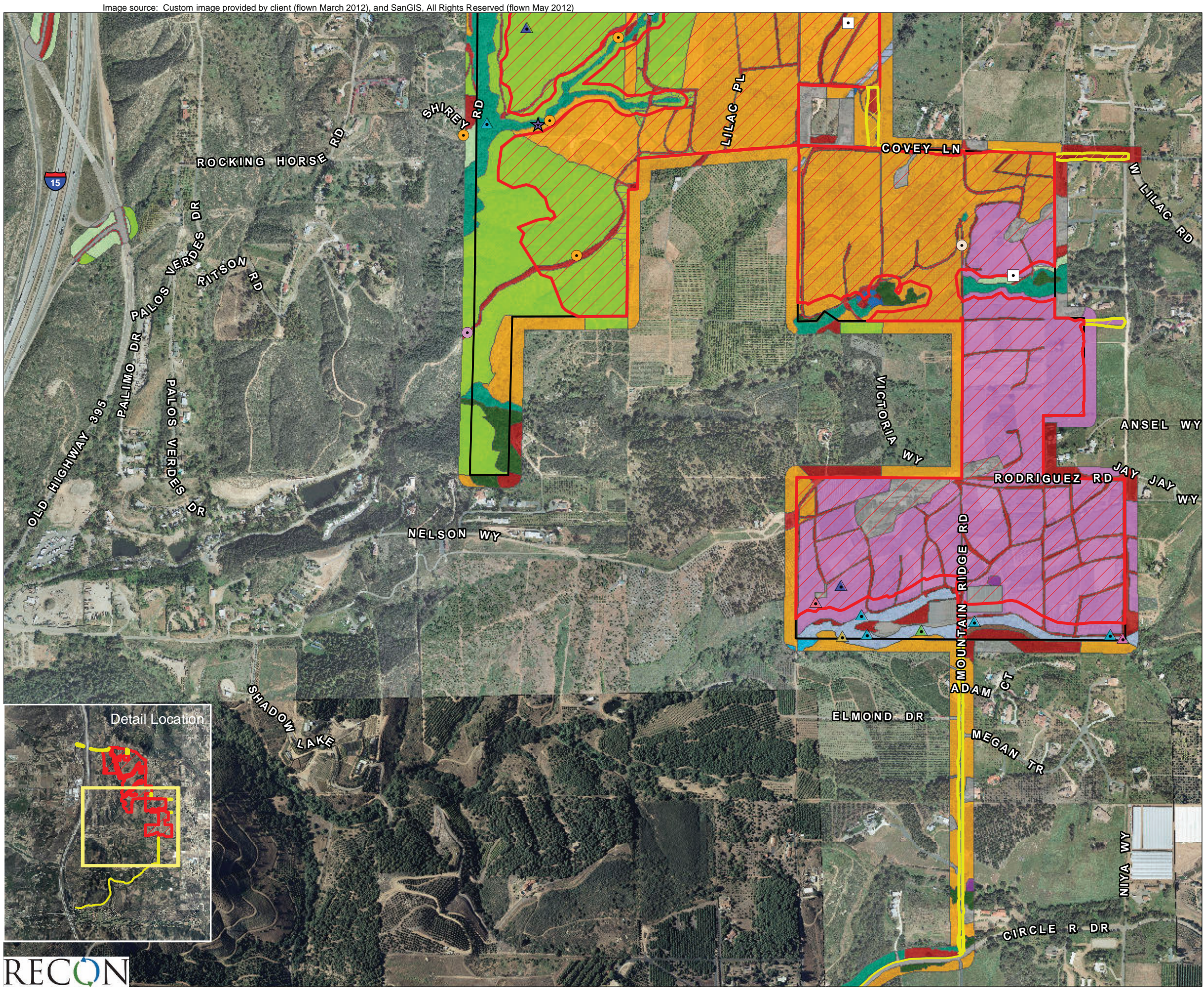
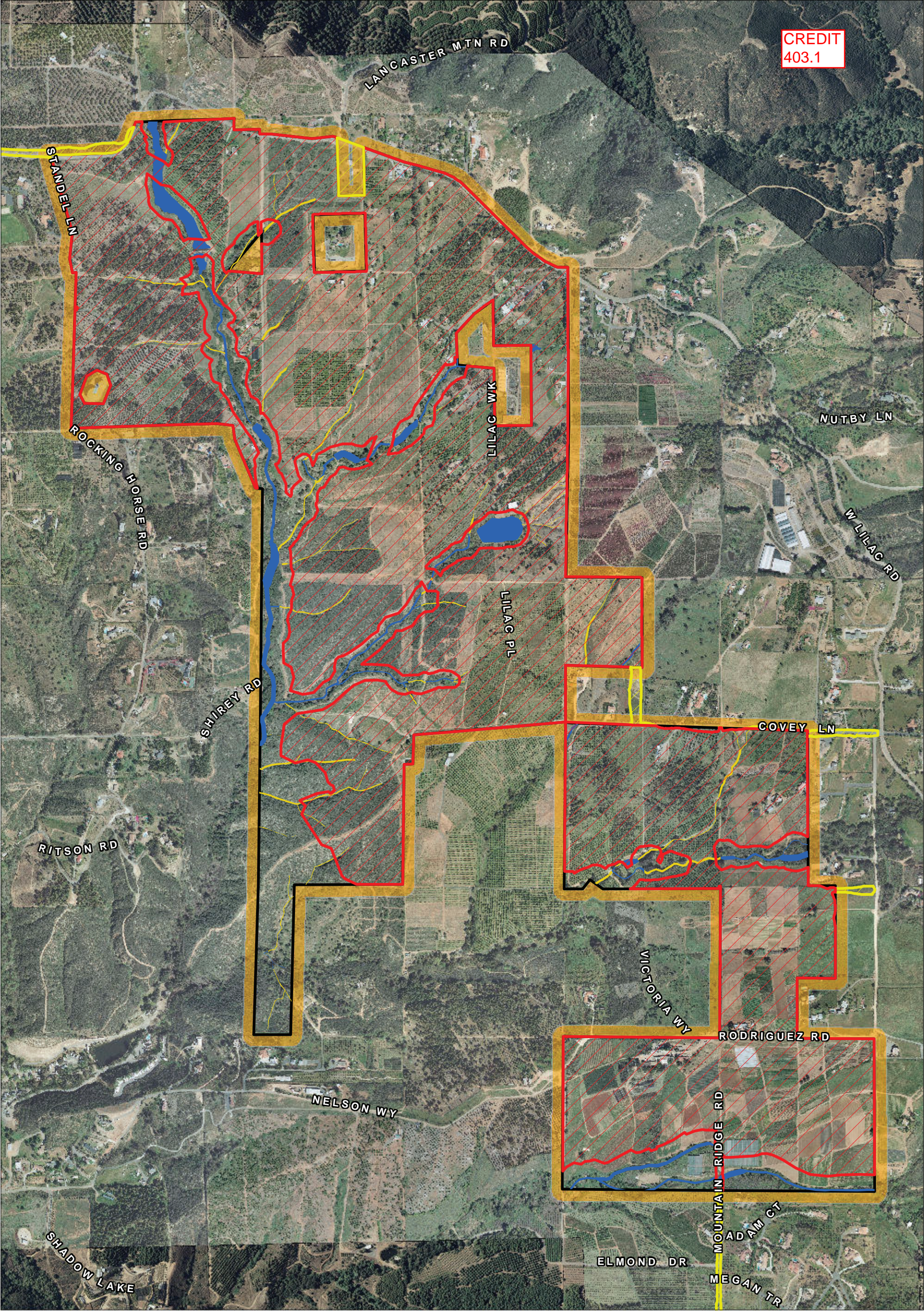


