LAKE JENNINGS MARKET PLACE
CONCEPTUAL REVEGETATION PLAN

RECORD ID: PDS2014-GPA-14-005; PDS2014-REZ-14-004; PDS2014-TM-5590; PDS2014-STP-14-019; PDS2014-MUP-15-004
Environmental Log No.: PDS2014-ER-14-14013

Project Applicant:

SOUTH COAST DEVELOPMENT, LLC
Contact: Keith Gregory
P.O. Box 1053
Solana Beach, CA 92075
(858) 720-6675

Prepared by:

RC BIOLOGICAL CONSULTING, INC.
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Spring Valley, CA 91978
(619) 463-1072

Robin Church

Robin Church

Lead Agency/Prepared for:

COUNTY OF SAN DIEGO
Department of Planning and Development Services
5510 Overland Avenue, Suite 110
San Diego, CA 92123
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(858) 505-6473

January 2015

Iteration	Date	Description
1	July 2014	Initial submission
2	December 2014	To incorporate County comments
3	January 2015	To incorporate County comments

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

LIST OF TABLES

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1.0 INTRODUCTION

1.1 Responsible Parties

The owner of the site is:

South Coast Development, LLC
Contact: Mr. Keith Gregory
P.O. Box 1053
Solana Beach, CA 92075
(858) 720-6675

This Revegetation Plan was prepared by:

Robin Church
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AND

HDR Engineering, Inc.
8690 Balboa Avenue, Suite 200
San Diego, CA 92123
Contact: Tim Gnibus
tim.gnibus@hdrinc.com

The following agencies are a party to this mitigation:

County of San Diego
Department of Planning and Development Services
5510 Overland Avenue, Suite 110
San Diego, CA 92123
Contact: Marcus Lubich
(858) 505-6473

1.2 Location of the Development Project

The project is located in east San Diego County near the community of Lakeside in East San Diego County, south of Old Highway 80, and east of Lake Jennings Park Road (Figure 1). The project is located within the USGS 7.5' El Cajon quad, Township 15 south, Range 1 east (Figure 2). The revegetation site is located south of the proposed development and north of the southern riparian forest on the project site. This revegetation area serves as a buffer for the San Diego County Resource Protection

Figure 1
Regional Location Map

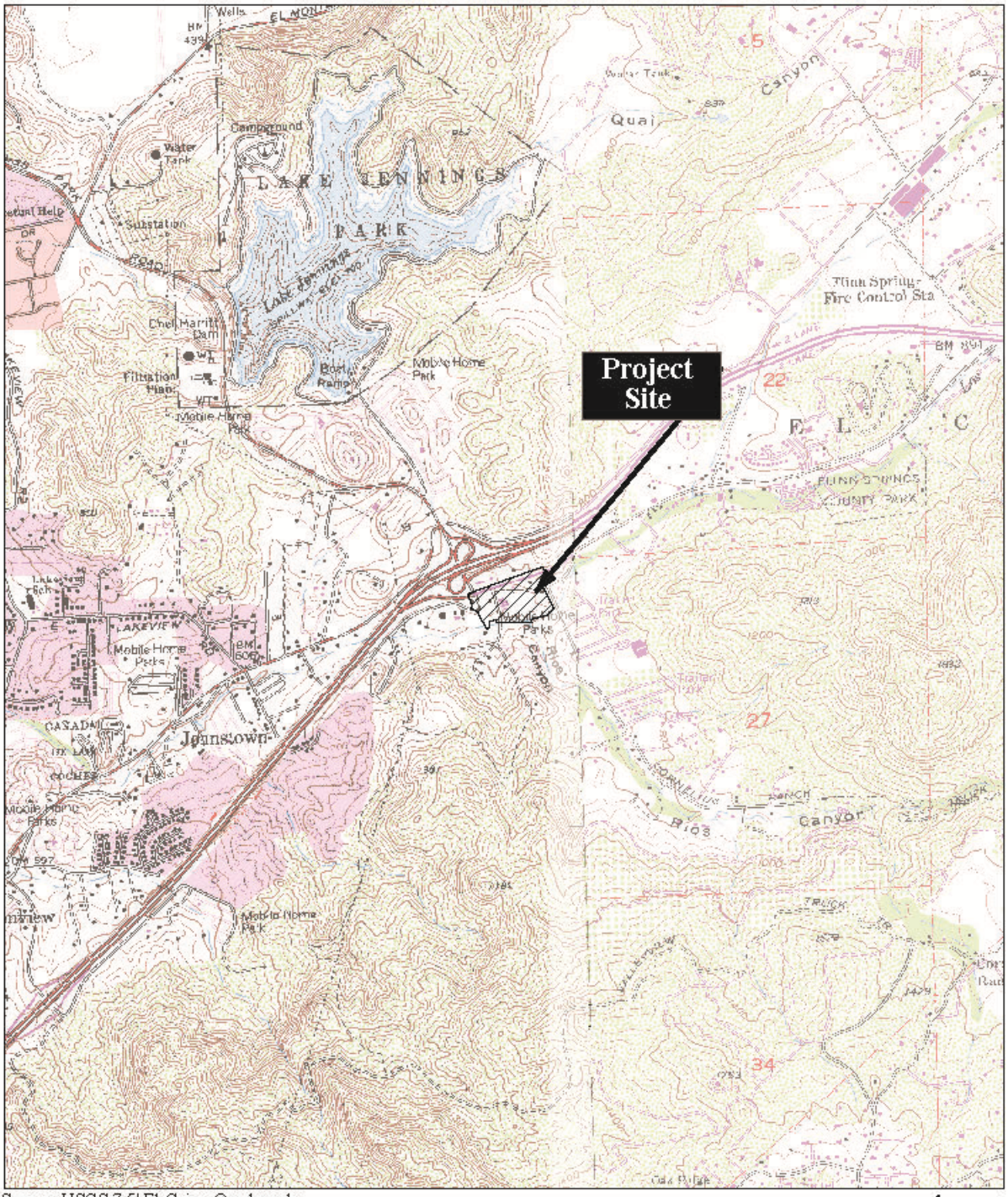


Figure 2

Project Location

N

Feet

0 1,000 2,000

Ordinance (RPO) wetland (encompassed within the southern riparian forest onsite) (Figure 3).

The project is located within the Metro-Lakeside-Jamul portion of the County of San Diego Multiple Species Conservation Program (MSCP). The site consists primarily of one business, two residences, and land that has been used for agriculture for many years. In addition, Los Coches Creek traverses the site along the southern boundary. Los Coches Creek is bounded by development for its entire upstream length until it crosses under Interstate 8, a distance of approximately 1 mile. Los Coches Creek continues downstream from the site through development. The site is located approximately one mile north/northeast of the Crestridge Conservation Bank. Development and avocado orchards occur between the site and the Crestridge Conservation Bank. An area of undeveloped lands occurs to east of the site; however, Rios Canyon Road and a mobile home park occur between the site and the area of undeveloped land. The site is an "in-fill" project within surrounding development. The area directly south of the project is undeveloped. The MSCP Habitat Evaluation Map identifies the majority of the project site as disturbed with the riparian corridor as very high habitat value.

1.3 Summary of Overall Development Project with Proposed Mitigation

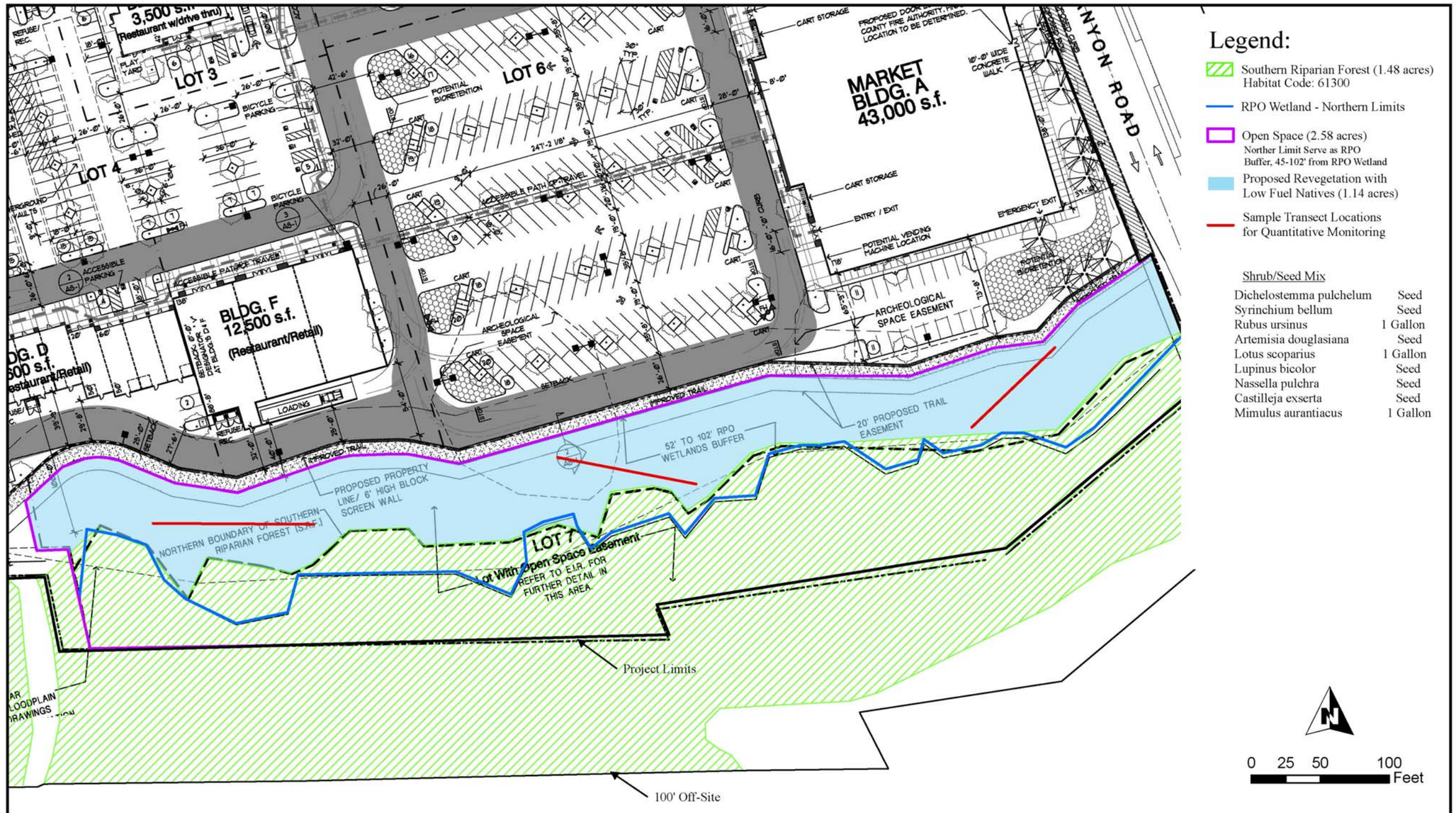
1.3.1 Project Description

The proposed project is a commercial shopping center located on an existing vacated site. Work to be done including supporting infrastructure such as sewer, road improvements and utilities, the vacation of an existing paved road, and dedication of a biological open space easement on an approximately 13.10 acre site.

Commercial Shopping Center

The project proposes to construct a commercial shopping center with 76,100 square feet (sf) of building area. The project would include six structures, all of which will be located on individual lots. The development will include the following:

1. Market Building (Building A – 43,000 sf) located along the east side of the project site.
2. Financial Building with drive through (Building B – 4,500 sf) located on the northeast intersection of Olde Highway 80 and the proposed signalized project entrance on Olde Highway 80.
3. Restaurant with drive through (Building C – 3,500 sf) located on the northwest intersection of Olde Highway 80 and the proposed signalized project entrance on Olde Highway 80.
4. Restaurant-Retail Building (Building D – 9,600 sf) located along the southern boundary of the project's developed area.



RC **Biological Consulting, Inc.**	**Conceptual Revegetation Area Landscape Plan for the Lake Jennings Marketplace** **January 2015**	**Figure 3**

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5. Gas Station with convenience store and car wash (42,210 sf pad) at the intersection of Olde Highway 80 and Lake Jennings Park Road, and Commercial Building (Building E – 3,000 sf) located directly south of the gas station.
6. Restaurant-Retail Building (Building F – 12,500 sf) located along the southern boundary of the project's developed area. Building F shares a common wall with Building D.

Trail Component

The project will construct a multi-use trail suitable for pedestrians and equestrian users. The trail will be 10 feet wide and constructed of decomposed granite material. The trail segments adjacent to the two public streets are proposed as standard trail pathways per the Park Lands Dedication Ordinance (PLDO). The trail segment within the open space lot will run along the southern edge of the development area (immediately north of the proposed open space area) within a 20-foot wide trail easement and will include a 10-foot wide treadway.

Access

The project requires four access points; one from Ridge Hill Road located on the west side of the project, and three others located along Olde Highway 80; a right-in (only) approximately 200 feet east of the intersection of Olde Highway 80 and Lake Jennings Park Road, a full signalized project entry half way along the project frontage, and a second non-signalized project entry (right in–right out only) near the northeast corner of the property.

Walls and Signage

There will be a comprehensive coordinated sign program designed for the project. It includes a Freeway Pylon Display, Monument Center ID Displays, Monument Signage at the signalized entrance on Olde Highway 80, and a state required Gas Pricing Sign for the gas station, convenience store and car wash Pad.

Parking

The project proposes 389 parking spaces. The project parking is almost entirely located within the central portion of the site and will largely be out of the casual view of traffic on Lake Jennings Park Road and Olde Highway 80. The County of San Diego Zoning Ordinance requires a total of 389 parking spaces to be provided by the proposed project based on the size and uses proposed in the buildings. Therefore, the project meets the parking requirements of the County of San Diego Zoning Ordinance.

Landscaping Plan

A landscape plan has been prepared for the project. The landscape plan incorporates a variety of species that are intended to provide a visual buffer from Interstate 8 and be compatible with the riparian zone associated with Los Coches Creek. The plant palette

reflects a selection of native plant material which can naturally be found in riparian zones of Southern California.

1.3.2 Summary of Project Biological Impacts and Mitigation

The project site contains developed areas, non-native grassland, southern riparian forest, and an RPO wetland (occurs within the southern riparian forest). Coast live oak trees occur throughout the project site and outside of the upper bank of the southern riparian forest. These trees are not specifically afforded protection under the County's Biological Mitigation Ordinance (BMO), but are considered a sensitive resource due to their aesthetic value and value as wildlife habitat. Two sensitive wildlife species, Cooper's hawk and red-shouldered hawk, were observed in the southern riparian forest both on- and off-site. The project site also contains suitable, though low quality habitat, for least Bell's vireo. No least Bell's vireos were observed during focused surveys of the project site. Indirect impacts to wildlife will be minimized by clearing outside of the bird breeding season or having a biologist conduct pre-construction bird nesting surveys to ensure no nesting birds are impacted during project construction.

Project impacts and mitigation by habitat type are summarized below in Table 1. The project would impact 6.91 acres of non-native grassland and 4.7 acres of urban developed land. Mitigation for impacts to non-native grassland (a Tier III habitat under the BMO) will involve the off-site acquisition of 3.46 acres of a Tier III or higher habitat in a pre-approved mitigation area (potentially the Crestridge Conservation Bank). Mitigation for impacts to 15 coast live oak trees will involve off-site acquisition of 0.90 acre of oak woodland (potentially at the Crestridge Conservation Bank). No direct impacts to the RPO wetland will recur as a result of the project. However, in compliance with RPO and BMO requirements, 1.14 acres will be revegetated and enhanced to form a buffer between the RPO wetland and development. The County RPO requires RPO wetlands to have a buffer of between 50 and 200 feet depending on the quality of the RPO wetland. In addition, RPO wetland buffers must contain the entirety of adjacent oak woodlands for a distance up to 200 feet. Given conditions on the project site, it was determined that an RPO buffer ranging from 52 to 102 feet would meet the County RPO requirements as well as fire safety requirements.

As a component of the project and to minimize the potential for indirect adverse impacts on the southern riparian forest community on the project site, the applicant is placing 2.58 acres in an open space easement. This is composed of 1.44 acres of southern riparian forest and 1.14 acres of the RPO wetland buffer described above as the revegetation area. This Revegetation Plan is for the RPO wetland buffer and has been prepared for the Lake Jennings Market Place Project in accordance with the County of San Diego Report Format and Content Requirements – Revegetation Plans (2007). The revegetation area will be planted with low-fuel native species. A conceptual landscape plan for the revegetation area is provided in Figure 3 and a more detailed planting plan is provided in Figures 4a and 4b.

Figure 4a. Detailed Planting Plan

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Figure 4b. Detailed Planting Plan

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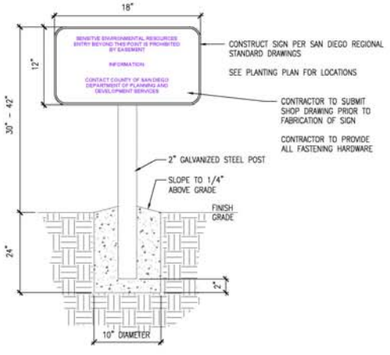
0 1 2 3

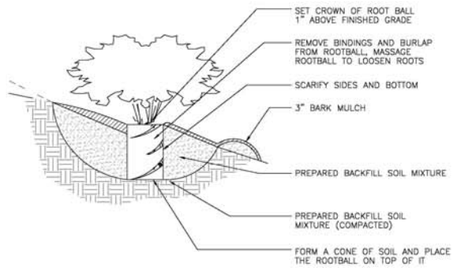
SYMBOL	PLANTING LEGEND						
	Scientific name	Common name	Size	Plant type	Spacing	Quantity	Water Requirement
⊗	Acmispon glober	Deerweed	1 gallon	Shrub	minimum 20 feet on center	41	Low
⊡	Mimulus aurantiacus	Sticky Monkeyflower	1 gallon	Shrub	minimum 20 feet on center	41	Low
◯	Rubus ursinus	California Blackberry	1 gallon	Shrub	minimum 20 feet on center	41	Medium
⊕	Rosa californica	California Rose	1 gallon	Shrub	minimum 20 feet on center	41	Low

SYMBOL	PLANTING LEGEND				
	Scientific name	Common name	Size	Quantity	Water Requirement
●	Artemisia douglasiana	Douglas Mugwort	From seed	1 lb/acre	Low
	Castilleja exserta	Owl's Clover	From seed	1 lb/acre	Low
	Dichelostemma capitatum	Blue Dicks	From seed	1 lb/acre	Medium
	Eschscholzia californica	California Poppy	From seed	1 lb/acre	Low
	Lupinus bicolor	Lupine	From seed	1 lb/acre	Low
	Sisyrinchium bellum	Blue-eyed Grass	From seed	1 lb/acre	Low
	Stipa pulchra	Purple Needle Grass	From seed	8 lb/acre	Very Low

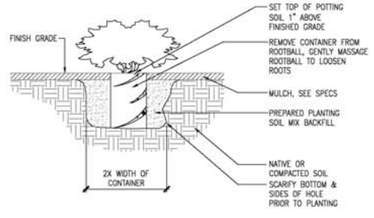
SYMBOL	CONSTRUCTION LEGEND	
	Scientific name	Detail
— — —	Construction fence with signage	xx



A3 OPEN SPACE SIGNAGE NTS



A1 SHRUB PLANTING ON SLOPE NTS



A2 SHRUB PLANTING NTS

NO.	DATE	REVISIONS	BY	CHK	APRV

$TIME$
$FILE$
$DATE$

HDR Engineering, Inc.
3230 EL CAMINO REAL SUITE 200
IRVINE, CA 92602
M: (714) 730-2300 F: (714) 730-2301

DESIGNED BY	DATE
XX	XX
DRAWN BY	
XX	XX
CHECKED BY	
XX	XX

LAKE JENNINGS MARKETPLACE

PLANTING DETAILS

SCALE: AS NOTED

DRAWING NO.: PD-01
SHEET NO.:

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Table 1
Project Impacts and Mitigation by Habitat Type

Habitat	Total Acres	Impact Neutral (acres)	Direct Impacts (Grading and Fire Clearing)	Mitigation Ratio	Mitigation Required (acres)
Southern Riparian Forest (Holland Code 61300, Tier I)	1.48	1.48[1]	0.00	1:1	NA
Non-Native Grassland (Holland Code 42200, Tier III)	6.92	0.01[2]	6.91	0.5:1	3.46
Urban-Developed (Holland Code 12000, Tier IV)	4.70	0.00	4.70	NA	NA
Total Onsite	**13.10**	**1.49**	**11.61**		
Off-site Improvements-Non-native Grassland	0.01	NA	0.01	0.5:1	0.005

1. 1.44 acres within the biological open space easement, remainder in existing road easement; however; no impacts will occur as a result of this project.
2. 0.01 acre of non-native grassland within existing road easement; no impacts will occur as a result of this project.

Additionally, removal of invasive exotic plant species as defined by the California Invasive Plant Council (Cal-IPC) Invasive Plant Inventory (Appendix A)[1] will be performed within the entire open space easement. Arundo removal has taken place and will continue in the open space easement as performed by the Lakeside Riverpark Conservancy. The Lakeside Riverpark Conservancy has a multi-year program to remove invasive exotic species in this area, as part of a larger effort.

1.3.3 Types, Functions, and Values of the Habitat to be Revegetated

As described in the Biological Technical Report for the Project (October 2012), the project site is characterized by developed and disturbed habitats. The non-native grassland (a Tier III habitat requiring 0.5:1 mitigation under the County BMO) on the project site is dominated by non-native plant species, although some coast live oak trees are found in this community. The southern riparian forest community (a Tier I habitat) on the project site is characterized by native and non-native trees in the overstory and primarily non-native plants in the understory. As mentioned above, no impacts to the southern riparian forest will occur as a result of the project. Impacts to non-native grassland will be mitigated off-site. The revegetation area, which serves as mitigation for impacts to the RPO wetland buffer (protected under the County BMO), will involve conversion of 1.14 acres of non-native grassland to a higher quality (Tier III or greater), low density native shrub/grassland community that meets County requirements for fire safety and protection (see also Fire Protection Plan).

[1] Appendix A provides the 2006 update to the 1999 Exotic Pest Plants of Greatest Ecological Concern in California. The most up to date categorization of invasive plants in California can be found at http://www.cal-ipc.org/paf/.

2.0 GOALS OF THE COMPENSATORY MITIGATION PROJECT

2.1 Responsibilities

2.1.1 Project Owner

South Coast Development, LLC, the property owner, will be responsible for the implementation of this Revegetation Plan.

2.1.2 County of San Diego

The County of San Diego is responsible for the approval of this Revegetation Plan and ensuring that the plan was prepared in accordance with the County's Report Format and Content Requirements for Revegetation Plans (2007).

2.1.3 Compensatory Mitigation Project Designer

The Compensatory Mitigation Project Designer will have a license in the State of California and experience in designing native revegetation plans. The Compensatory Mitigation Project Designer will work with a revegetation specialist to prepare conceptual revegetation site design plans.

2.1.4 Installation Contractor

The Installation Contractor shall be selected by South Coast Development from qualified firms that have a landscape contractor's license. The firm must also employ a person who has references of a successful native upland revegetation implementation effort within the last four years, and at least one successful replanting of native upland habitat in Southern California. The contractor must demonstrate knowledge of techniques for native plant seed installation and should be able to provide letters of reference if requested. The Revegetation Maintenance Contractor will be responsible for site preparation, installation of seed and container plants, installation of the irrigation system, and maintenance of the revegetation site through the plant establishment period, including but not limited to replacing dead container plants, reseeding in areas with insufficient germination, repairing the irrigation system as needed, exotic plant species removal, removal of trash and other debris, and implementation of the Revegetation Monitor's recommendations per the site inspection reports (see Section 6.0).

2.1.5 Project Biologist and Revegetation Monitor

South Coast Development shall designate a Project Biologist with a minimum of a Bachelor's degree in the biology or ecology of Southern California plant communities or another related field, and experience in practices commonly used for revegetation projects. Responsibilities of the Project Biologist will include coordination with the Revegetation Maintenance Contractor to provide technical support and to ensure compliance with this Revegetation Plan. The Project Biologist may assist in selecting and monitoring other specialists, as needed, to conduct portions of the revegetation

monitoring program. These specialists could include a soils specialist and a native seed specialist.

The Project Biologist may designate him or herself or another individual with revegetation experience as the Revegetation Monitor for the project. Responsibilities of the Revegetation Monitor will be to conduct necessary field surveys, oversee site preparation, implementation and maintenance, and document all tasks with photographs and reports. The Revegetation Monitor will report any problems with maintenance of the revegetation site to the Revegetation Maintenance Contractor and shall provide recommendations to the Revegetation Maintenance Contractor to correct the problems following site inspection visits.

2.1.6 Revegetation Maintenance Contractor

The Revegetation Maintenance Contractor will be selected by South Coast Development from qualified firms that have a landscape contractor's license. The Revegetation Maintenance Contractor may or may not be the same company as the Installation Contractor. The firm must also employ a person who has references of a successful native upland revegetation maintenance effort within the last four years and at least one successful replanting of native upland habitat in San Diego County. The Revegetation Maintenance Contractor will be responsible for overall maintenance of the revegetation site following the plant establishment period, including but not limited to replacing dead container plants, reseeding in areas with insufficient germination, repairing the irrigation system as needed, exotic plant species removal, removal of trash and other debris, and implementation of the Revegetation Monitor's recommendations per the site inspection and annual reports (see Section 6.0).

2.1.7 Seed Contractor and Native Plant Nursery

The Project Biologist will select a native seed contractor and a native plant nursery from firms that employ staff familiar with collecting and propagating seeds of native species in San Diego County. The Revegetation Monitor will inspect the seed and container plants at the time of delivery to ensure they are of the proper species mix, container size, the containers are not root bound, and the mixes and containers have no other deficiencies that would hinder the revegetation effort.

2.2 Types and Areas of Habitat to be Revegetated or Preserved

As described above in Sections 1.2.2 and 1.2.3, mitigation for the project will include off-site acquisition of 3.46 acres of a Tier III or greater habitat and 0.9 acre of coast live oak woodland (Holland Code 71160) in an MSCP approved mitigation area. In addition, to meet the County RPO wetland buffer requirements, the 1.14 acres of non-native grassland on the project site will be revegetated with native grasses and small shrubs characteristic of an open native grassland (Holland Code 42000, Valley and Foothill Grasslands) (see Table 3 for species composition). A total of 2.58 acres (including 1.44 acres of southern riparian forest, 0.85 acre of revegetated grassland, and 0.29 acre of urban developed) will be placed within an open space easement.

2.3 Functions and Values of Habitat to be Revegetated

Target functions and values include the revegetation of 1.14 acres of non-native grassland on the project site that will be self supporting after the maintenance period and will provide habitat for wildlife. The ultimate goal of the Revegetation Plan is to ensure progress of the revegetation area toward the performance standards detailed in Section 6.1, below.

2.4 Time Lapse Between Impacts and Establishment of Mitigation

Grading for the project will begin upon issuance of permits with project impacts expected to occur immediately thereafter. Mitigation activities, including site recontouring, stabilizing, planting, and irrigation, will begin no later than one growing season following the initiation of authorized impacts. Therefore, there will be some temporal loss of habitat. The goal will be to minimize such temporal loss of habitat to wildlife. A temporary irrigation system will be used to help establish the plantings until their root systems have tapped into groundwater and they can sustain themselves in the absence of supplemental irrigation (Figures 5a through 5c).

2.5 Cost

Mitigation project costs have been estimated for this Revegetation Plan. Table 2 summarizes the costs associated with implementation of the Revegetation Plan. The estimates include the costs associated with implementation of the proposed onsite mitigation through completion of the five-year monitoring period. Costs for off-site acquisition of habitat are provided below in Section 3.1.

2.6 Functions and Values

As described above in Section 2.3.3, the 1.14-acre revegetation area onsite is comprised of highly disturbed, non-native grassland dominated by non-native plant species with very low cover of native plants. The non-native grassland provides limited foraging habitat for wildlife species, primarily raptors. In addition, the disturbed nature of the southern riparian forest on the project site (including dominance of non-native plants in the understory and the presence of trash and other debris in this community), limits wildlife diversity on the project site.