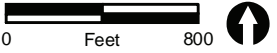
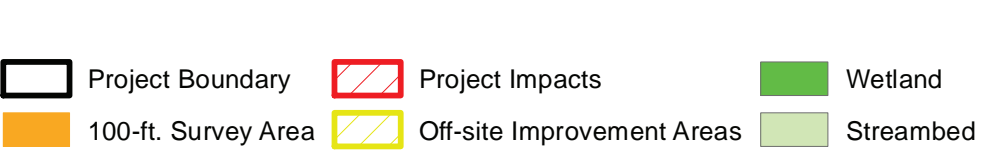
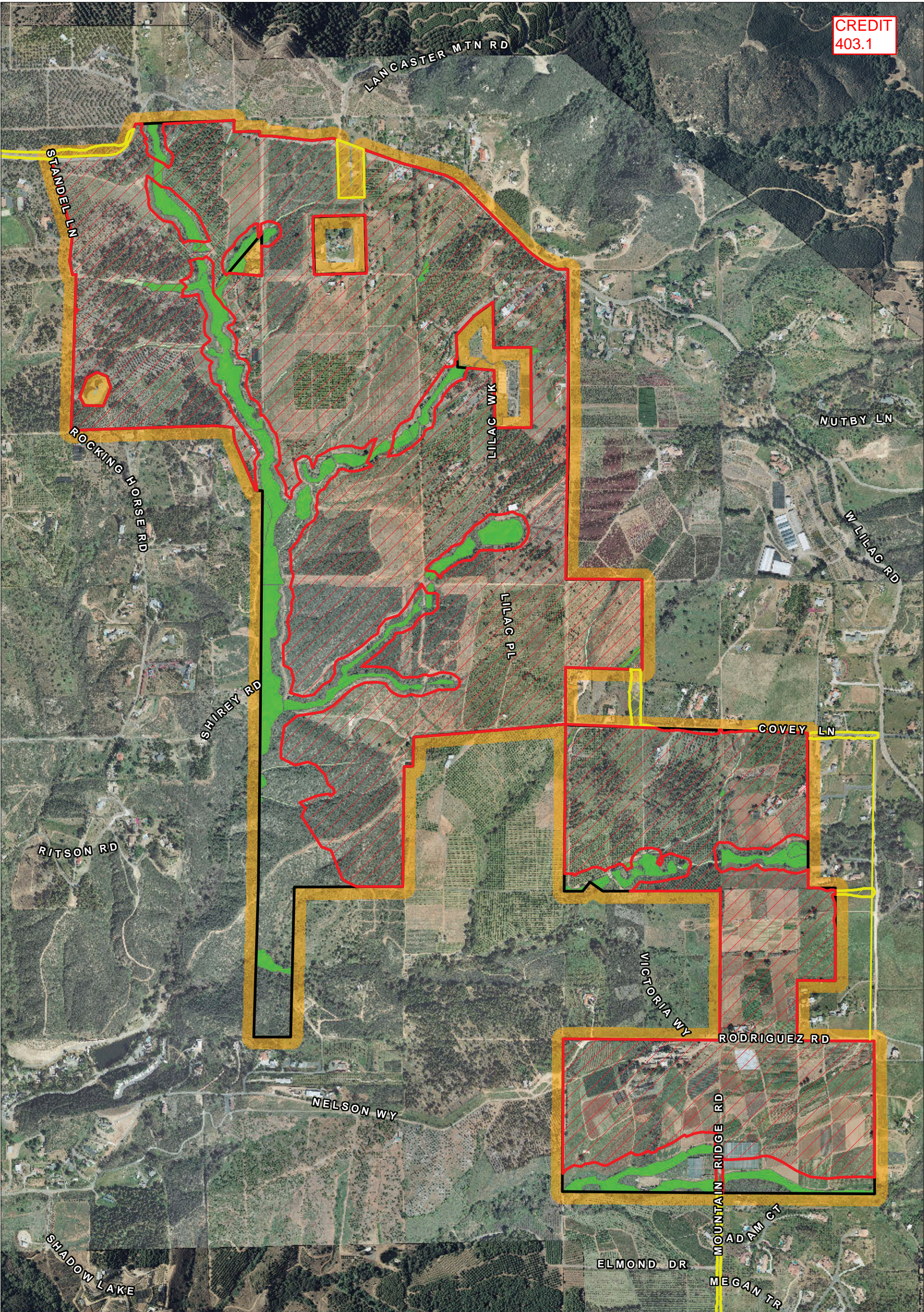
FIGURE 2.5-2b
Vegetation Communities/Land Cover Types
and Sensitive Species Locations
(Southern Project Area)