The off-site mitigation area provides high quality oak woodland (Tier I habitat) and non-native grassland (Tier III) communities suitable for project mitigation.

2.7 Jurisdictional Delineation

An RPO wetland delineation was conducted on the project site to identify the portion of the southern riparian forest that also meets the criteria established by the RPO to define County wetlands. The on-site 1.14-acre mitigation area extends to the northern limits of the RPO wetland and provides a buffer between this area and proposed development north of the revegetation area.

Figure 5a. Conceptual Revegetation Area Irrigation Plan

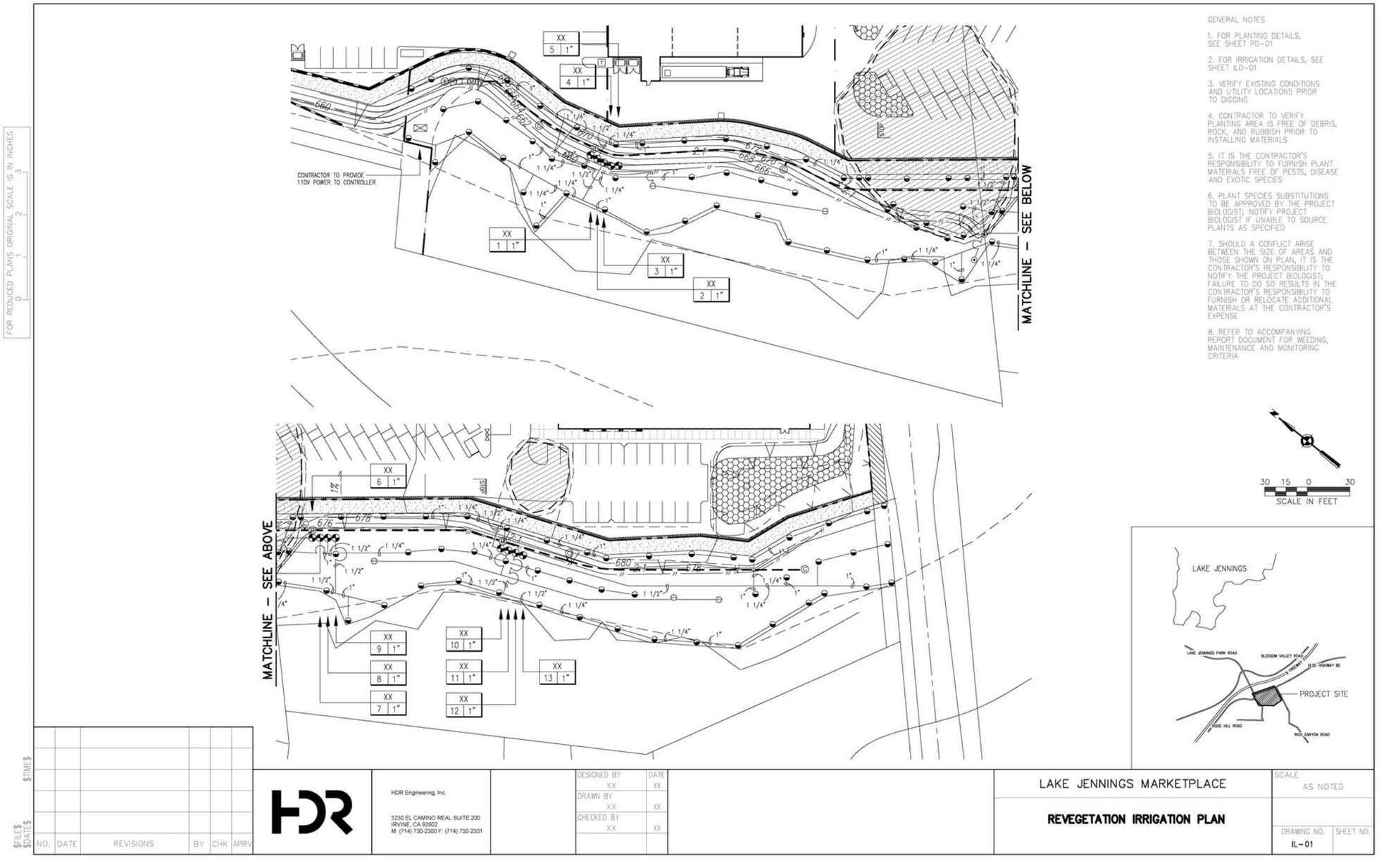

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Figure 5b. Conceptual Revegetation Area Irrigation Plan

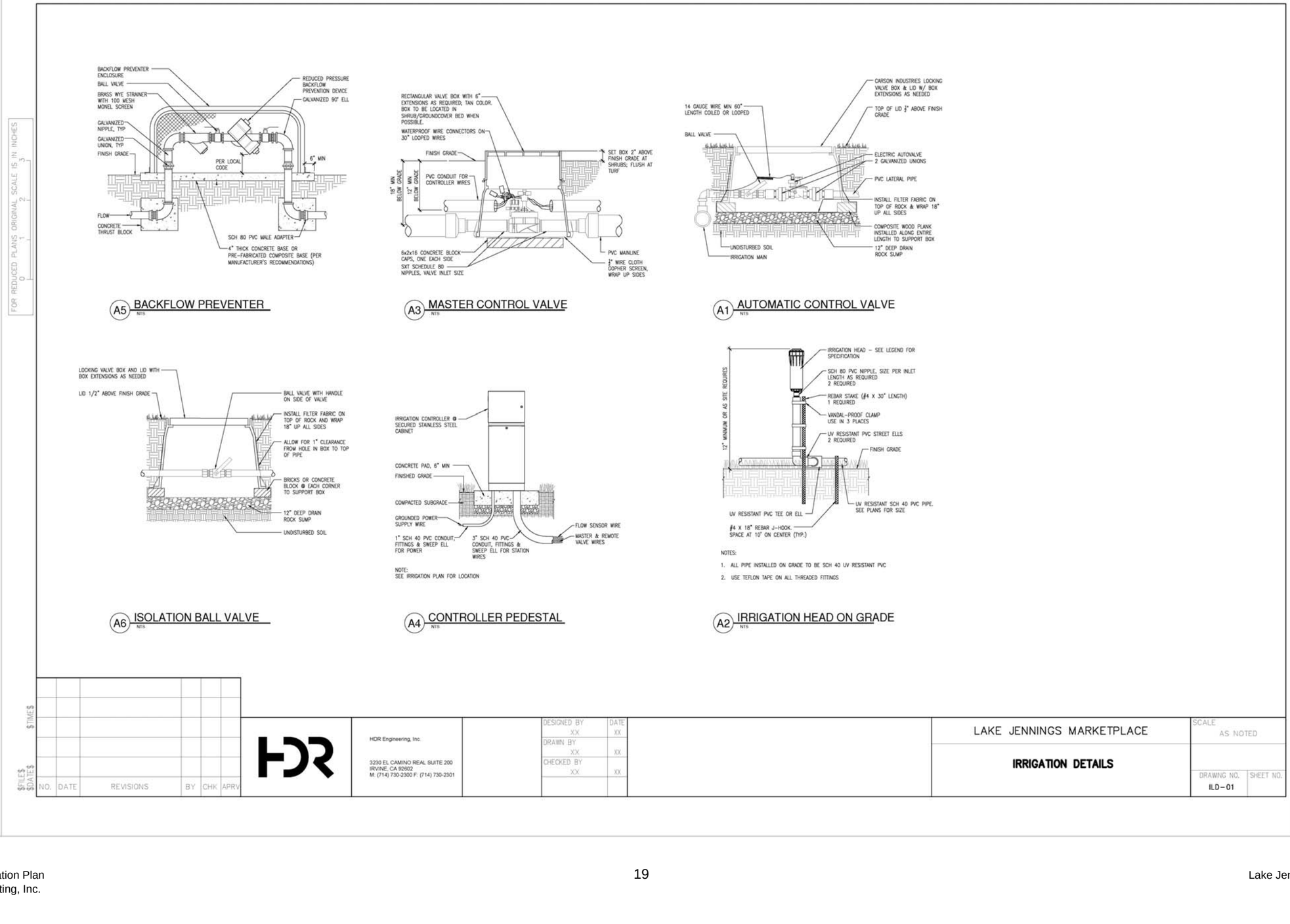

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Figure 5c. Conceptual Revegetation Area Irrigation Plan

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IRRIGATION NOTES

1. REFER TO DRAWING SVDT-IL07 AND SVDT-IL08 FOR INSTALLATION DETAILS
2. PRIOR TO SUBMITTING BID, CONTRACTOR SHALL EXAMINE THE SITE AND CONDITIONS THEREOF
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY EXISTING UTILITY CONDITIONS AND LOCATIONS PRIOR TO DIGGING
4. THE WORK TO BE PERFORMED UNDER THIS CONTRACT INCLUDES FURNISHING ALL LABOR, MATERIALS, TOOLS, MACHINERY AND EQUIPMENT NECESSARY TO INSTALL A COMPLETE IRRIGATION SYSTEM AS SHOWN IN PLANS, INCLUDING TRENCHING, BACKFILLING, ETC AND IS INTENDED TO RESULT IN A COMPLETE IRRIGATION SYSTEM INSTALLED AND READY FOR USE WITHOUT FURTHER COST OR IMPROVEMENT
5. ALL COMPONENTS AND PIPING SHALL BE INSTALLED PER THEIR DETAILS, IN THEIR RESPECTIVE LOCATIONS, AND SHALL BE OF THE MANUFACTURER AND SIZE SPECIFIED UNLESS OTHERWISE APPROVED
6. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO ANY EXISTING STRUCTURES AND SITE IMPROVEMENTS; REPAIRS TO ANY DAMAGE SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED TO AT NO ADDITIONAL COST TO THE OWNER
7. ALL PRESSURE SUPPLY PIPING AND FITTINGS 3" AND LARGER OR STATIC PRESSURE OVER 70 PSI SHALL BE THRUST BLOCKED, PER MANUFACTURER RECOMMENDATIONS; CONTRACTOR SHALL NOT BACKFILL TRENCHES UNTIL ALL THRUST BLOCKS HAVE BEEN REVIEWED AND APPROVED BY OWNER, PROJECT BIOLOGIST OR OTHER DESIGNATED REPRESENTATIVE
8. INITIAL BACKFILL ON PLASTIC LINES SHALL BE OF A FINE GRANULAR MATERIAL WITH NO FOREIGN MATTER LARGER THAN $\frac{1}{2}$" IN SIZE
9. COMPACT BACKFILL FOR TRENCHING TO A DRY DENSITY EQUAL TO THE ADJACENT UNDISTURBED SOIL, CONFORMING TO ADJACENT GRADES WITHOUT DIPS, SUNKEN AREAS, MOUNDS OR OTHER IRREGULARITIES
   SHOULD A CONFLICT ARISE BETWEEN THE SIZE OF AREAS AND THOSE SHOWN ON PLAN, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY
10. THE PROJECT BIOLOGIST AND/OR OWNER; FAILURE TO DO SO WILL RESULT IN THE CONTRACTOR'S RESPONSIBILITY TO FURNISH OR RELOCATE ADDITIONAL MATERIALS AT CONTRACTOR'S EXPENSE
11. NOTE ACCURATELY ON ONE SET OF REPRODUCIBLE PRINTS, RECORD DRAWINGS KEPT UP TO DATE AS THE PROJECT IS UNDER CONSTRUCTION;
12. DIMENSION FROM TWO PERMANENT POINTS OF REFERENCE THE LOCATION OF THE PRESSURE SUPPLY LINE ROUTING, DIRECTIONAL TURNS, VALVES, WIRING, ETC
13. THE SYSTEM INSTALLATION SHALL BE DEEMED INCOMPLETE UNTIL ALL HEADS, VALVES AND RELATED EQUIPMENT HAVE BEEN CHECKED AND ADJUSTED AND ACCURATE RECORD DRAWINGS HAVE BEEN SUBMITTED
14. CONTRACTOR IS RESPONSIBLE FOR ADJUSTING PRESSURE AT EACH CIRCUIT FOR OPTIMAL HEAD PERFORMANCE
15. IRRIGATION RUN-OFF INTO OPEN WATER AREAS MUST BE AVOIDED

SYMBOL	MANUFACTURER/MODEL
(1)	Point of connection 1 with new City water meter Contractor to verify PSI at existing water line at time of installation
(BF)	FEBCO or equal Backflow preventer 825Y (2" size)
□□	BARRETT ENGINEERED PUMPS Booster pump
⊠	RAINBIRD Irrigation controller ESPLXM Irrigation controller enclosure cabinet with concrete service pad
(M)	RAINBIRD Master control valve EFB-CP Series (1")
(W)	WILKINS Wye filter S Series or equal
(C)	RAINBIRD Quick-coupler 44-LRC (3/4" with rubber locking cover)
◕	RAINBIRD Automatic control valve PEB Series (1")
(B)	SPEARS or equal ball valve
- - -	Mainline 2 1/2" Class 315
———	On-grade lateral line 1" PVC schedule 40 unless otherwise noted

Valve tag

SYMBOL	MANUFACTURER/MODEL	ARC	RADIUS	PSI	GPM
◒	RAINBIRD 3504-SAM-PC spray head	40-360	31'	35	2.6
⊙	RAINBIRD 3504-SAM-PC spray head	40-360	23'	35	1.28
⊖	RAINBIRD 5004-SAM-PC-R spray head	40-360	36'	35	1.81

PIPE SIZING RANGES

GPM	SIZE
0 - 12	1"
13 - 22	1 1/4"
23 - 39	1 1/2"

NO.	DATE	REVISIONS	BY	CHK	APRV

$TIME$
$FILE$
$DATE$

HDR

HDR Engineering, Inc.