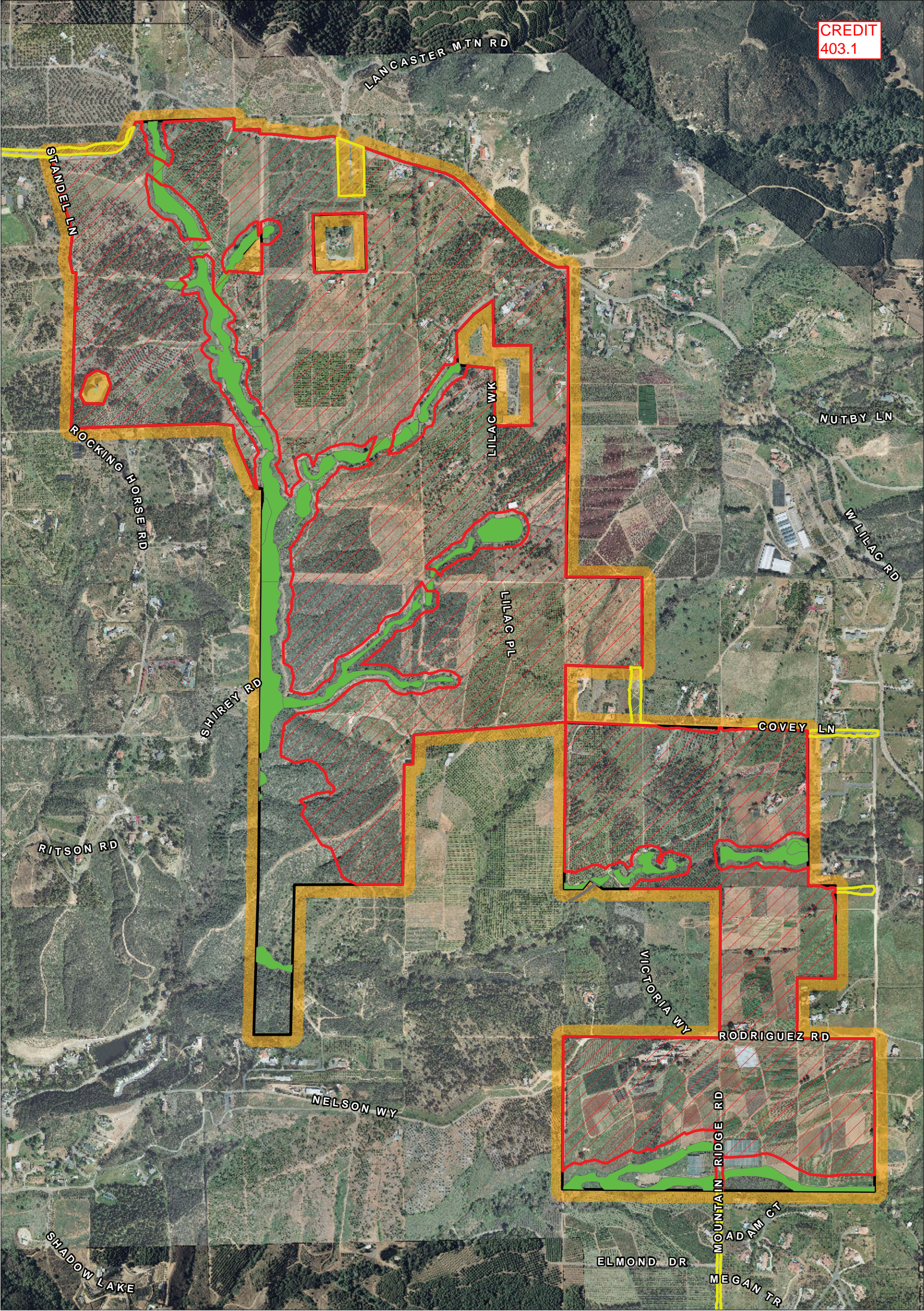


- | | | |
|-----------------------|----------------------------|-------------------|
| Project Boundary | Project Impacts | Wetland |
| 100-ft. Survey Buffer | Off-site Improvement Areas | Non-wetland water |



FIGURE 2.5-3a
ACOE Waters of the U.S.





CREDIT
403.1

- | | | |
|---------------------|----------------------------|-------------------------------|
| Project Boundary | Project Impacts | County RPO Wetland |
| 100-ft. Survey Area | Off-site Improvement Areas | County RPO Wetland - Off-site |

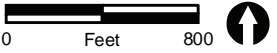


FIGURE 2.5-3c
County of San Diego RPO Wetlands

NGBS Credit:

403.11 Environmentally Sensitive Areas. *Environmentally sensitive areas as follows:*

- (1) Environmentally sensitive areas including steep slopes, prime farmland, critical habitats, and wetlands are avoided as follows:***
(a) < 25 percent of site undeveloped

APPLICANT RESPONSE

Project Site:	608 acres
Biological Openspace:	<u>104.1 acres</u>
Percent undeveloped:	17%

See attached, Specific Plan - Table 1

- (2) Compromised environmentally sensitive areas are mitigated or restored.***

APPLICANT RESPONSE

See attached, Biological Resource Report - Table 8

I. INTRODUCTION

CREDIT 403.11 (1)

C. Distribution of Land Uses

The following table shows the distribution of the land uses throughout the Community.

Table 1 - Land Use Summary

Land Use	Planning Areas	Net Acreage	Dwelling Units/Square Feet (SF)	Zoning
Single-Family Detached	SFD 1-8	156.9	903	RU
Single-Family Detached - Senior Citizen Community (Age-Restricted Units)	SFS 1-6	76.9	468	RU
Single-Family Attached	SFA 1-3	7.9	164	C34
Group Residential/Care (200 beds)	GR	6.5	N/A	RU
Commercial and Mixed-Use	C1-5 6	17.3	211/ (90,000 sq. ft.)	C34
K-8 School Site	S	12.0	N/A	RU
Institutional Use	I	10	N/A	RU
Public Park	P7	13.5	N/A	RU
Private Parks	P 1-6 and within the Senior Citizen Neighborhood P-8– 11	10.1	N/A	RU
Community Purpose Facility	CPF	2.0	N/A	C34
Biological Open Space	OS	104.1	N/A	RU
Common Areas and Agricultural Open Space	--	20.3	N/A	RU
Manufactured Slopes	--	68.2	N/A	RU
Roads	--	83.3	N/A	RU
Water Reclamation Facility	WR	2.4	N/A	RU
Recycling Facility/Trail Head/Staging Area	RF	0.6	N/A	C34
Detention Basins	DB	7.9	N/A	RU
Wet weather storage	WWS	8.1	N/A	RU
TOTALS		608	1,746	

D. Location and Regional Setting

The Lilac Hills Ranch community is approximately 608 acres, and is located a quarter mile from the Interstate 15 corridor in the unincorporated area of San Diego County with freeway

8.0 Summary of Project Impacts and Mitigation

A summary of the proposed direct impacts to habitat/vegetation communities and required mitigation acreages is provided in Table 8. A summary of the proposed mitigation measures for the project is provided in Table 9. Mitigation for impacts to upland natural communities (e.g., coast live oak woodland, coastal sage scrub, southern mixed chaparral) would be achieved through the purchase and conservation of off-site habitat within future PAMA lands. A conceptual Resource Management Plan for the proposed off-site upland mitigation areas has been prepared that contains the criteria for site selection and management guidelines (Attachment 18).

Mitigation for impacts to riparian/wetland habitats would be achieved through a combination of on-site/off-site wetland establishment (creation) and the restoration/enhancement of on-site wetland areas through the removal of non-native invasive plant species within biological open space (Figures 14a,b). Potential on-site wetland mitigation may provide up to 6 acres of creation and 12 acres of restoration/enhancement mitigation. Biological open space areas on-site will be dedicated with each phase of development (Table 10 and Figure 15). Open space dedication is phased to include adjacent open space areas in the phase of development that borders the phase under construction to reduce the chance for inadvertent impacts to occur to the resources in these open space areas. Open space fencing and signage would be implemented upon dedication of the open space area.

Mitigation for upland and wetland habitats would also compensate for the loss of habitats that support special status wildlife species by providing conserved habitat within future PAMA lands that may also support these wildlife species. The on-site biological open space areas and associated buffers would help reduce potential edge effects and provide for the maintenance of local secondary wildlife movement corridors. Enhancement of the habitats in the biological open space areas achieved by the removal of non-native invasive plant species and the establishment of native plant species will also benefit wildlife on-site and local wildlife movement. Implementation of resource management plans for conserved lands on-site and off-site associated with the project mitigation would provide for the preservation and long-term maintenance of these lands.

Mitigation for potential impacts to nesting raptors and other general birds would be achieved through either avoidance of impacts to vegetation during the nesting season, and/or pre-construction surveys and avoidance of identified nests during construction.

Indirect impacts associated with edge effects from development would be mitigated through project design features that reduce the effects of noise, lighting, invasive species, drainage, and access to biological open space areas. Noise impacts would be

**TABLE 8
HABITAT/VEGETATION COMMUNITIES, IMPACTS, AND MITIGATION**

Habitat/Vegetation Community	Existing (acres)	Impacts (acres)	Off-site ³ Impacts (acres)	Mitigation Ratio	Mitigation Required (acres)	Preserved On-site/ Impact Neutral (acres)	Off-site Mitigation (acres)
Coast live oak woodland	3.6	0.3	0	3:1	1.2	3.3	1.2
Coastal sage scrub	19.6	17.0	0.1	2:1	34.2	2.6	34.2
Disturbed coastal sage scrub	2.9	2.6	0	2:1	5.2	0.3	5.2
Disturbed coastal/valley freshwater marsh	0.6	0.1	0	3:1	0.3	0.5	0.3 ¹
Eucalyptus woodland	1.7	1.0	0	None	None	0.7	None
Southern coast live oak riparian woodland	22.5	1.1	0	3:1	3.3	21.4	3.3 ¹
Disturbed southern coast live oak woodland	1.9	0.5	0	3:1	1.5	1.4	1.5 ¹
Southern mixed chaparral	75.4	49.4	0	0.5:1	24.5	26.0	24.5
Disturbed southern mixed chaparral	6.0	4.9	0	0.5:1	2.4	1.1	2.4
Southern willow riparian woodland	4.7	0.5	0	3:1	1.5	4.2	1.5 ¹
Southern willow scrub	6.1	0.3	0	3:1	0.9	5.8	0.9 ¹
Disturbed southern willow scrub	0.3	0.3	0	3:1	0.9	0	0.9 ¹
Mule fat scrub	0.1	0.1	0	3:1	0.3	0	0.3 ¹
Open water – freshwater	0.5	0.5	0	3:1	1.5	0	1.5 ¹
Disturbed wetland	0.4	0.1	0	3:1	0.3	0.3	0.3 ¹
Extensive agriculture – row crops	90.5	84.5 85	0	None	None	6.0 5.5	None
Intensive agriculture – nursery	9.2	6.2 6.7	0	None	None	3.0 2.5	None
Vineyard	0.7	0.6	0	None	None	0.1	None
Orchard	291.9	276.4 276.8	1.2	None	None	15.54	None
Disturbed habitat	44.0	34.8	2.4	None	None	9.2	None
Developed	25.7	22.8	21.1	None	None	2.9	None
TOTAL	608.3	505.04	24.8		78.0	104.12-7	78.0²

¹A portion of this mitigation acreage may be achieved on-site. Total on-site mitigation acreage not yet determined.

²Total off-site mitigation requirement may be lower when on-site mitigation opportunities are fully quantified.

³Additional off-site impacts from Rodriguez Road improvements, if required, would result in mitigation requirements of 0.06 acre of coastal live oak woodland, 0.09 acre of southern coastal live oak riparian woodland, 0.04 acre of non-native grassland, and 0.08 acre of coastal sage scrub.

NGBS Credit

403.3 Slope disturbance. *Slope disturbance is minimized by one or more of the following:*

- (1) *Hydrological/soil stability study for steep slopes is completed and used to guide the design of all buildings on the site.*

APPLICANT RESPONSE

Slope Stability is addressed in the following sections of the Geotechnical Report, Dated April 2, 2012, by Advanced Geotechnical Solutions, Inc.

Slope Stability Analysis, Section 5.2.1

Slope Stability and Remediation, Section 6.2

Slope Stability Results, Appendix D

- (2) *All or a percentage of development on steep slopes is avoided.*
(c) *greater than 75 percent*

APPLICANT RESPONSE

SEE ATTACHED LETTER FROM LANDMARK CONSULTING, DTD 12/1/14

- (3) *Long-term erosion effects are reduced by the use of terracing, retaining walls, landscaping, and restabilization techniques.*

APPLICANT RESPONSE

See table 8 (page 19) "LID and Site Design" of the Major Storm Water Management Plan - Implementing Tentative Map.

Number 6 on Page 20 describes the erosion techniques.

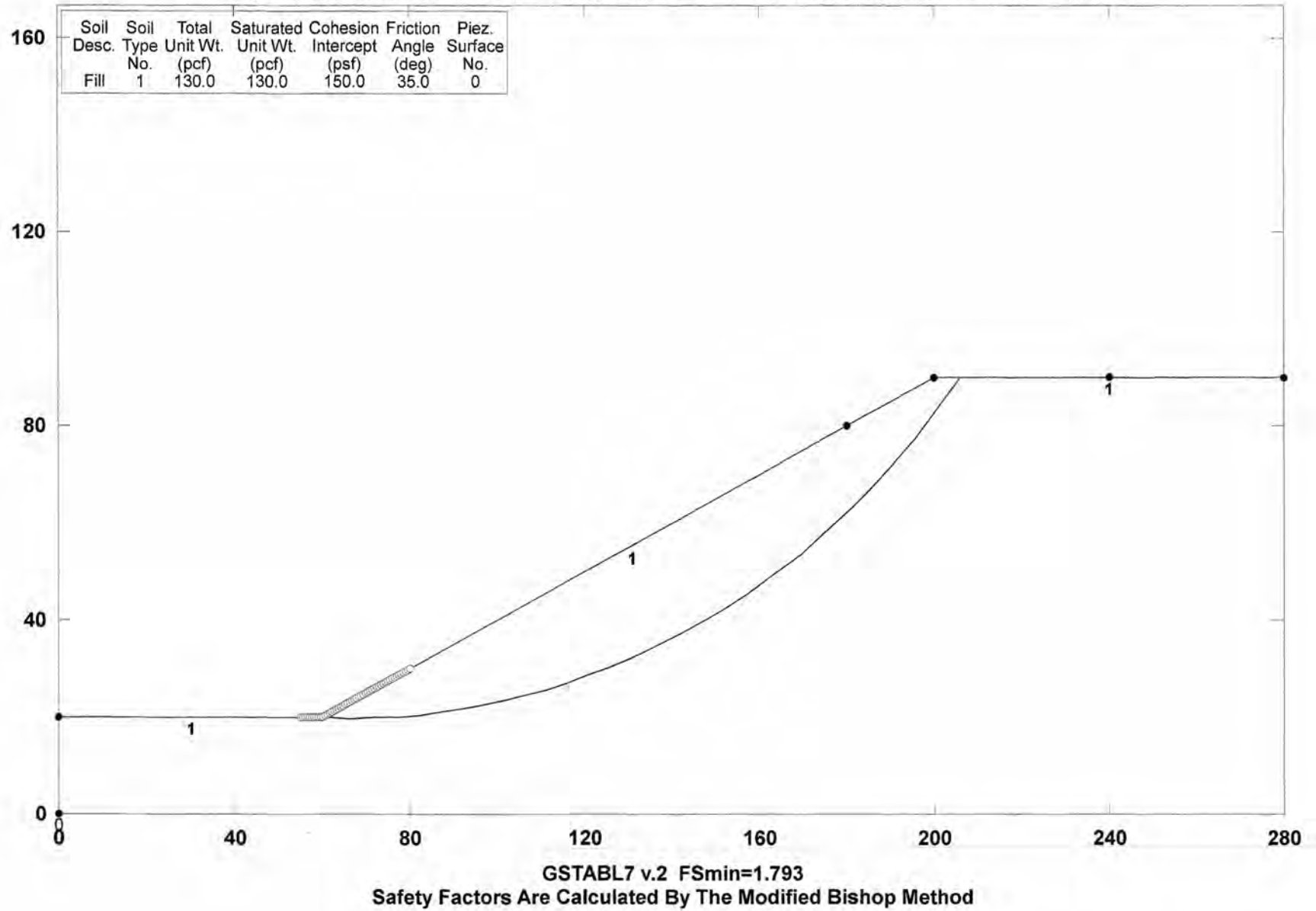
See "Chapter VI. General Maintenance Requirements," Page 86, for Best Management Practices "BMP" Activities.