3230 EL CAMINO REAL SUITE 200
IRVINE, CA 92602
M: (714) 730-2300 F: (714) 730-2301

		DATE
DESIGNED BY	XX	XX
DRAWN BY	XX	XX
CHECKED BY	XX	XX

LAKE JENNINGS MARKETPLACE

IRRIGATION LEGEND AND NOTES

SCALE: AS NOTED

DRAWING NO.: ILD-02

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Table 2
Estimated Cost for Revegetation Plan Implementation

Task	Cost per Unit	Number	Total Cost
Site Preparation (grading of Revegetation Area)	n/a	n/a	n/a*
Grow-and-Kill Period	$8,000	n/a	$8,000
Irrigation	$10,000/ac	1.14 acres	$11,400
Purchase Seed Mix	$1,310/acre	1.14 acres	$1,494
Apply Seed Mix to Revegetation Area	$2,200/acre	1.14 acres	$2,508
1-gallon Container Plants (includes installation)	$14	180	$2,520
Replacement/Contingency Factor (20%)	n/a	n/a	$1,304
Installation of Signage	$750/sign	17	$12,750
Erosion Control Measures	$6,500	n/a	$6,500
Installation Monitoring	$3,500	n/a	$3,500
As Built Report	$3,500	1	$3,500
Maintenance (120-day Plant Establishment Period)	$2,500	n/a	$2,500
Maintenance (Year 1)	$7,800/acre	1.14 acres	$8,892
Maintenance (Year 2)**	$6,600/acre	1.14 acres	$7,524
Maintenance (Year 3)**	$5,760/acre	1.14 acres	$6,567
Maintenance (Year 4)**	$4,800/acre	1.14 acres	$5,472
Maintenance (Year 5)**	$4,200/acre	1.14 acres	$4,788
Maintenance Monitoring (120-day Plant Establishment Period)	$600/site visit	3	$1,800
Performance Monitoring*** & Reporting (Year 1)	$7,800	1	$7,800
Performance Monitoring*** & Reporting (Year 2)**	$6,100	1	$6,100
Performance Monitoring*** & Reporting (Year 3)**	$4,700	1	$4,700
Performance Monitoring*** & Reporting (Year 4)**	$4,600	1	$4,600
Performance Monitoring*** & Reporting (Year 5)**	$4,500	1	$4,500
Total			**$118,719**

*Grading within the revegetation area will occur simultaneously with the overall grading for project site preparation. Because a separate grading mobilization is not necessary to implement the revegetation efforts, no cost is assumed for the grading component.
**Accounts for 3% annual inflation.
*** Includes cost of conducting maintenance monitoring after the initial plant establishment period.

2.8 Present and Proposed Uses

The project area consists of seven adjacent parcels (APNs: 395-250-08, 395-250-09, 395-250-15, 395-250-22, 398-110-09, 398-110-10, 398-110-75) totaling approximately 13 acres along Los Coches Creek, including an associated southern riparian forest and coast live oak trees. Developed areas onsite include two existing, abandoned residential structures are located on the project site, one south of Pecan Park Lane and one north of Pecan Park Lane. Pecan Park Lane bisects the site from west to east, but will be

vacated as part of the project. Much of the property was formerly cultivated, but these fields are now covered with dense, primarily non-native grasses.

The project site is surrounded by a variety of uses. Residential, commercial, and industrial uses lie east of the project site. Open space, residential, and agricultural uses lie to the south. Commercial and residential uses are found to the west. Commercial, residential, and open space lie north of the project site.

The proposed use for the project site is a combination of commercial, pedestrian and equestrian trail, and open space (2.58 acres will be placed in an open space easement).

3.0 DESCRIPTION OF THE PROPOSED COMPENSATORY MITIGATION SITE

3.1 Site Selection

The RPO wetland buffer site was selected for its adjacency to the southern riparian forest. The occurrence of disturbed, non-native grassland immediately adjacent to the RPO wetland offered a good opportunity to enhance the quality of the habitat onsite and to provide an adequate buffer to minimize indirect impacts on wildlife using the RPO wetland habitat. Soils on the project site are also suitable for the native grass and shrub species chosen for the seed mix and container plant palette. The soils onsite consist largely of Escondido very fine sandy loam (EsC) 5 to 9 percent slope. Visalia sandy loam (VaB) 2 to 5 percent slope is found onsite primarily along Los Coches Creek. A very small amount of Escondido very fine sandy loam (EsD2) 9 to 15 percent slope, eroded is found in the northwest corner of the site.

The off-site mitigation area selected, the Crestridge Conservation Bank, is also ideal given its close proximity to the project site and its availability of appropriate habitats to provide in-kind mitigation for project impacts.

3.2 Location and Size of Compensatory Mitigation Site

The proposed 1.14 acre RPO wetland buffer revegetation area is located onsite south of the proposed development and north of the existing southern riparian forest on the project site that will not be subject to direct construction impacts. The 1.14 acre revegetation area will be included within the 2.58 acre area onsite designated as open space. A pedestrian/equestrian trail will be located immediately south of the development onsite and signs designating the 2.58 acre area as open space will be placed at 50-foot intervals along the limits of the open space.

The proposed off-site mitigation areas (3.46 acres of Tier III or higher habitat, 0.9 acre of coast live oak woodland) will be located within an MSCP approved mitigation area. The project site is located approximately one mile north/northeast of the Crestridge Conservation Bank. This bank would serve as the ideal location for the off-site mitigation areas. The Crestridge Conservation Bank is an approved MSCP mitigation bank and includes the following habitat types: coast live oak woodland, southern coast

live oak riparian forest, coastal sage scrub, southern mixed chaparral, scrub oak chaparral, and non-native grassland. The Crestridge Conservation Bank is currently being managed by J. Whalen Associates, Inc. The contact for the bank is Tammy Lawhead (619-683-5544). Current pricing (as of 10/21/14), which can be guaranteed for 60 days, is as follows: $35,300/acre for Tier I habitats (oak woodland) and $15,300/acre for Tier III habitats (non-native grassland). The total cost of off-site mitigation, if purchased through the Crestridge Conservation Bank, would be $84,708.

The off-site mitigation area (Crestridge Conservation Bank) is a County approved mitigation bank located within the MSCP. As described above in Section 3.2, this bank contains a variety of plant communities that provide habitat for a variety of sensitive plant and animal species. It also serves as an important habitat linkage to open space areas to the north and south.

3.3 Reference Site

Prior to implementation of revegetation activities, the project biologist will conduct a baseline assessment of the buffer area, which will include the following information: (1) indicators of wildlife usage; (2) percent cover of perennial and annual non-native plant species; (3) percent cover of native plant species; and (4) native plant species diversity. The progress of the revegetation site will be tracked using the standards set by the baseline assessment.

4.0 IMPLEMENTATION PLAN FOR THE COMPENSATORY MITIGATION SITE

4.1 Rationale for Expecting Implementation Success

The mitigation activities described in this report are anticipated to be successful. The plant palettes of the onsite revegetation area consist of species that occur onsite and are known to perform well in habitat establishment/revegetation programs. Attainment of the final success criteria is expected due to the presence of the target plant communities within the project boundaries, the fast-growing nature of many of the plants, suitability of the soils on the project site, and the anticipation that the plants will function well once weaned of supplemental irrigation.

4.2 Financial Assurances

South Coast Development will be responsible for implementing this Revegetation Plan pursuant to grading permits issued by the County of San Diego. South Coast Development can designate this responsibility to a project biologist or revegetation specialist, but will retain ultimate responsibility for the mitigation success.

Implementation of this Revegetation Plan must be coordinated by the Project Biologist, landscape contractor, and plant material supplier. Therefore, a project biologist or revegetation specialist will be hired to coordinate implementation of the Revegetation Plan. This person will serve as a liaison between the property owner, the landscape

contractor, and the County. 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. It will be the responsibility of the Project Biologist to ensure that the Revegetation Plan is implemented in a manner that is consistent with the requirements of the associated permits for the project, and in a manner that will maximize the likelihood of successful mitigation. The Project Biologist will be empowered to make minor modifications to the implementation of the Revegetation Plan based on field conditions and unforeseen circumstances. All major deviations from this Revegetation Plan shall be reported to the property owner and the County.

4.3 Schedule

Mitigation site grading, site preparation, irrigation installation, and mitigation plantings shall begin no later than one growing season following the initiation of impacts to the non-native grassland on the project site.

5.0 REVEGETATION PROGRAM

The revegetation program is to be implemented in phases, including: (1) grading, clearing and grubbing; (2) implementation of a “grow-and-kill” program to prepare the mitigation site for reception of the container stock and seed; (3) planting of container stock and reseeding with low-fuel native coastal sage scrub shrubs and understory species; and (4) maintenance and performance monitoring of the revegetation area.

5.1 Site Preparation

Site preparation activities for the revegetation area will include site grading, clearing, grubbing, and the removal of non-native plants through a grow-and-kill program.

5.1.1 Grading, Clearing, and Grubbing

Preparation of the revegetation area will consist of site grading and the removal of non-native plants. The area proposed to be revegetated that does not occur on the graded slopes shall be tilled and/or loosened. The graded slopes shall be scarified to a depth of 6 inches to allow for seed germination. After the soil has been loosened, the area shall be contoured to reflect a more natural topographic appearance.

The Revegetation Monitor will approve the site preparation prior to planting. Prior to planting the graded portion of the buffer, non-native weed species, if they have grown since grading, will need to be cleared. Non-native weeds will be removed using a small piece of equipment, such as a bobcat. All weedy plant materials will be deposited off-site at a legally approved location such as a landfill. The cleared areas will be scarified to a depth of no greater than six (6) inches to allow for adequate root development of the seeds. Loosening the soil to a greater depth on the graded slopes may interfere with slope stability. The non-graded portions of the site shall be tilled to allow for easier root establishment for both seeds and container stock. In addition, prior to the beginning of

grading of the buffer area, all sensitive habitats adjacent to the grading limits will be delineated and flagged.

5.1.2 Grow-and-Kill Program

Exotic weedy species are opportunistic and will rapidly colonize disturbed sites including the onsite mitigation areas. This can lead to the displacement of native species if the weedy species are not properly treated. Therefore, all onsite mitigation areas will be subject to exotic weed control prior to mitigation planting. The purpose of the grow-and-kill program is to reduce the potential for weed growth by removing as much of the seed bank as possible by germinating the weed seeds and then killing them. The areas to be revegetated will be treated with an herbicide approved for use near riparian areas by a licensed pest control applicator upon the germination of weedy species after the first rains (or germination may be initiated with irrigation provided via a water truck or the on-site installed irrigation system). The revegetation area will not be planted until the herbicide applied during the grow-and-kill period has broken down in the soil. This may take a few days following application up to a few weeks depending on the herbicide applied. The material safety data sheet for the herbicide will be consulted to determine when it is safe to plant/seed the revegetation site.

Removal of invasive exotic plants will be accomplished through the grow-and-kill program for the portion of the site being replanted. For the remainder of the open space easement, the southern riparian forest, the invasive plant removal will occur as described below. The primary species of focus for the removal in the southern riparian forest are giant reed (*Arundo donax*) and castor bean (*Ricinis communis*).

Removal of invasive perennial exotic species within the SRF will be coordinated with the Lakeside Riverpark Conservancy. Removal of invasive perennial species that are not targeted by the Conservancy, if any, will be removed without the use of mechanized equipment and without soil disruption to minimize disturbance to this plant community. The plants to be removed will be cut to 6 inches in height and the stems painted with an herbicide approved for use near riparian areas. Herbicides shall be applied only by a licensed pest control applicator. Removal shall occur outside of the bird breeding season, as stipulated in the EIR mitigation measures. Removal may occur between January and March provided the site is surveyed by a qualified biologist no more than three (3) days prior to the removal to ensure that no active raptor nests occur within the southern riparian forest. The removal shall occur on at least an annual basis during the 5-year monitoring program.

5.2 Planting Plan

5.2.1 Seeding and Container Plants

Upon completion of the grow-and-kill period, the site will be planted with the low fuel native plants identified in the plant palette for the revegetation effort in Table 3. Seeding will be hand broadcast. Container plants will be planted in adequately prepared holes after the first rains of the season. The Revegetation Monitor will provide

recommendation for site specific temporary erosion control measures that may need to be incorporated to ensure minimal or no soil erosion following seeding and container plant installation during the plant establishment period. Such measures may include, but will not be limited to, the use of fiber rolls, silt fencing, or other temporary erosion control measures.

Table 3.
Species Composition for the RPO Wetland Buffer Revegetation Area

Species	Number/Acre	Number Planted	Size
Blue dicks (*Dichelostemma capitatum*)	1 lb/ac	1.14 lb	Seed
Blue-eyed grass (*Sisyrinchium bellum*)	1 lb/ac	1.14 lb	Seed
California blackberry (*Rubus ursinus*)	36/ac	41	1 Gallon
California rose (*Rosa californica*)	36/ac	41	1 Gallon
Douglas mugwort (*Artemisia douglasiana*)	1 lb/ac	1.14 lb	Seed
Deerweed (*Acmispon glaber*)	36/ac	41	1 Gallon
California poppy (*Eschscholzia californica*)	1 lb/ac	1.14 lb	Seed
Lupine (*Lupinus bicolor*)	1 lb/ac	1.14 lb	Seed
Purple needle grass (*Stipa pulchra*)	8 lb/ac	9 lbs	Seed
Owl's clover (*Castilleja exserta*)	1 lb/ac	1.14 lb	Seed
Sticky monkeyflower (*Mimulus aurantiacus*)	36/ac	41	1 Gallon

5.2.2 Plant and Seed Purchase Sources

Container stock and seeds will be obtained from a nursery specializing in native plants and a native plant seed company. All propagules and seed used at the site will be secured from wild sources within San Diego County that are as close to the revegetation site as possible. South Coast Development, its successors or assignees, or its contractor will make arrangements with the nursery six to nine months in advance of the expected planting date to ensure that the species are available at the time of installation. The landscape contractor shall order an additional 10 percent over the anticipated number to be used as replacement plants as necessary in the future.

The seed will be of the highest quality for germination and purity available. Seed purchased will be less than one year old at the time of application.

5.2.3 Substitutions

South Coast Development, it successors or assignees, or its contractor will secure all plant materials well in advance of the expected planting dates. No substitutions above 10 percent of any species number will be allowed and sizes will not be changed without modification to the revegetation agreement. If the contractor is unable to obtain the species specified at the time of planting, or the appropriate sizes, the guarantee period will not begin until all plants specified and quantities required by this plan have been planted. No substitution of plant materials will be allowed without approval of the Revegetation Monitor.

5.2.4 Plant Inspection

The Revegetation Monitor will inspect and approve all plant materials as healthy, disease free, and of proper specified size. The monitor will approve the final layout of plant materials in the field prior to planting to ensure their correct positioning for future successful establishment of a native habitat.

5.2.5 Geographic Restrictions on Plant Sources

All propagules and seed used at the site will be secured from wild sources within San Diego County that are as close to the revegetation site as possible. The Project Biologist will work closely with South Coast Development, its successors or assignees and/or the landscape contractor and suppliers to recommend source of plant materials. The contractor will provide the biologist with information on the sources of all plant and seed material grown/collected for the project. If necessary, the Project Biologist will help the grower locate local sources of plant materials.

5.2.6 Container Plant Installation

Standard horticultural guidelines will be used for installation of container plants as follows:

- Excavate the planting hole to twice as deep and wide as the container to be planted;
- Water the plant thoroughly while still in the pot; and
- Wet the planting hole thoroughly.

No pruning of plant materials will be allowed unless specified by the Revegetation Monitor.

5.2.7 Container Plant Guarantees

All container plants that are dead or diseased after 120 days will be replaced. As the site progresses, routine evaluations by the biologist will be made and dead or diseased plants will be replaced, as necessary, to satisfy the final success criteria. Unless recommended otherwise by the Revegetation Monitor, the replacement plants will be of the same size and species as originally specified.

5.2.8 Seed Application

The site should be sufficiently moist prior to seed application. Irrigation is proposed as part of this revegetation effort, resulting in the ability to plant any time of year; however, it would be best to plant at the time of year that will maximize use of natural rainfall (generally October through March). The Revegetation Monitor will receive copies of any seed orders, including seed purchased, germination and purity. Seeding will be hand broadcast and will be done after the installation of all container plants.

5.2.9 Seed Guarantees

If the seed fails to germinate and results in less than 70 percent coverage in the revegetation area at the end of 120 days, then areas determined to have insufficient coverage will be reseeded with the original seed mix. If the seed failed due to onsite conditions, then remedial measures will be undertaken prior to seed re-application.

5.3 Irrigation Plan

The goal of the revegetation effort is to create habitats which will persist over time and be self-supporting. Although mature plants are able to survive on natural sources of water (often through times of drought), young plants typically require supplemental water during the establishment period. The irrigation plan for the 1.14 acre revegetation site is shown in Figure 5. Aboveground over head irrigation will be used in the area of the Cultural Open Space Easement that overlaps the Biological Open Space Easement to efficiently irrigate the proposed hand-seeded mix. Water use is expected to be highest during the first year. Supplemental irrigation should be tapered off during year two with no supplemental watering occurring in years three through five. However, the irrigation system shall be left in place until the revegetation site is released from monitoring.

Watering of the container stock will be required to establish an ecological system that will eventually maintain and support itself. Overwatering should, however, be avoided as native plant species require significantly less irrigation for healthy plant growth, and too much water may result in the establishment of undesirable weed species with which the native plants must compete for light and nutrients. Installation of plant materials during the recommended time of year will greatly reduce the amount of irrigation needed.

6.0 MAINTENANCE DURING MONITORING

After the revegetation site has been planted, the maintenance phase of the mitigation project begins. The purpose of the maintenance program is to provide guidelines for maintenance of the revegetation site. Because the goal of the revegetation program is to create a natural native grassland/shrub community that can support itself with little or no maintenance, the primary effort of the maintenance program is concentrated in the first few seasons of growth to control weeds and promote plant and seed growth.

6.1 Maintenance Activities

6.1.1 Irrigation

Temporary irrigation shall be provided for an expected period of at least two years from planting and will be phased out during subsequent years, unless unusually severe conditions threaten survival of plants. The maintenance contractor will be responsible for performing regular irrigation system checks and periodic maintenance to ensure the system is maintained in working order and does not result in site erosion. The revegetation area will not be considered self-sustaining until supplemental water has been turned off for at least one year. Once turned off, the irrigation system will only be re-activated in the event of severe dieback and/or stress per the recommendation of the Biological Monitor.

6.1.2 Weed Control

Invasion of exotic weeds is one of the greatest threats to the success of a mitigation site. In Southern California, there are many invasive, non-native plant species that can compete with and displace native plants, animals, and organisms that depend on them. Once established, the competitive exclusion of light, water, and nutrients by exotic plants makes it difficult for native species to re-establish and grow.

Weed densities and control demands will depend on the seasonal rains and temperatures each year. The timing of weed control may be different throughout the revegetation site based on soil moisture and the growth and development of the desired native plant species. It is anticipated that frequent (bi-monthly to monthly) monitoring of the revegetation site will be required for weed management during the rainy season in the first one to three years following installation, with quarterly to semiannual monitoring thereafter. Monitoring will be effective for early identification of seedling weed species and to schedule control methods according to the phenology of each weed species.

For efficient control of exotic species, specified weeds must be controlled before they produce viable seed. Methods of control will depend on the species, the density of weeds, the area of infestation, and the ecological sensitivity of the habitat. Manual or mechanical techniques such as pulling, cutting, and otherwise damaging plants are preferred methods for control of weed species. These techniques can be extremely specific, minimizing damage to desirable plants and animals.

Weedy vegetation will be removed to prevent adverse competition with native plants. Weeding will occur monthly during winter and spring and quarterly during summer and fall for the first two years after installation, or more frequently if requested by the Project Biologist. During years three through five of the monitoring and maintenance period, weeding will occur as necessary, determined by the Project Biologist in coordination with the landscape contractor. Weedy species to be removed will be identified by the Revegetation Monitor. Weeding shall be conducted by hand without the use of herbicides unless determined necessary for troublesome species by the maintenance contractor in coordination with the Project Biologist. In such circumstances, a certified

weed control technician will apply an appropriate herbicide. Herbicide must not be applied in such a way that it contacts non-target species. It must only be "painted" on the freshly cut stem of the weed during the active growing season of the particular weed species. Only EPA-approved herbicides may be used within the revegetation area due to its proximity to the RPO wetland.

Subsequent to planting and seeding, the site will be hand weeded twice monthly to prevent non-native weed species from outcompeting the revegetation species. Non-native weed species will be defined as those on plant species included on the Cal-IPC Invasive Plant Inventory (Appendix A).

6.1.3 Replacement Planting

Reseeding and replacement planting of container plants will be performed by the maintenance contractor in order to replace failed plants or to compensate for low rates of germination, as determined by the Project Biologist. The Project Biologist will determine the amount of seed necessary to achieve performance standards set forth below.

6.1.4 Clearing and Trash Removal

Pruning or clearing of existing and/or planted native vegetation will not be allowed within the revegetation area unless so directed by the Revegetation Monitor. Deadwood and leaf litter of native herbs shall not be removed as these may provide valuable microhabitats for invertebrates, reptiles, small mammals, and birds. In addition, the decomposition of deadwood and leaf litter is essential for the replenishment of soil nutrients and minerals. Non-organic trash and debris shall be removed from the mitigation site during each maintenance visit. Trash consists of all man-made non-organic materials, equipment, or debris.

6.2 Schedule

As described above in Section 6.1.2, it is anticipated that maintenance activities including weed eradication will occur monthly during winter and spring and quarterly during summer and fall for the first two years after installation, or more frequently if requested by the Project Biologist. During years three through five of the monitoring and maintenance period, weeding will occur as necessary, determined by the Project Biologist in coordination with the landscape contractor.

The irrigation system shall be left in place until the revegetation site is released from monitoring.

7.0 MONITORING PLAN FOR THE COMPENSATORY MITIGATION SITE

South Coast Development, it successors or assignees, will be responsible for retaining a qualified Project Biologist or Revegetation Monitor (habitat restoration specialist) to

perform revegetation monitoring during the five-year maintenance and monitoring period. The Project Biologist or Revegetation Monitor will be responsible for monitoring the species' health and growth performance, facilitating compliance with the specified performance standards through the provision of appropriate remedial actions and recommendations, and coordinating with the maintenance contractor. The qualified Project Biologist or Revegetation Monitor will have experience in native habitat revegetation site planning, design, and monitoring. The revegetation site will be monitored for five years following installation of all plant materials.

7.1 Performance Standards for Target Dates and Success Criteria

The performance goals for the revegetation site include standards and guidelines developed by the Project Biologist based on existing site conditions and fuel modification goals provided below (more detail is provided in the *Lake Jennings Market Place Fire Protection Plan*). The performance goal of the revegetation program is to provide a buffer for the existing riparian woodland (RPO wetland) onsite through the implementation of the revegetation program, while not creating a fire fuel hazard.

Specific requirements for the revegetation area are as follows:

- Understory species shall be low fuel species that provide adequate erosion control.
- Shrub species shall be planted no closer than 20 feet apart.

Performance standards shall be used to evaluate the gradual success of the revegetation site over the five-year monitoring period. During each year of the monitoring period, the revegetation area will be quantitatively assessed using the success criteria identified in Table 4, below. Success criteria are based on qualitative assessments of native vegetation cover, exotic (non-native) vegetation cover, and plant survivorship. The year 5 or final success criteria will be used to certify the acceptance of the on-site mitigation or the need for contingency measures. The success criteria were developed based on a visual estimate of the percent cover of native and non-native plant species in the non-native grassland currently present on the project site.

Table 4.
Success Criteria

	Year 1	Year 2	Year 3	Year 4	Year 5
% Cover Natives	20%	35%	50%	60%	70%
% Cover Annual Exotics	< 40%	< 40%	< 40%	< 30%	<20%
% Cover Perennial Exotics	0%	0%	0%	0%	0%
Survivorship*	80%	80%	80%	80%	80%

* Based on the original number of plantings.

Monitoring of the revegetation site shall be performed by a qualified biologist for five years or until it is accepted by the County of San Diego. Reseeding and replanting shall occur as necessary with the appropriate seed composition to ensure that the yearly performance standards are achieved. Other remedial actions shall also be taken, such as installation of or modification to the irrigation system and increased weeding efforts, as necessary, to ensure that these performance standards are achieved. If success criteria are met prior to the end of five years, the applicant will request suspension of monitoring and maintenance requirements and release of any required performance bonds related to revegetation success. If the success criteria are not achieved by the completion of the fifth year of monitoring, an extension of another year to the five-year monitoring program may be required by the County.

7.2 Target Functions and Values

Within the RPO wetland buffer, 1.14 acres of native grassland with low native shrub cover will be established. This revegetation area shall meet the Year 5 success criteria identified above in Table 4 and shall be self-sustaining (i.e., no supplemental irrigation). It is anticipated that this revegetation area will provide foraging habitat for wildlife species using the southern riparian forest on the project site. Wildlife species using the revegetation site will be documented during the monitoring site visits.

7.3 Target Acreages

The revegetation site shall occupy 1.14 acres north of the southern riparian forest and south of the pedestrian/equestrian trail on the project site.

7.4 Monitoring Methods

The mitigation site will be monitored for five years following the completion of revegetation site installation unless final Year 5 success criteria are met prior to this point. This program will assess the successful establishment of self-sustainable native habitat and achievement of the final (Year 5) success criteria.

7.4.1 Installation Monitoring

The Revegetation Monitor shall be available during weed abatement and planting of the revegetation site in order to facilitate compliance with specified installation methods and long-term performance standards. Inspection of the revegetation site shall be performed on an as-needed basis during installation activities, including initial site weeding and planting. Upon completion of planting and seeding, accurate records will be made of the germination success, species seeded, and quantities of each species planted. Performance monitoring will include the identification of non-native species for removal, photo documentation of pre- and post-planting conditions, and conducting field inspections during site grading, weeding, and planting activities. Careful coordination between the Revegetation Monitor and the landscape contractor is important during the installation period in order to avoid mistakes that could jeopardize the eventual success of the revegetation site.

7.4.2 Maintenance Monitoring

After the installation process is complete, the Revegetation Monitor shall monitor maintenance activities within the revegetation area to facilitate compliance with performance standards and ensure the successful establishment of self-sustainable habitat. The Revegetation Monitor shall meet with the landscape contractor as needed throughout the maintenance period to discuss the condition of the revegetation area and recommend appropriate remedial measures as required. South Coast Development retains overall responsibility for coordinating contractors.

The overall success of the mitigation site shall be measured using qualitative and quantitative assessments. Qualitative surveys, consisting of a general site walkover and characterization of the revegetation area, will be completed during each monitoring site visit. General observations, such as fitness and health of the revegetation species, pest problems, weed establishment, mortality, and drought stress, will be noted during each site walkover. Permanent photo documentation stations will be established at appropriate locations within the revegetation site to photographically document the progress of the revegetation effort over the five year monitoring program. In the event of plant failure, the cause will be determined (drought stress, herbivory, etc.) and the appropriate remedial actions will be taken to remedy the situation and put the revegetation site back on a path to meet the success criteria.

Any significant problems encountered, such as unsuitable site conditions and pest infestation, will be documented in a site inspection report. The Revegetation Monitor will also note observations on wildlife use and native plant recruitment for the purpose of later discussion in the annual reports. Records will be kept of plant mortality and other problems such as insect damage, weed infestation, and soil loss. The Revegetation Monitor will determine remedial measures necessary to facilitate compliance with performance standards. All remedial measures undertaken will be referenced in the annual monitoring report.

Annual qualitative sampling will be conducted to assess the progress of the revegetation site relative to success criteria. Qualitative assessments shall be performed on the revegetation site to determine when monitoring activities should cease. Information gathered during qualitative surveys will include percent survival of container plants and visual estimates of percent cover of native and non-native plant species within the revegetation area. These estimates will be used to evaluate the performance of the revegetation site relative to the success criteria.

Annual quantitative performance monitoring will be conducted beginning in the spring following plant installation and continuing until the Year 5 success criteria have been met. The annual quantitative performance monitoring will include the following: a quadrat sampling method will be used to assess the progress of the revegetation site. Using a one-square meter quadrat, measurements will be taken at 5-meter intervals along three 30-meter transects. For each quadrat, absolute percent and relative percent cover by species will be recorded. Cover data will be calculated to determine the average percent cover for each species and the total percent cover of native and non-

native species. These calculations will be evaluated against annual success criteria presented in Table 4. Survival rates will be determined twice during the first year (once after the initial 120-day plant establishment period and again during the Year 1 quantitative performance monitoring). During subsequent years, survival rates will only be measured during the annual quantitative performance monitoring data collection period. Sample locations for the three transects are depicted on Figure 3. An annual report will be prepared and submitted after each annual performance monitoring period. Each annual report will provide the quantitative and qualitative monitoring results as well as site maintenance recommendations.