APPENDIX D

SLOPE STABILITY ANALYSES

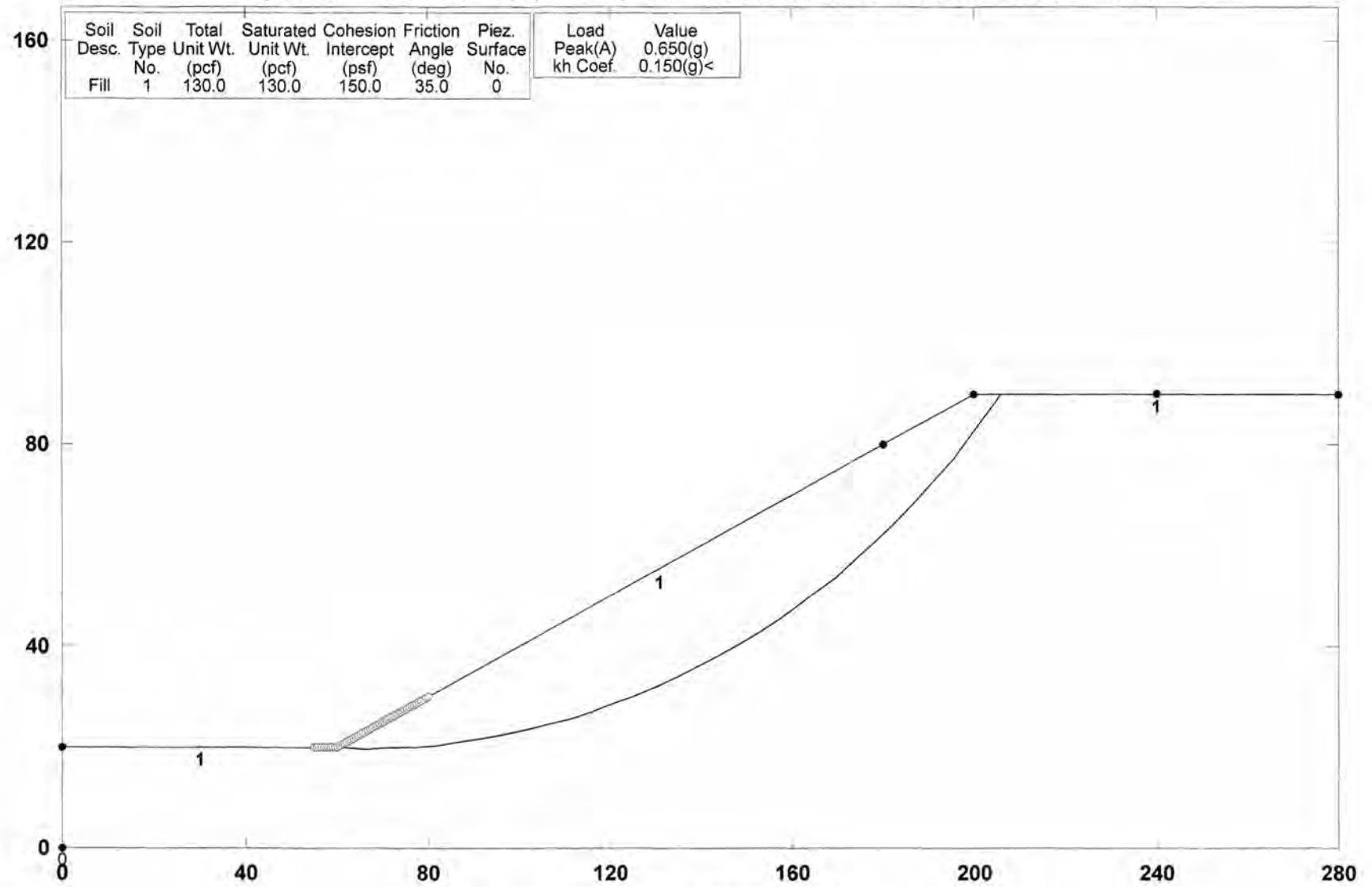
P/W 1102-01 2:1 70 foot Fill Slope LHR

c:\gstabl7 data\1109-04 25 ft fill slope.pl2 Run By: ADVANCED GEOTECHNICAL SOLUTIONS 3/30/2012 11:18AM



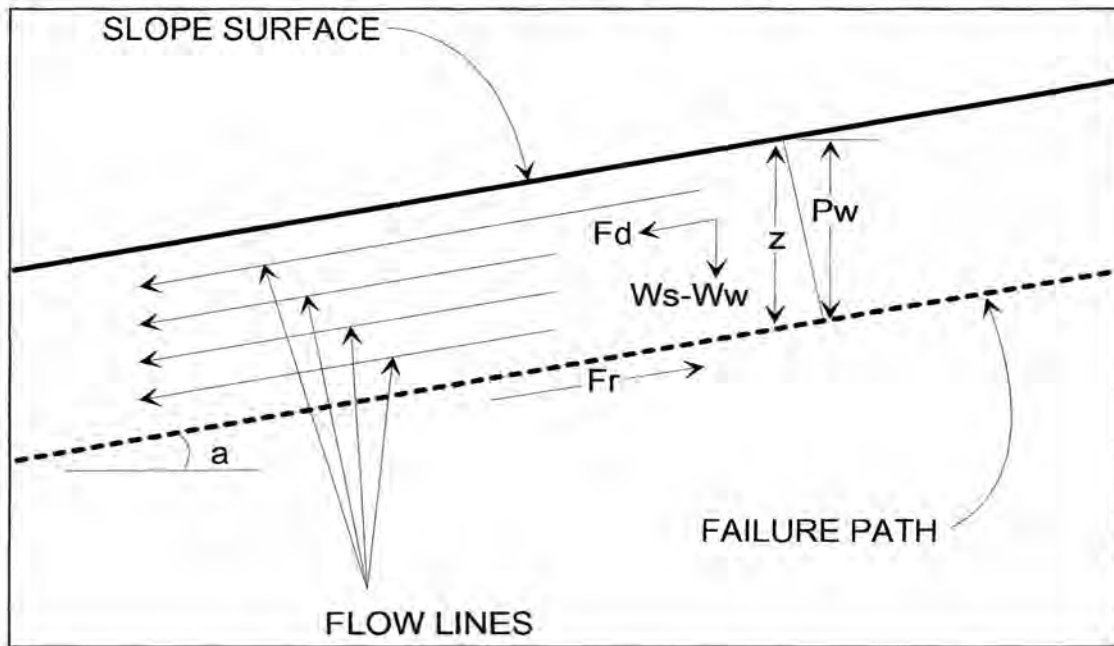
P/W 1102-01 2:1 70 foot Fill Slope LHR

c:\gstabl7 data\1109-04 25 ft fill slope.pl2 Run By: ADVANCED GEOTECHNICAL SOLUTIONS 3/30/2012 11:18AM



GSTABL7 v.2 FSmin=1.302
Safety Factors Are Calculated By The Modified Bishop Method

SURFICIAL SLOPE STABILITY



- (1) Saturation To Slope Surface
- (2) Sufficient Permeability To Establish Water Flow

$P_w = \text{Water Pressure Head} = (z)(\cos^2(a))$
 $W_s = \text{Saturated Soil Unit Weight}$
 $W_w = \text{Unit Weight of Water (62.4 lb/cu.ft.)}$
 $u = \text{Pore Water Pressure} = (W_w)(z)(\cos^2(a))$
 $z = \text{Layer Thickness}$
 $a = \text{Angle of Slope}$
 $\phi = \text{Angle of Friction}$
 $c = \text{Cohesion}$
 $F_d = (0.5)(z)(W_s)(\sin(2a))$
 $F_r = (z)(W_s - W_w)(\cos^2(a))(\tan(\phi)) + c$
 $\text{Factor of Safety (FS)} = F_r / F_d$

Given:

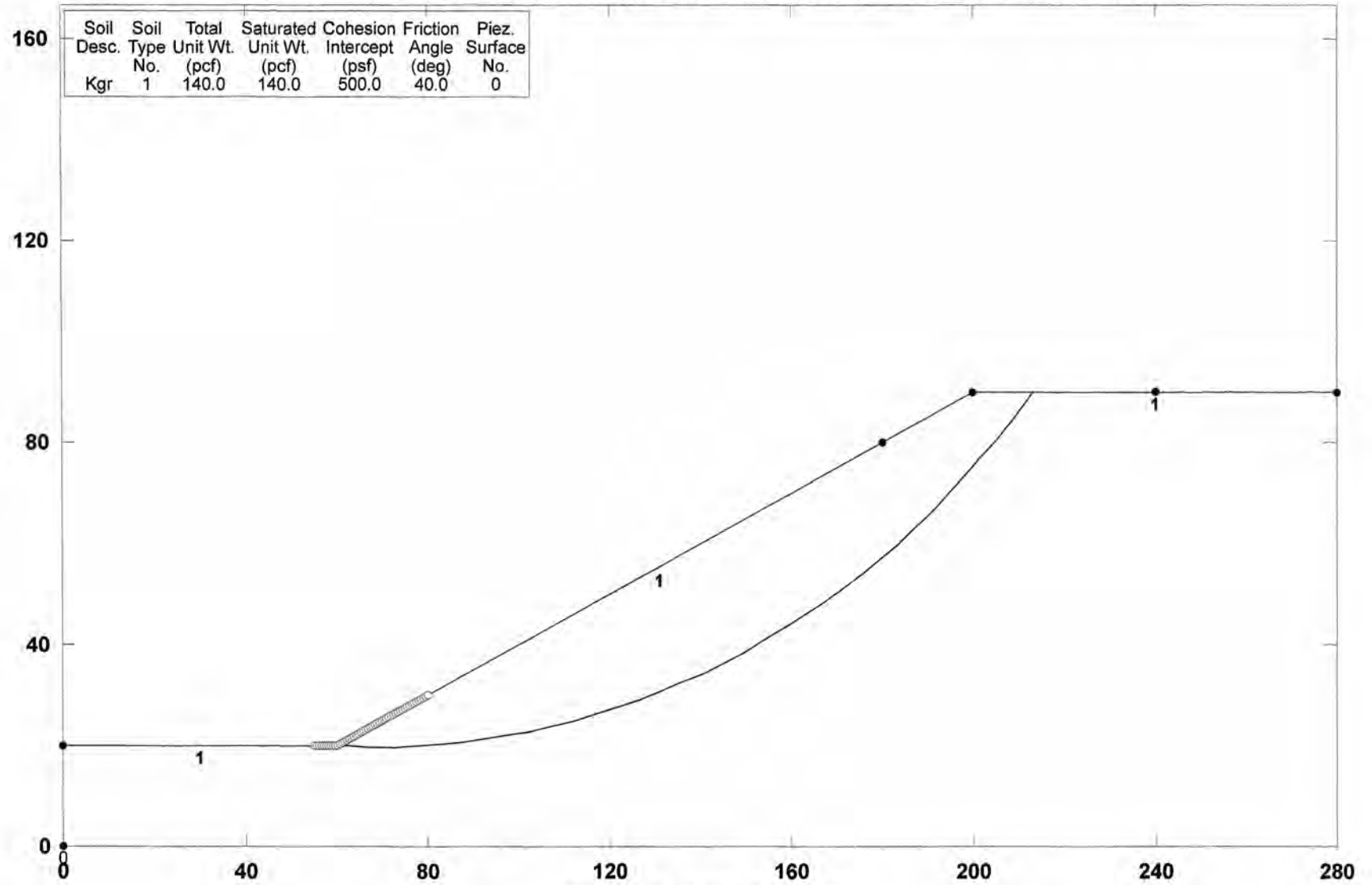
Ws (pcf)	z (ft)	a (degrees)	(radians)	phi (degrees)	(radians)	c (psf)
130	3	26.56505	0.4636476	35	0.6108652	150

Calculations:

Pw	u	Fd	Fr	FS
2.40	149.76	156.00	263.60	1.69

P/W 1102-01 2:1 70 foot Cut Slope LHR

c:\gstabl7 data\1109-04 25 ft fill slope.pl2 Run By: ADVANCED GEOTECHNICAL SOLUTIONS 3/30/2012 11:12AM