7.5 Monitoring Schedule

After planting and seeding, qualitative monitoring for the revegetation area will be conducted on a monthly basis for the first year, quarterly for the second year, and twice annually for the remaining three years to monitor the general growth and survival of the native plant species. In addition, the amount of non-native weeds present and any other factors that may affect the success of the site will identified and the appropriate remedial actions taken.

Annual quantitative monitoring to assess the progress of the revegetation site relative to success criteria shall occur once per year to identify species composition and percent cover of native and non-native plant species as well as percent survival of the container plants. If during the last two years the revegetation area meets or exceeds the specified success criteria, monitoring frequency will be decreased to once per year.

7.6 Monitoring Reports

A brief site inspection report summarizing the plant growth performance, plant health, plant mortality, pest infestations, drought stress, and any remedial measures will be forwarded to the maintenance contractor and South Coast Development by the Project Biologist or Revegetation Monitor following each monitoring site visit.

At the end of the first year and continuing annually thereafter for each subsequent year up to five years post-installation of the revegetation site, a report summarizing revegetation site performance will be submitted to the County Department of Planning and Land Use.

Each annual report shall discuss the maintenance activities performed during the year, including: revegetation and exotic plant species removal, the results of the monitoring effort, an assessment of the progress made towards achievement of the success criteria, and recommendations of any remedial or adaptive management measures that may be necessary or prudent. The specific content of the monitoring reports will include project location and description, revegetation site description, summary of remedial actions and maintenance activities, site map and photographs, success criteria, results of monitoring visits, a summary of quantitative field data collected (percent cover of native and non-native plant species, percent survival of container plants), and a summary of significant events that occurred on the site that may affect the ultimate

success of the revegetation site. In the event of substantial non-compliance with success criteria, the reports will recommend further remedial measures deemed necessary to ensure future compliance.

8.0 COMPLETION OF COMPENSATORY MITIGATION

8.1 Notification of Completion

The applicant will notify the County in writing when the monitoring period is complete and the final success criteria have been achieved.

To be considered successful the revegetation site must meet the following criteria:

- The site must attain at least 50 percent cover of native plant species;
- The site must have less than 20 percent cover of annual exotic (non-native) plant species;
- The site must have no cover of perennial exotic plant species;
- Survivorship of container stock must be 80 percent or greater;
- The site must be self-sustaining and the plants shall be thriving despite the lack of supplemental irrigation after year two.

8.2 Release of Responsibility

If, at the end of the fifth year, all success standards have been met, the revegetation effort will be deemed successful and monitoring will cease. Early release from responsibilities from monitoring may occur if the revegetation site has met the Year 5 success criteria and is deemed successful by the County Department of Planning and Development Services prior to the completion of five years.

9.0 CONTINGENCY MEASURES

9.1 Initiating Contingency Procedures

An integral part of a successful mitigation program is the ability to detect problems with the mitigation early in the process, determine the cause of the problem, and attempt to modify the mitigation program to accommodate emerging issues or situations. Minor problems, such as trash, vandalism, isolated instances of plant mortality, or small-scale weed or pest infestations, will be rectified as they are discovered during routine site monitoring and would not warrant the implementation of contingency measures.

If a performance standard is not met for all or any portion of the mitigation site in any year, or if the final success criteria are not met, the Project Biologist will prepare an analysis of the cause(s) of failure, and if determined necessary, propose remedial action for approval. These measures may include supplemental site grading, manipulation,

planting, changes to the plant palette, adjustment of the management of the site or re-evaluate species composition or other design changes.

Any significant issue or contingency that arises on the revegetation 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.

9.2 Alternative Locations for Contingency Compensatory Mitigation

There is sufficient area with suitable soils and appropriate rationale has been provided for revegetation of the RPO wetland buffer onsite. However, if the revegetation site cannot be remediated due to unforeseen circumstances (anticipated to be unlikely), an alternative mitigation site may be located and it may be necessary to prepare replacement plans to meet the mitigation requirements of the County RPO. This may necessitate the definition of new success criteria to accommodate the changes required as a result of the adaptive management. All remedial actions or modifications to the mitigation program shall be subject to County approval.

9.3 Funding

South Coast Development will fund the implementation of any contingency measures that may be required to achieve mitigation goals. These measures may include funding for replacement plants, locating a new mitigation site, implementation of a new mitigation plan, and additional maintenance and monitoring efforts.

9.4 Responsible Parties

South Coast Development will be responsible for implementing, maintaining, and monitoring any contingency procedures.

APPENDIX A
CAL-IPC Invasive Plant Inventory

TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California

Alert ◆	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	Acacia melanoxylon	black acacia, blackwood acacia	Limited	C	C	B	2.7	Coniferous forest, chaparral, woodland, riparian. Impacts low in most areas.	NW, CW, SW
	Acroptilon repens	Russian knapweed	Moderate	B	B	B	3.2	Scrub, grasslands, riparian, pinyon-juniper woodland, forest. Severe impacts in other western states. Spreading in many areas of CA.	CA-FP, GB
	Aegilops triuncialis	barb goatgrass	High	A	A	B	3.6	Grassland, oak woodland. Spreading in NW and Central Valley.	CaR, CW, SN, GV
	Ageratina adenophora	croftonweed, eupatorium	Moderate	B	B	B	2.8	Coastal canyons, scrub, slopes. Very invasive in Australia, limited information and distribution in CA.	CW, SW
	Agrostis avenacea	Pacific bentgrass	Limited	C	C	C	2.4	Vernal pools, coastal prairie, meadows, grasslands. Impacts are low in most areas.	NW, SN, GV, CW, SW
	Agrostis stolonifera	creeping bentgrass	Limited	C	B	C	1.9	Wetlands, riparian; grown for domestic forage. Limited distribution and impacts unknown.	NW, SN, GV, CW, SW
	Ailanthus altissima	tree-of-heaven	Moderate	B	B	B	3.0	Riparian areas, grasslands, oak woodland. Impacts highest in riparian areas.	CA-FP
	Alhagi maurorum (=*A. pseudalhagi*)	camelthorn	Moderate	B	B	B	3.2	Grassland, meadows, riparian and desert scrub, Sonoran thorn woodland. Very invasive in southwestern states. Limited distribution in CA.	GV, D, SNE
◆	*Alternanthera philoxeroides*	alligatorweed	High	A	B	C	2.9	Freshwater aquatic systems, including marshes	GV, SW
	Ammophila arenaria	European beachgrass	High	A	B	B	3.2	Coastal dunes	NW, CW, SW
	Anthoxanthum odoratum	sweet vernalgrass	Moderate	B	B	B	2.7	Coastal prairie, coniferous forest. Little information available on impacts and limited ecological range.	NW, SN, CW
◆	*Arctotheca calendula* (fertile strains)	fertile capeweed	Moderate	B	B	C	3.6	Coastal prairie. Can produce seed. Important agricultural weed in Australia, but limited distribution in CA.	NW, CW
	Arctotheca calendula (sterile strains)	sterile capeweed	Moderate	B	B	B	2.8	Coastal prairie. Only propagates vegetatively. More competitive than fertile form, but limited distribution.	NW, CW
	Arundo donax	giant reed	High	A	B	A	2.8	Riparian areas. Commercially grown for musical instrument reeds, structural material, etc.	CW, SN, GV, SW

Scientific names based on *The Jepson Manual*. For each species, the first common name is based on the Weed Science Society of America's "Composite List of Weeds" (www.wssa.net), followed by other names used in California. Scores: A = Severe, B = Moderate, C = Limited, D = None, U = Unknown. Documentation level averaged. Regions invaded based on Jepson geographic regions. Plant assessment forms, literature citations, and full rating criteria available at www.cal-ipc.org.

TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert ◆	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
◆	*Asparagus asparagoides*	bridal creeper	Moderate	B	B	D	2.6	Riparian woodland	CW, SW
◆	*Asphodelus fistulosus*	onionweed	Moderate	B	A	C	2.9	Coastal dunes, prairie, grasslands. Invasive in Australia. High invasiveness but limited distribution in CA.	GV, SW
	Atriplex semibaccata	Australian saltbush	Moderate	B	B	B	2.9	Coastal grasslands, scrub, upper salt marsh. Limited distribution, but can be very invasive regionally.	CA except CaR and SN
	Avena barbata	slender wild oat	Moderate	B	B	A	3.5	Coastal scrub, grasslands, oak woodland, forest. Very widespread, but impacts more severe in desert regions.	CA-FP, MP, DMoj
	Avena fatua	wild oat	Moderate	B	B	A	3.2	Coastal scrub, chaparral, grasslands, woodland, forest. Very widespread, but impacts more severe in desert regions.	CA-FP, MP, DMoj
	Bassia hyssopifolia	fivehook bassia	Limited	C	C	B	2.7	Alkaline habitats. Weed of agriculture or disturbed sites. Impacts minor in wildlands.	CA except NW
	Bellardia trixago	bellardia	Limited	C	C	C	1.9	Grasslands, including serpentine. Impacts and invasiveness appear to be minor.	NW, CW
◆	*Brachypodium sylvaticum*	perennial false-brome	Moderate	B	A	D	2.5	Redwoods and mixed evergreen forest in Santa Cruz Mtns. Expanding range rapidly in OR, potentially very invasive.	CW
	Brassica nigra	black mustard	Moderate	B	B	A	2.0	Widespread. Primarily a weed of disturbed sites, but can be locally a more significant problem in wildlands.	CA-FP
	Brassica rapa	birdsrape mustard, field mustard	Limited	C	B	B	1.8	Coastal scrub, grasslands meadows, riparian. Primarily in disturbed areas. Impacts appear to be minor or unknown in wildlands.	CA-FP
	Brassica tournefortii	Saharan mustard, African mustard	High	A	A	B	2.3	Desert dunes, desert and coastal scrub	SW, D
	Briza maxima	big quakinggrass, rattlesnakegrass	Limited	B	C	B	2.3	Grasslands. Widespread in coast range. Impacts generally minor, but locally can be higher.	NW, SN, CW, SW
	Bromus diandrus	ripgut brome	Moderate	B	B	A	3.3	Dunes, scrub, grassland, woodland, forest. Very widespread, but monotypic stands uncommon.	CA

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TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert ◆	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	Bromus hordeaceus	soft brome	Limited	B	C	A	2.8	Grasslands, sagebrush, serpentine soils, many other habitats. Very widespread, but primarily in converted annual grasslands.	CA
	Bromus madritensis ssp. *rubens* (=*B. rubens*)	red brome	High	A	B	A	3.0	Scrub, grassland, desert washes, woodlands. Impacts most significant in desert areas.	CA
	Bromus tectorum	downy brome, cheatgrass	High	A	B	A	3.1	Interior scrub, woodlands, grasslands. Most widely distributed invasive plant in the US.	SN, GB, D
	Cakile maritima	European sea-rocket	Limited	C	B	B	3.6	Coastal dunes. Widespread, but impacts appear to be minor.	NW, CW, SW
◆	*Cardaria chalepensis* (=*C. draba* ssp. *chalepensis*)	lens-podded whitetop	Moderate	B	B	C	3.2	Central Valley wetlands. Limited distribution in CA. May not be as invasive as *C. draba*.	CA-FP, GB
	Cardaria draba	hoary cress	Moderate	B	B	B	2.6	Riparian areas, marshes of central coast. More severe invasive in northern CA.	CW, SW
	Cardaria pubescens	hairy whitetop	Limited	C	B	C	2.5	Grasslands and meadows. Impacts unknown but may be significant in meadows of Cascade Range.	GV, SW
	Carduus acanthoides	plumeless thistle	Limited	B	C	C	3.0	Valley and foothill grasslands. Limited distribution in CA, impacts higher locally.	NW, SN, CW
	Carduus nutans	musk thistle	Moderate	B	B	B	3.1	Grasslands. More invasive in other western states. Limited distribution in CA.	NW, CaR, SN
	Carduus pycnocephalus	Italian thistle	Moderate	B	B	A	2.9	Forest, scrub, grasslands, woodland. Very widespread. Impacts may be variable regionally.	NW, SN, CW, SW
	Carduus tenuiflorus	slenderflower thistle	Limited	C	C	B	2.8	Valley and foothill grasslands. Limited distribution. Impacts appear to be minor.	NW, SN, CW, SW
	Carpobrotus chilensis (and *C. edulis* x *chilensis* hybrids)	sea-fig, iceplant	Moderate	B	B	A	1.8	Coastal dunes, scrub, prairie. Little information on species, most inferred from *C. edulis*.	NW, CW, SW
	Carpobrotus edulis	Hottentot-fig, iceplant	High	A	B	A	3.3	Coastal habitats, especially dunes	NW, CW, SW
◆	*Carthamus lanatus*	woolly distaff thistle	Moderate	A	B	C	2.8	Grasslands. Expanding in coast ranges, may become more severe. Current distribution limited.	NW, SN, CW