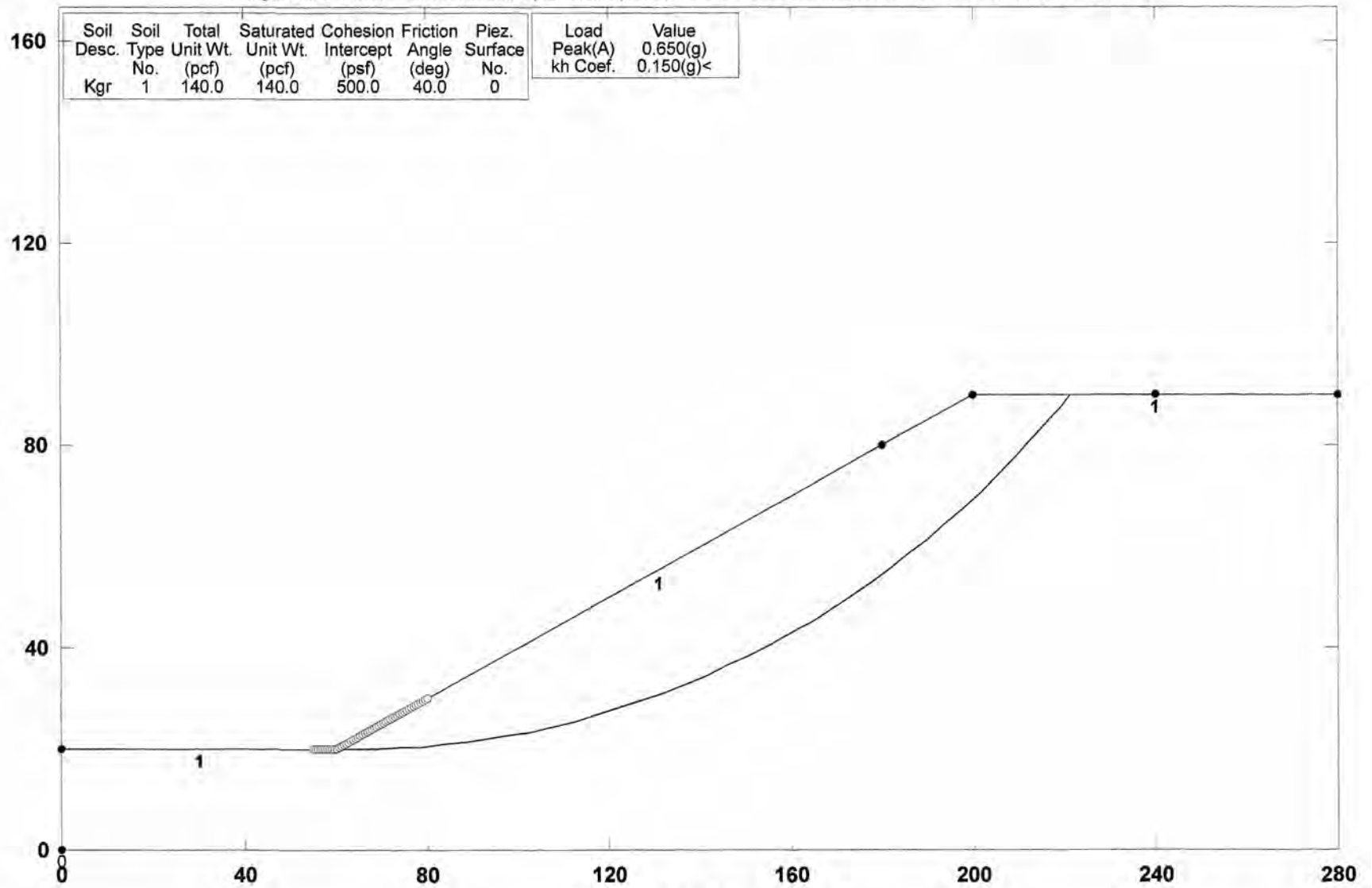


GSTABL7 v.2 FSmin=2.517

Safety Factors Are Calculated By The Modified Bishop Method

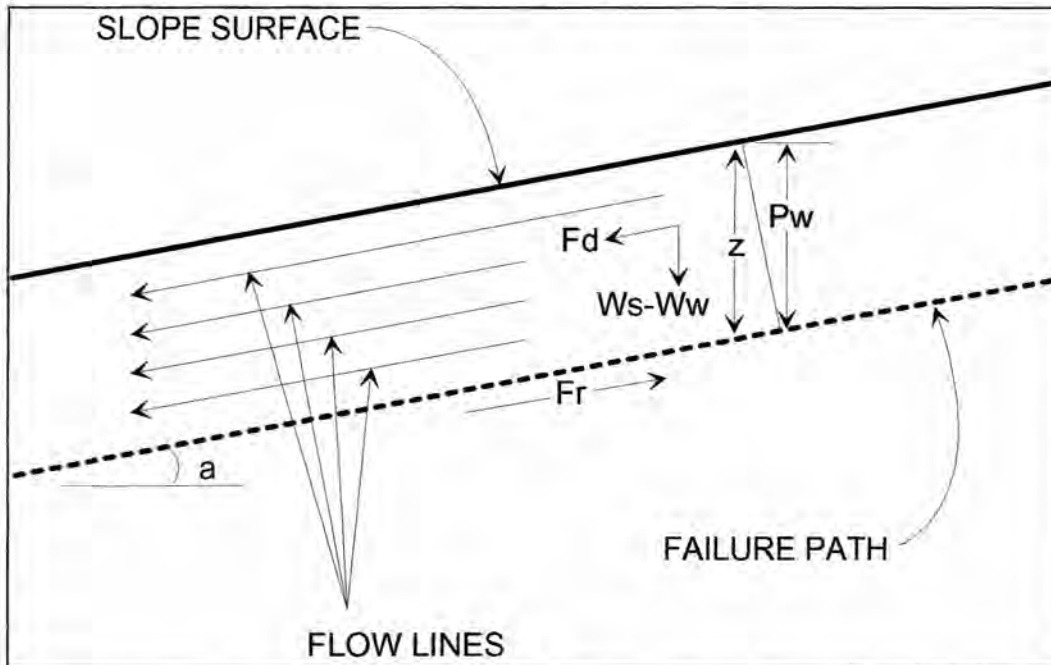
P/W 1102-01 2:1 70 foot Cut Slope LHR

c:\gstabl7 data\1109-04 25 ft fill slope.pl2 Run By: ADVANCED GEOTECHNICAL SOLUTIONS 3/30/2012 11:16AM



GSTABL7 v.2 FSmin=1.834
Safety Factors Are Calculated By The Modified Bishop Method

SURFICIAL SLOPE STABILITY



Assume: (1) Saturation To Slope Surface
(2) Sufficient Permeability To Establish Water Flow

$Pw = \text{Water Pressure Head} = (z)(\cos^2(a))$
 $Ws = \text{Saturated Soil Unit Weight}$
 $Ww = \text{Unit Weight of Water (62.4 lb/cu.ft.)}$
 $u = \text{Pore Water Pressure} = (Ww)(z)(\cos^2(a))$
 $z = \text{Layer Thickness}$
 $a = \text{Angle of Slope}$
 $\phi = \text{Angle of Friction}$
 $c = \text{Cohesion}$
 $Fd = (0.5)(z)(Ws)(\sin(2a))$
 $Fr = (z)(Ws - Ww)(\cos^2(a))(\tan(\phi)) + c$
 $\text{Factor of Safety (FS)} = Fr/Fd$

Given:

Ws (pcf)	z (ft)	a (degrees)	a (radians)	ϕ (degrees)	ϕ (radians)	c (psf)
140	3	33.690068	0.5880026	35	0.6108652	500

Calculations:

Pw	u	Fd	Fr	FS
2.08	129.60	193.85	612.85	3.16

5.1.8. Earthwork Adjustments

The following average earthwork adjustment factors are presented for use in evaluating earthwork quantities. These numbers are considered approximate and should be refined during grading when actual conditions are better defined. Contingencies should be made to adjust the earthwork balance during grading if these numbers are adjusted.

TABLE 5.1.8 EARTHWORK ADJUSTMENTS	
Geologic Unit	Approximate Range
Artificial Fill Undocumented (Afu)	8% to 12% Shrink
Topsoil & Alluvium (Qal)	8% to 12% Shrink
Older Alluvium (Qoal)	0% to 5% Bulk
Granitic Bedrock (Kgr) - rippable	10% to 18% Bulk
Granitic Bedrock (Kgr) - non-rippable	18% to 25% Bulk

5.1.9. Pavement Support Characteristics

Compacted fill derived from onsite soils and cuts within the older alluvium and granitic rock is expected to possess good to very good pavement support characteristics. Testing should be completed once subgrade elevations are reached for the onsite roadways. For preliminary planning purposes, AGS has used an R-Value of 40 for the preliminary design of roadway pavement sections.

5.2. Analytical Methods

5.2.1. Slope Stability Analysis

Stability analyses were performed for both static and seismic (pseudo-static) conditions using the GSTABL7 computer program. The Modified Bishop method was used to analyze circular type failures. The critical failure surface determined in the static analysis was used in the pseudo-static analysis. A horizontal destabilizing seismic coefficient (k_h) of 0.15g was selected for the site and used in the pseudo-static analyses. Peak shear strengths have been utilized in the pseudo-static analysis.