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TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert ◆	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	Centaurea calcitrapa	purple starthistle	Moderate	B	B	B	2.7	Grasslands. Impacts regionally variable. Relatively limited distribution.	NW, SN, GV, CW, SW
◆	*Centaurea debeauxii* (=*C. jacea* x *C. nigra*, *C. x pratensis*)	meadow knapweed	Moderate	B	B	C	2.7	Grasslands. Spreading rapidly in NW CA, but limited distribution elsewhere. Little known of impacts.	NW, CW
	Centaurea diffusa	diffuse knapweed	Moderate	B	B	B	3.3	Great Basin scrub, coastal prairie. Severe impacts in other western states. Limited distribution in CA with impacts higher in some locations.	Ca-R, CW, NW, SN
	Centaurea maculosa (=*C. biebersteinii*)	spotted knapweed	High	A	B	B	3.4	Riparian, grasslands, wet meadows, forests. More widely distributed in other western states.	CA-FP, GB
	Centaurea melitensis	Malta starthistle, tocalote	Moderate	B	B	B	2.6	Grasslands, oak woodland. Sometimes misidentified as *C. solstitialis*. Impacts vary regionally.	CW, SW, D
	Centaurea solstitialis	yellow starthistle	High	A	B	A	3.0	Grasslands, woodlands, occasionally riparian	CA-FP
	Centaurea virgata var. *squarrosa* (=*C. squarrosa*)	squarrose knapweed	Moderate	B	B	B	2.8	Scrub, grassland, pinyon-juniper woodland. Highly invasive in Utah and other western states. Limited distribution in CA.	NW, CaR, MP
	Chondrilla juncea	rush skeletonweed	Moderate	B	B	B	3.1	Grasslands. Very invasive in other western states, but currently limited distribution in CA.	NW, CaR, SN, GV, CW,
	Chrysanthemum coronarium	crown daisy	Moderate	B	B	B	2.0	Coastal prairie, dunes, and scrub. Impacts generally low to moderate, but can vary regionally.	CW, SW
	Cirsium arvense	Canada thistle	Moderate	B	B	B	2.8	Grasslands, riparian areas, forests. Severe impacts in other western states. Limited distribution in CA.	CA-FP, DMoj
	Cirsium vulgare	bull thistle	Moderate	B	B	B	3.3	Riparian areas, marshes, meadows. Widespread, can be very problematic regionally.	CA-FP, GB
	Conicosia pugioniformis	narrowleaf iceplant	Limited	C	B	C	2.1	Coastal dunes, scrub, grassland. Limited distribution. Impacts generally minor but can be higher locally	CW
	Conium maculatum	poison-hemlock	Moderate	B	B	B	2.8	Riparian woodland, grassland. Widespread in disturbed areas. Abiotic impacts unknown. Impacts can vary locally.	CA-FP

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TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert ◆	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	Cordyline australis	giant dracaena, New Zealand-cabbage tree	Limited	C	C	C	2.0	Coniferous forest. Two reports of horticultural escape into wildlands. Appears best suited to moist, cool climates.	NW, CW
	Cortaderia jubata	jubatagrass	High	A	A	A	3.1	Many coastal and interior habitats	NW, CW, SW
	Cortaderia selloana	pampasgrass	High	A	A	B	3.2	Coastal dunes, coastal scrub, Monterey pine, riparian, grasslands, wetlands, serpentine soils. Still spreading both coastal and inland.	CW, SW
	Cotoneaster franchetii	orange cotoneaster	Moderate	B	A	B	2.6	Coniferous forest. Limited distribution. Abiotic impacts largely unknown.	NW, CW
	Cotoneaster lacteus	Parney's cotoneaster	Moderate	B	B	B	2.1	Many coastal habitats, mainly a problem from SF Bay Area north along coast. Limited distribution. Abiotic impacts largely unknown.	NW, CW
	Cotoneaster pannosus	silverleaf cotoneaster	Moderate	B	A	B	2.5	Many coastal habitats, mainly a problem from SF Bay Area north along coast. Limited distribution. Abiotic impacts largely unknown.	NW, CW
	Cotula coronopifolia	brassbuttons	Limited	C	C	B	2.2	Salt and freshwater marshes. Impacts largely unknown, but appear to be minor.	NW, CW, SW
	Crataegus monogyna	English hawthorn	Limited	C	B	C	3.4	Riparian habitats, woodland. Limited distribution. Impacts appear to be minor.	NW, CW, SW
	Crocosmia x crocosmiiflora	montbretia	Limited	C	B	B	2.6	Coastal scrub and prairie, north coast forests. Abiotic impacts unknown. Higher invasiveness in some areas.	NW, CW
	Crupina vulgaris	common crupina, bearded creeper	Limited	B	C	B	3.2	Forest, woodland, grassland. Limited distribution. More invasive in other western states.	NW, MP
	Cynara cardunculus	artichoke thistle	Moderate	B	B	B	4.0	Coastal grasslands. Impacts more severe in southern CA where monotypic stands are more common.	CW, SW
	Cynodon dactylon	bermudagrass	Moderate	B	B	B	3.3	Riparian scrub in southern CA. Common landscape weed, but can be very invasive in desert washes.	SW, DSon
	Cynoglossum officinale	houndstongue	Moderate	B	B	B	2.5	Woodland, forest, interior dunes. Abiotic impacts unknown. Limited distribution. Can have impacts in other western states.	CaR, SN

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TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert ◆	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	Cynosurus echinatus	hedgehog dogtailgrass	Moderate	B	B	A	2.5	Oak woodland, grassland. Widespread, impacts vary regionally, but typically not in monotypic stands.	NW, SN, GV, CW, SW
	Cytisus scoparius	Scotch broom	High	A	B	A	3.2	Coastal scrub, oak woodland, horticultural varieties may also be invasive.	CA-FP
	Cytisus striatus	Portuguese broom	Moderate	B	B	B	2.7	Coastal scrub, grasslands. Often confused with *C. scoparius*. Limited distribution.	NW, CW, SW
	Dactylis glomerata	orchardgrass	Limited	C	B	B	2.9	Grasslands, broadleaved forest, woodlands. Common forage species. Impacts appear to be minor.	CA-FP
	Delairea odorata (=*Senecio mikanioides*)	Cape-ivy, German-ivy	High	A	A	B	3.1	Coastal, occasionally other riparian areas.	CW, SW
	Descurainia sophia	flixweed, tansy mustard	Limited	C	B	B	1.9	Scrub, grassland, woodland. Impacts appear to be minor, but locally more invasive in NE CA.	CA
	Digitalis purpurea	foxglove	Limited	C	B	B	2.4	Forest, woodland. Widely escaped ornamental. Impacts largely unknown or appear to be minor.	NW, SN, CW
	Dipsacus fullonum	common teasel	Moderate	B	B	B	3.8	Grasslands, seep, riparian scrub. Impacts regionally variable, forms dense stands on occasion.	NW, CW, SN
	Dipsacus sativus	fuller's teasel	Moderate	B	B	B	3.8	Grasslands, seep, bogs. Impacts regionally variable, forms dense stands on occasion.	NW, CW, SW
◆	*Ditrichia graveolens*	stinkwort	Moderate	B	A	C	3.0	Grasslands, riparian scrub. Spreading rapidly, impacts may become more important in future.	NW, SN, CW, GV, SW
	Echium candicans	pride-of-Madeira	Limited	C	B	B	1.5	Two escaped populations near Big Sur and San Elijo Lagoon. Little information on impacts.	CW, NW, SW
	Egeria densa	Brazilian egeria	High	A	A	B	3.1	Streams, ponds, sloughs, lakes, Sacramento-San Joaquin Delta	SN, GV, SW
	Ehrharta calycina	purple veldtgrass	High	A	A	B	3.4	Sandy soils, especially dunes. Rapidly spreading on central coast.	CW, SW
	Ehrharta erecta	erect veldtgrass	Moderate	B	B	B	2.2	Scrub, grasslands, woodland, forest. Spreading rapidly. Impacts may become more important in future.	CW, SW

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TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

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◆	*Ehrharta longiflora*	long-flowered veldtgrass	Moderate	B	B	C	2.8	Coastal scrub. Limited distribution, but spreading rapidly in southern CA. Impacts largely unknown.	SW
◆	*Eichhornia crassipes*	water hyacinth	High	A	A	C	3.2	Aquatic systems in Sacramento-San Joaquin Delta	GV, CW, SW
	Elaeagnus angustifolia	Russian-olive	Moderate	B	A	B	3.3	Interior riparian. Impacts more severe in other western states. Current distribution limited in CA.	GV, CW, DMoj
◆	*Emex spinosa*	spiny emex, devils-thorn	Moderate	B	B	D	1.6	Edges of beaches, other coastal habitats. Invasive in other states and countries. Spreading rapidly in southern CA. Impacts not well known.	SW
	Erechtites glomerata, E. minima	Australian fireweed, Australian burnweed	Moderate	C	B	A	3.2	Coastal woodland, scrub, forests. Widespread on coast, but impacts low overall. May vary locally.	NW, CW
	Erodium cicutarium	redstem filaree	Limited	C	C	A	3.1	Many habitats. Widespread. Impacts minor in wildlands. High-density populations are transient.	CA
	Eucalyptus camaldulensis	red gum	Limited	C	C	C	2.2	Mainly southern CA urban areas. Impacts, invasiveness and distribution all minor.	NW, GV, CW, SW
	Eucalyptus globulus	Tasmanian blue gum	Moderate	B	B	B	2.8	Riparian areas, coastal grasslands, scrub. Impacts can be much higher in coastal areas.	NW, GV, CW, SW
◆	*Euphorbia esula*	leafy spurge	High	A	A	C	3.5	Forests, woodlands, juniper forest. More widespread invasive in northern states.	NW, CaR, MP
	Euphorbia oblongata	oblong spurge	Limited	C	C	B	2.0	Meadows, woodlands. Limited distribution. Impacts unknown. Locally in dense stands.	GV, CW
◆	*Euphorbia terracina*	carnation spurge	Moderate	B	B	C	1.7	Coastal scrub. Limited distribution. Spreading in southern CA. Impacts unknown.	SW
	Festuca arundinacea	tall fescue	Moderate	B	B	A	2.9	Coastal scrub, grasslands; common forage grass. Widespread, abiotic impacts unknown.	CA-FP
	Ficus carica	edible fig	Moderate	B	A	B	2.6	Riparian woodland. Can spread rapidly. Abiotic impacts unknown. Can be locally very problematic.	CW, SW, GV
	Foeniculum vulgare	fennal	High	A	B	A	3.0	Grasslands, scrub.	CA-FP

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TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert ◆	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
	Genista monspessulana	French broom	High	A	A	B	3.2	Coastal scrub, oak woodland, grasslands. Horticultural selections may also be invasive.	NW, CW, SW
	Geranium dissectum	cutleaf geranium	Limited	C	B	A	1.7	Numerous habitats but impacts appear minor.	CA-FP
	Glyceria declinata	waxy mannagrass	Moderate	B	B	B	1.9	Vernal pools, moist grasslands. Often confused with native *Glyceria*. Impacts largely unknown, but may be significant in vernal pools.	GV
	Halogeton glomeratus	halogeton	Moderate	B	A	B	3.0	Scrub, grasslands, pinyon-juniper woodland. Larger problem in NV. Monotypic stands are rare.	CaR, DMoj, GB
	Hedera helix, H. canariensis	English ivy, Algerian ivy	High	A	A	A	2.7	Coastal forests, riparian areas. Species combined due to genetics questions.	CA-FP
	Helichrysum petiolare	licoriceplant	Limited	C	B	C	2.0	North coastal scrub. Limited distribution. Impacts unknown, but can form dense stands.	NW, CW
	Hirschfeldia incana	shortpod mustard, summer mustard	Moderate	B	B	A	1.9	Scrub, grasslands, riparian areas. Impacts not well understood, but appear to be greater in southern CA.	CW, GV, NW, SN, SW
	Holcus lanatus	common velvet-grass	Moderate	B	B	A	2.9	Coastal grasslands, wetlands. Impacts can be more severe locally, especially in wetland areas.	CA-FP, DMoj, GB
	Hordeum marinum, H. murinum	Mediterranean barley, hare barley, wall barley	Moderate	B	B	A	2.8	Grasslands. *H. marinum* invades drier habitats, while *H. murinum* invades wetlands. Widespread, but generally do not form dominant stands.	CA
◆	*Hydrilla verticillata*	hydrilla	High	A	B	C	3.2	Freshwater aquatic systems. The most important submerged aquatic invasive in southern states.	NW, SN, GV, SW, D
◆	*Hypericum canariense*	Canary Island hypericum	Moderate	B	B	C	1.2	Coastal scrub, prairie. Impacts unknown. Limited distribution. Spreading rapidly on central coast.	SW, CW
	Hypericum perforatum	common St. Johnswort, klamathweed	Moderate	B	B	B	3.7	Many northern CA habitats. Abiotic impacts low. Biological control agents have reduced overall impact.	SN, CW, GV, NW, SW
	Hypochaeris glabra	smooth catsear	Limited	C	B	B	3.1	Scrub and woodlands. Widespread. Impacts appear to be minor. Some local variability.	CA-FP
	Hypochaeris radicata	rough catsear, hairy dandelion	Moderate	C	B	A	2.2	Coastal dunes, scrub, and prairie, woodland, forest. Widespread. Impacts unknown or appear to be minor.	CA-FP

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TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

Alert ◆	Scientific Name	Common Name	Rating	Impacts	Invasiveness	Distribution	Doc. Level	Ecological Types Invaded and Other Comments	Regions Invaded
◆	*Ilex aquifolium*	English holly	Moderate	B	B	C	2.7	North coast forests. Expanding range south from Oregon.	CW, NW
	Iris pseudacorus	yellowflag iris	Limited	C	B	C	2.3	Riparian, wetland areas, especially southern CA. Limited distribution. Abiotic impacts unknown.	SN, GV, CW, SW
	Isatis tinctoria	dyer's woad	Moderate	B	B	A	3.0	Great Basin scrub and grasslands, coniferous forest. More severe impacts in other western states, but can be locally very invasive in northern CA.	CaR, NW, SN, MP
	Kochia scoparia	kochia	Limited	B	C	B	3.2	Scrub, chaparral, grasslands. Primarily a weed of disturbed sites.	CW, GV, D, GB
	Lepidium latifolium	perennial pepperweed, tall whitetop	High	A	A	A	3.1	Coastal and inland marshes, riparian areas, wetlands, grasslands. Has potential to invade montane wetlands.	CA-FP, GB
	Leucanthemum vulgare	oxeye daisy	Moderate	B	B	B	2.5	Montane meadows, coastal grasslands, coastal scrub. Expanding range, invasiveness varies locally.	CW, NW, SN, SW
	Linaria genistifolia ssp. *dalmatica* (=*L. dalmatica*)	Dalmation toadflax	Moderate	B	B	B	2.8	Grasslands, forest clearings. Limited distribution. More severe impacts in other western states.	CA-FP
	Lobularia maritima	sweet alyssum	Limited	C	B	B	2.4	Coastal dune, coastal scrub, coastal prairie, riparian.	NW, CW, SW
	Lolium multiflorum	Italian ryegrass	Moderate	B	B	A	2.6	Grasslands, oak woodland, pinyon-juniper woodland; widely used for post-fire erosion control. Widespread. Impacts can vary with region.	CA-FP
	Ludwigia peploides ssp. *montevidensis*	creeping water-primrose	High	A	B	B	2.5	Freshwater aquatic systems. Clarification needed on taxonomic identification.	NW, SN, GV, CW, SW, DMoj
◆	*Ludwigia hexapetala* (= *L. uruguayensis*)	Uruguay water-primrose	High	A	B	C	2.6	Freshwater aquatic systems. Clarification needed on taxonomic identification.	NW, CW, SW
	Lythrum hyssopifolium	hyssop loosestrife	Limited	C	B	B	3.0	Grasslands, wetlands, vernal pools. Widespread. Impacts unknown, but appear to be minor.	CA-FP
	Lythrum salicaria	purple loosestrife	High	A	A	B	3.8	Wetlands, marshes, riparian areas	NW, GV, MP
	Marrubium vulgare	white horehound	Limited	C	C	B	2.8	Grasslands scrub, riparian areas. Widespread. Rarely in dense stands. Impacts relatively minor.	CA-FP, DMoj