Surficial stability analyses were conducted using an infinite height slope method assuming seepage parallel to the slope surface.

5.2.2. Pavement Design

Asphalt concrete pavement sections have been designed using the recommendations and methods presented in the Caltrans Highway Design Manual. Portland cement concrete pavement for onsite roads and driveways has been designed in accordance with the recommendations presented in the "Design of Concrete Pavement for City Streets" by the American Concrete Pavement Association.

5.2.3. Bearing Capacity and Lateral Pressure

Ultimate bearing capacity values were obtained using the graphs and formula presented in NAVFAC DM-7.1. Allowable bearing was determined by applying a factor of safety of at least 3 to the ultimate bearing capacity. Static lateral earth pressures were calculated using Rankine methods for active and passive cases.

6.0 GEOTECHNICAL CONCLUSIONS AND RECOMMENDATIONS

Based on the information presented herein and our experience in the vicinity of the subject site, it is AGS's opinion that the proposed development of Lilac Ranch Hills Community is feasible, from a geotechnical point of view, provided that the constraints discussed in this report are addressed in the design and construction of each proposed residential structure. Presented below are issues identified by this study or previous studies as possibly impacting site development. Recommendations to mitigate these issues and geotechnical recommendations for use in planning and design are presented in the following sections of this report.

All grading shall be accomplished under the observation and testing of the project Geotechnical Consultant in accordance with the recommendations contained herein, the current codes practiced by the County of San Diego and this firm's Earthwork Specifications (Appendix E).

6.1. Site Preparation and Removals/Overexcavation

Guidelines to determine the depth of removals are presented below; however, the exact extent of the removals must be determined in the field during grading, when observation and evaluation of the greater detail afforded by those exposures can be performed by the Geotechnical Consultant. In general, removed soils will be suitable for reuse as compacted fill when free of deleterious materials and after moisture conditioning.

Removal of unsuitable soils typically should be established at a 1:1 projection to suitable materials outside the proposed engineered fills. Front cuts should be made no steeper than 1:1, except where constrained by other factors such as property lines and protected structures. Removals should be initiated at approximately twice the distance of the anticipated removal depth, outside the engineered fills. The bottoms of all removal areas should be observed, mapped, and approved by the Geotechnical Consultant prior to fill placement. It is recommended the bottoms of removals be surveyed and documented.

6.1.1. Site Preparation

Existing vegetation, trash, debris, and other deleterious materials should be removed and wasted from the site prior to commencing removal of unsuitable soils and placement of compacted fill materials.

6.1.2. Topsoil (no map symbol)

All topsoil should be removed before placement of compacted fill.

exposed, consideration should be given to undercutting the street/utility areas during mass grading to minimize this condition. The undercut should extend at least one foot below the deepest utility. The undercut zone should be replaced with compacted fill in accordance with project standards as outlined herein.

6.1.8. Removals Along Grading Limits and Property Lines

Removals of unsuitable soils will be required prior to fill placement along the project grading limits. A 1:1 projection, from toe of slope or grading limit, outward to competent materials should be established, when possible.

6.2. Slope Stability and Remediation

Proposed maximum slope heights to be created during grading are on the order of 70 feet or less.

6.2.1. Cut Slopes

The highest proposed cut slope is approximately 70 feet at a slope ratio of 2:1 (horizontal: vertical). Based upon the currently available information, we anticipate that proposed cut slopes in Older Alluvium and Granitic Rock will be grossly stable as designed. Calculations supporting AGS's conclusions and recommendations relative to cut slopes are represented in Appendix D (Plates D-1 and D-2).

Cut slopes should be observed by the Geotechnical Consultant during grading. Where cut slopes expose unfavorable geology such as daylighted joints, loose or raveling weathered granitic rock or where boulders may pose a rock fall problem, replacement of the unsuitable portions of the cut with stabilization fill will be recommended.

Terrace and downdrains should be constructed on all cuts slopes in conformance to the San Diego County Grading Ordinance.

6.2.2. Fill Slopes

Fill slopes on the project are designed at 2:1 ratios (horizontal to vertical). The highest anticipated fill slope is approximately 70 feet high. Fill slopes, when properly constructed with onsite materials, are expected to be grossly stable as designed. Stability calculations supporting this conclusion are presented in Appendix D (Plates D-4 and D-5). Fill slopes will be subject to surficial erosion and should be landscaped as quickly as possible.

Keys should be constructed at the toe of all fill slopes "toeing" on existing or cut grade. Fill keys should have a minimum width equal to one-half the height of ascending slope, and not less than 15 feet. Unsuitable soil removals below the toe of proposed fill slopes should extend from the catch point of the design toe outward at a minimum 1:1 projection into approved material to establish the location of the key. Backcuts to establish that removal geometry should be cut no steeper than 1:1 or as recommended by the Geotechnical Consultant.

Terrace and downdrains should be constructed on all cuts slopes in conformance to the San Diego County Grading Ordinance.

6.2.3. Skin Cut and Skin Fill Slopes

A review of the Tract Map did not indicate any significant design skin fill and skin cut conditions, however, skin cut or thin fill sections may be created during grading. For all such conditions, it is recommended that a backcut and keyway be established such that a minimum fill thickness equal to one-half the remaining slope height, and not less than 15 feet, is provided. Where the design cut is insufficient to remove all unsuitable materials, overexcavation and replacement with a stabilization fill will be required, as shown on Grading Detail 6 in Appendix E.

6.2.4. Fill Over Cut Slopes

Fill over cut slopes should be constructed such that the cut portion is excavated first for geologic mapping and stability determination. If deemed stable then a “tilt-back” keyway half the remaining slope height or minimally twenty (20) feet wide should be established. Drains will be required for this condition with the locations determined based upon exposed field conditions.

6.2.5. Surficial Stability

The surficial stability of 2:1 fill and cut slopes, constructed in accordance with the recommendations presented herein, have been analyzed, and the analyses presented in Appendix D (Plates D-3 and D-6, respectively) indicates factors-of-safety in excess of code minimums. When fill and cut slopes are properly constructed and maintained, satisfactory performance can be anticipated although slopes will be subject to erosion, particularly before landscaping is fully established.

6.2.6. Temporary Backcut Stability

During grading operations, temporary backcuts may occur due to grading logistics and during retaining wall construction. Backcuts should be made no steeper than 1:1 (horizontal to vertical) to heights of up to 20 feet, and 1½:1 (horizontal: vertical) for heights greater than 20 feet. Flatter backcuts may be necessary where geologic conditions dictate, and where minimum width dimensions are to be maintained.

In consideration of the inherent instability created by temporary construction of backcuts, it is imperative that grading schedules be coordinated to minimize the unsupported exposure time of these excavations. Once started these excavations and subsequent fill operations should be maintained to completion without intervening delays imposed by avoidable circumstances. In cases where five-day workweeks comprise a normal schedule, grading should be planned to avoid exposing at-grade or near-grade excavations through a non-work weekend. Where improvements may be affected by temporary instability, either on or offsite, further restrictions such as slot cutting, extending work days, implementing weekend schedules, and/or other requirements considered critical to serving specific circumstances may be imposed.