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TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

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	Medicago polymorpha	California burclover	Limited	C	C	A	2.8	Grasslands. Widespread weed of agriculture and disturbed areas. Impacts in wildlands minor.	CA-FP
	Mentha pulegium	pennyroyal	Moderate	C	A	A	2.7	Vernal pools, wetlands. Poisonous to livestock. Spreading rapidly. Impacts largely unknown.	CW, GV, NW, SW
◆	*Mesembryanthemum crystallinum*	crystalline iceplant	Moderate	B	B	C	3.7	Coastal bluffs, dunes, scrubs, grasslands. Limited distribution. Locally problematic, especially in southern CA.	CW, NW, SW
	Myoporum laetum	myoporum	Moderate	B	B	B	2.6	Coastal habitats, riparian areas. Mostly along the southern coast. Abiotic impacts unknown.	CW, SW
	Myosotis latifolia	common forget-me-not	Limited	C	B	B	2.2	Coniferous forest, riparian. Little information on impacts.	CA-FP
◆	*Myriophyllum aquaticum*	parrotfeather	High	A	B	C	2.8	Freshwater aquatic systems	NW, CaR, CW, SW
	Myriophyllum spicatum	Eurasian watermilfoil	High	A	A	B	2.8	Freshwater aquatic systems	SN, GV, CW
	Nicotiana glauca	tree tobacco	Moderate	B	B	B	2.5	Coastal scrub, grasslands, riparian woodland. Abiotic impacts unknown. Impacts vary locally. Rarely in dense stands.	NW, SN, GV, SW, D
	Olea europaea	olive	Limited	C	B	B	2.5	A problem in Australia. Rarely escapes in CA but is a concern due to the possibility of spread from planted groves.	CW, GV, NW, SW
	Ononis alopecuroides	foxtail restharrow	Limited	C	B	C	2.2	Grasslands, oak woodland. Highly invasive but impacts unknown. Nearly eradicated.	CW
	Onopordum acanthium	Scotch thistle	High	A	B	B	2.9	Wet meadows, sage brush, riparian areas	CA-FP, MP
	Oxalis pes-caprae	buttercup oxalis, Bermuda buttercup, yellow oxalis	Moderate	B	B	B	2.9	Coastal dunes, scrub, oak woodland. Impacts in coastal areas may prove more severe in time.	CW, NW, SW
	Parentucellia viscosa	yellow glandweed, sticky parentucellia	Limited	C	B	B	2.5	Coastal prairie, grassland, and dunes. Impacts unknown, but can be locally significant.	NW, CaR, SN, CW, SW
	Pennisetum clandestinum	kikuyugrass	Limited	C	C	B	2.3	Present at low levels in numerous wildland habitats. Impacts unknown. Common turf weed.	NW, CW, SW

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TABLE 1: Invasive Non-Native Plants that Threaten Wildlands in California (continued)

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	Pennisetum setaceum	crimson fountaingrass	Moderate	B	B	B	2.9	Coastal dunes and scrub, chaparral, grasslands. Some horticultural cultivars sterile. Very invasive in Hawaii.	CW, NW, SN, SW
	Phalaris aquatica	hardinggrass	Moderate	B	B	B	2.6	Coastal sites, especially moist soils. Limited distribution. Can be highly invasive locally.	CW, NW, SN, SW
	Phoenix canariensis	Canary Island date palm	Limited	C	B	D	2.3	Desert washes; agricultural crop plant. Limited distribution in southern CA. Impacts can be higher locally.	CW, SW
	Picris echioides	bristly oxtongue	Limited	C	B	B	2.4	Coastal prairie, scrub, riparian woodland. Widespread locally. Abiotic impacts unknown.	CA-FP
	Pycnothermum miliaceum	smilograss	Limited	C	B	B	2.4	Coastal dunes, scrub, riparian, grassland. Expanding range. Impacts largely unknown.	GV, CW, SW
	Plantago lanceolata	buckhorn plantain, English plantain	Limited	C	C	B	2.1	Many habitats. Turf weed primarily. Low density and impact in wildlands.	CA-FP
	Poa pratensis	Kentucky bluegrass	Limited	C	B	B	2.7	Grasslands scrub, riparian areas. Widespread turf plant. Abiotic impacts unknown.	CA
◆	*Polygonum cuspidatum* (=*Fallopia japonica*)	Japanese knotweed	Moderate	B	B	D	2.7	Riparian areas, wetlands, forest edges. More severe impacts in NW wetlands. Distribution limited in CA.	NW, CaR, SN, GV, CW
◆	*Polygonum sachalinense*	Sakhalin knotweed	Moderate	B	A	D	2.5	Riparian areas. More severe impacts in NW wetlands. Distribution limited in CA.	NW, CaR, SN, GV, CW
	Polypogon monspeliensis and subspp.	rabbitfoot polypogon, rabbitgoot grass	Limited	C	C	B	2.3	Margins of ponds and streams, seasonally wet places, edge of coastal dunes. Widespread. Impacts appear to be minor.	CA
	Potamogeton crispus	curlyleaf pondweed	Moderate	B	B	B	3.2	Freshwater aquatic systems. Can be very invasive locally.	NW, GV, CW, SW, DMoj
	Prunus cerasifera	cherry plum, wild plum	Limited	C	B	B	1.8	Riparian habitats, chaparral, woodland. Limited distribution. Abiotic impacts unknown.	NW, CW
	Pyracantha angustifolia, P. crenulata, P. coccinea	pyracantha, firethorn	Limited	C	B	B	2.8	Coastal scrub and prairie, riparian areas. Horticultural escape. Impacts unknown or minor.	NW, CW, SW
	Ranunculus repens	creeping buttercup	Limited	C	C	B	2.9	Riparian areas, coniferous forest. Impacts appear to be minor to negligible in most areas.	NW, CaR, SN, CW, SW
	Raphanus sativus	radish	Limited	C	C	B	2.5	Present at low levels in numerous habitats. Widespread in disturbed sites.	CA-FP

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◆	*Retama monosperma*	bridel broom	Moderate	B	B	C	1.8	Coastal scrub. Can spread rapidly but largely if uncontrolled. Limited distribution in CA.	SW
	Ricinus communis	castorbean	Limited	C	B	B	2.5	Coastal scrub and prairie, riparian areas. Widespread in southern CA. Impacts locally variable.	GV, CW, SW
	Robinia pseudoacacia	black locust	Limited	C	B	B	2.8	Riparian areas, canyons. Severe impacts in southern states. Impacts minor in CA.	CA-FP, GB
	Rubus armeniacus (= *R. discolor*)	Himalaya blackberry	High	A	A	A	3.0	Riparian areas, marshes, oak woodlands	CA-FP
	Rumex acetosella	red sorrel, sheep sorrel	Moderate	B	B	A	2.3	Many habitats, riparian areas, forest, wetlands. Widespread. Abiotic impacts unknown. Impacts can vary locally.	CA-FP
	Rumex crispus	curly dock	Limited	C	C	A	2.7	Grasslands, vernal pool, meadows, riparian. Widespread. Impacts appear to be minor.	CA
	Salsola paulsenii	barbwire Russian-thistle	Limited	C	C	C	2.9	Desert and Great Basin scrub. Limited distribution. Impacts in desert appear to be minor.	SW, SNE, DMoj
	Salsola tragus (=*S. kali*)	Russian-thistle	Limited	C	B	B	2.8	Desert dunes and scrub, alkali playa. Widespread. Impacts minor in wildlands.	CA
	Salvia aethiopis	Mediterranean sage	Limited	C	B	B	2.5	Sagebrush, juniper, bunchgrass. Limited distribution. Impacts minor but can be locally higher.	MP
◆	*Salvinia molesta*	giant salvinia	High	A	A	C	2.9	Freshwater aquatic systems	CW, DSon
◆	*Sapium sebiferum* (= *Triadica sebifera*)	Chinese tallowtree	Moderate	B	B	C	3.2	Riparian areas. Impacts severe in southeast US. Limited distribution, but spreading rapidly regionally.	GV
	Saponaria officinalis	bouncingbet	Limited	C	B	C	2.5	Riparian scrub and woodland. Impacts unknown or minor, but appear to be locally variable.	NW, GV, CW, SW, GB
	Schinus molle	Peruvian peppertree	Limited	C	B	B	2.5	Riparian. Limited distribution. Impacts largely unknown in CA.	GV, SN, CW, SW
	Schinus terebinthifolius	Brazilian peppertree	Limited	C	B	C	2.6	Riparian. Very invasive in tropics. Abiotic impacts unknown, but appear significant locally.	SW

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	Schismus arabicus, *S. barbatus*	mediterranean-grass	Limited	B	C	A	2.3	Scrub, thorn woodland. Widespread in deserts. Impacts can be more important locally.	GV, CW, SW, D
	Senecio jacobaea	tansy ragwort	Limited	C	B	B	2.8	Grasslands, riparian. Impacts generally minor. Can be locally important in NW CA.	CA-FP
◆	*Sesbania punicea*	red sesbania, scarlet wisteria	High	A	B	C	3.2	Riparian areas	GV
	Silybum marianum	blessed milkthistle	Limited	C	C	A	3.5	Grasslands, riparian. Widespread, primarily in disturbed areas. Impacts can be higher locally	NW, GV, CW, SW
	Sinapis arvensis	wild mustard, charlock	Limited	C	C	C	2.9	Grasslands. Primarily in disturbed sites. Impacts minor or unknown in wildlands.	CA-FP
	Sisymbrium irio	London rocket	Moderate	B	B	A	1.9	Scrub, grasslands. Widespread. Primarily in disturbed sites. Impacts vary locally.	GV, SW
◆	*Spartina alterniflora* (and *S. alterniflora* × *foliosa* hybrids)	smooth cordgrass & hybrids, Atlantic cordgrass	High	A	A	C	3.5	San Francisco Bay salt marshes and mudflats. Hybridizes with native *S. foliosa*.	CW
◆	*Spartina anglica*	common cordgrass	Moderate	B	B	D	3.4	San Francisco Bay salt marshes. Very severe impact in other countries. Limited distribution in CA.	CW
◆	*Spartina densiflora*	dense-flowered cordgrass	High	A	B	C	3.3	San Francisco and Humboldt Bay salt marshes	NW, CW
	Spartina patens	saltmeadow cordgrass	Limited	C	C	D	2.9	San Francisco Bay salt marshes. Very limited distribution. Impacts currently minor in CA, but high in other countries.	CW
	Spartium junceum	Spanish broom	High	A	B	B	3.2	Coastal scrub, grasslands, wetlands, oak woodland, forests	NW, CW, SW
◆	*Stipa capensis*	Mediterranean steppegrass, twisted-awned speargrass	Moderate	B	B	D	1.9	Desert scrub. First recorded in CA 1995. Limited distribution, but spreading rapidly in CA deserts.	DSon
	Taeniatherum caput-medusae	medusahead	High	A	A	A	3.4	Grasslands, scrub, woodland	CaR, NW, SN, GV, SW

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	Tamarix aphylla	athel tamarisk	Limited	C	B	B	3.5	Desert washes, riparian areas. Limited distribution. Impacts minor, but can be locally higher.	GV, SW, D
	Tamarix parviflora	smallflower tamarisk	High	A	A	B	3.1	Riparian areas, desert washes, coastal scrub	NW, GV, CW, Dmoj
	Tamarix ramosissima	saltcedar, tamarisk	High	A	A	A	3.3	Desert washes, riparian areas, seeps and springs	SN, GV, CW, SW, D, SNE
	Tanacetum vulgare	common tansy	Moderate	B	B	B	2.3	Riparian areas, forest. Limited distribution. Severe problem in other western states.	NW, CaR,
	Torilis arvensis	hedgeparsley	Moderate	C	B	A	2.3	Expanding range. Appears to have only moderate ecological impacts.	CA-FP, especially CW, NW
	Trifolium hirtum	rose clover	Moderate	C	B	B	2.8	Grasslands, oak woodland. Widely planted in CA. Impacts relatively minor in most areas.	CA-FP
	Ulex europaeus	gorse	High	A	B	B	2.9	Scrub, woodland, forest, coastal grassland	NW, CaR, SN, CW
	Undaria pinnatifida	wakame	Limited	C	B	C	3.3	Algae of estuaries. First recorded in CA in 2000. Impacts unknown, but do not appear to be significant	CW, SW
	Verbascum thapsus	common mullein, woolly mullein	Limited	C	B	B	3.8	Meadows, riparian, sagebrush, pinyon-juniper woodlands. Widespread. Impacts minor.	NW, CaR, SN
	Vinca major	big periwinkle	Moderate	B	B	B	2.8	Riparian, oak woodlands, coastal scrub. Distribution currently limited but spreading in riparian areas. Impacts can be higher locally.	CaR, SW, SN, GV
	Vulpia myuros	rattail fescue	Moderate	B	B	A	3.0	Coastal sage scrub, chaparral. Widespread. Rarely forms monotypic stands, but locally problematic.	CA-FP, D
◆	*Washingtonia robusta*	Mexican fan palm	Moderate	B	B	C	2.7	Desert washes. Limited distribution but spreading in southern CA. Impacts can be higher locally.	SW
	Watsonia meriana	bulbil watsonia	Limited	C	B	C	2.3	Coastal prairie, coniferous forest. Abiotic impacts unknown, but may be locally dense.	NW
	Zantedeschia aethiopica	calla lily	Limited	C	B	C	2.1	Coastal prairie, wetlands. Impacts high in other countries and local impacts may be high in CA.	NW, CW, SW

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