Coyote Creek
Invasive Plant Removal and Revegetation Plan
Habitat Restoration and Homeless Engagement Project

Presented To

Working Partnerships
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Funded By:

Santa Clara Valley Water District
Guadalupe Coyote Resources Conservation District

February 13, 2018

PROJECT FUNDED BY:
Santa Clara Valley Water District
YOUR MEASURE B DOLLARS AT WORK

FOREWORD

This report was prepared using Safe, Clean Water grant funds from program priority D3 Restore Wildlife Habitat in the amount of $24,750, which Santa Clara Valley Water District granted to Working Partnerships on June 28, 2016. Funds were used to prepare an implementation plan to remove harmful invasive plants and revegetate natural plants in areas along Coyote Creek and to find an employer of record to manage the recruitment and selection of homeless individuals to perform the work. Working Partnerships is an independent non-profit organization not affiliated with the Santa Clara Valley Water District. The report authors are solely responsible for all data, analyses, and findings in this report. The report is not intended to reflect the views of the Santa Clara Valley Water District and the Santa Clara Valley Water District does not vouch for the accuracy or appropriateness of the report contents.

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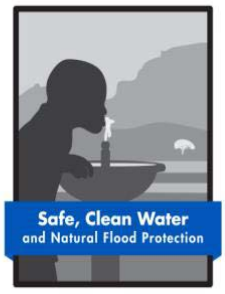

YOUR MEASURE B DOLLARS AT WORK

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

1. INTRODUCTION

The purpose of this document is to provide the planning basis for a pilot project to restore the riparian vegetative corridor along a 2000' stretch of Coyote Creek in north San Jose. The project will use formerly homeless youth associated with the California Conservation Corps and provide assistance to them in securing permanent jobs in the landscape industry.

The document is divided into the following sections:

1. This Introduction

2. Invasive Exotic Mapping
   Provides the methods and results of an invasive exotic mapping project performed on Coyote Creek in the City of San Jose, CA. The purpose of this mapping exercise is to provide a quantified basis for planning the restoration work to be performed.

3. Coyote Creek Habitat Restoration and Homeless Engagement Project
   Describes the goals and objectives of the restoration work, and provides a detailed plan to restore a section of Coyote Creek. The plan includes removal of invasive species, planting of native species, installation of an irrigation system, implementation of erosion control best management practices, and long term site management.

4. Training Program, Volunteer Program, and Project Cost Estimate
   A description of the proposed training program and a detailed cost estimate to implement the training program and the restoration plan. Includes a component for volunteer engagement

5. Biological Impact Analysis
   This section consists of a biological assessment of potential impacts from the proposed project. Included are specific proposed mitigations necessary to bring project impacts to a less than significant level.

6. Regulatory Context and Permitting
   This section provides a listing of regulatory permits that might apply to a project such as this, and it provides an analysis of a likely permitting strategy that will bring the project to fruition.

7. Future Phases of Project
   A discussion of potential Phase II of this project

8. Conclusion

Additionally, several appendices are included, that provide supporting information for the project:

A. Invasive Exotic Species Accounts
   Detailed information, including control methods, for invasive exotic species observed as part of the mapping exercise

B. Invasive Exotic Control Techniques
   Provides information concerning the methods and tools available for invasive exotic control

C. Erosion Control Best Management Practices
   Fact Sheets providing information for the implementation of erosion control techniques expected to be used for this project

D. Letters of Support
   Letters of support are provided from:
   - San Jose Conservation Corps, who has agreed to be the Employer of Record
   - Property owners of land proposed to be restored
   - Contractors with interest in hiring graduates of the program

E. Permitting
   A Letter from the City of San Jose concluding that the project does not require a City Development Permit, and a copy of the Application for a Lake and Streambed Alteration Agreement submitted to the California Department of Fish and Wildlife

This report, taken in its entirety, provides the basis for funding proposals and permit applications necessary to enact the training program. It can, and should, be used to bring forward Phase 2.

2. INVASIVE EXOTIC MAPPING

2.1 Mapping Project

The initial goal of the mapping portion of the project was to map populations of *Arundo donax* along Coyote Creek in the City of San Jose, California. The results of this project are to be used as the basis for a program to hire homeless individuals in invasive exotic removal work. Upon further analysis, it was determined that the Santa Clara Valley Water District had performed a similar mapping exercise for a suite of species over all parcels where they hold fee or easement on the creek.

Three landowners that owned parcels along Coyote Creek within the originally proposed study area where SCVWD did not hold fee or easement were determined to have not been surveyed: 1) property owned by the City of San Jose, managed by the City Parks Department as part of the San Jose Municipal Golf Course, located at 1560 Oakland Rd, 2) the San Jose Concrete facility owned by Graniterock, located at 11711 Berryessa Rd.; and 3) Sierra Development, which owns property on the creek across form the Graniterock parcel. Figure 1 shows the location of these areas.

After discussion with the Santa Clara Valley Water District, it was determined that rather than survey only for *A. donax*, the project scope would expand to include all species mapped by the District on other sections of the creek. Table 1 provides a list of the species considered in the mapping exercise.

On August 9, 2017, ECI received information from the Santa Clara Valley Water District that the District Board had approved a large scale in invasive exotic removal project on Coyote Creek as part of a flood control project. This project included work to be performed on the parcels owned by the City of San Jose, but not those owned by Graniterock or the Flea Market. Although approximately 75% of the mapping of the City parcels had been completed, it was determined that further effort on these lands would not provide any actionable information related to the goals of this project. Therefore, the mapping effort on the City parcels ended, and no data from those parcels are included in this report, except as noted below.

2.2 Methods

2.2.1 Study Area

The study included parcels owned by Graniterock along the southern side and a parcel owned by the San Jose Flea Market on the northern side of Coyote Creek, in San Jose, California, between Berryessa Rd. and Oakland Rd. Figure 2 shows the study area.

2.2.2 Species Selection

Species selection was based on Tier 1 and Tier 2 invasive exotic species recognized in Santa Clara Valley Water District's Invasive Plant Management Plan (Williams 2014). Table 1 provides a list of all the species considered in this mapping exercise.

2.2.3 Mapping Methodology

The mapping methodology was designed to mimic the methodology used by the Santa Clara Valley Water District in their earlier mapping effort in order to make these data compatible with the data collected in adjacent parts of the watershed. The study area was visited on June 16, 2017 and August 16, 2017 by ECI Restoration Ecologist Joe Rigney. Invasive species populations that were observed were, where physically possible, the outer edge of the population was surveyed by walking. Where the entire area was not walkable, polygons were measured as closely as possible. Where populations or edges were inaccessible, point data was taken and an estimate was made of the size.

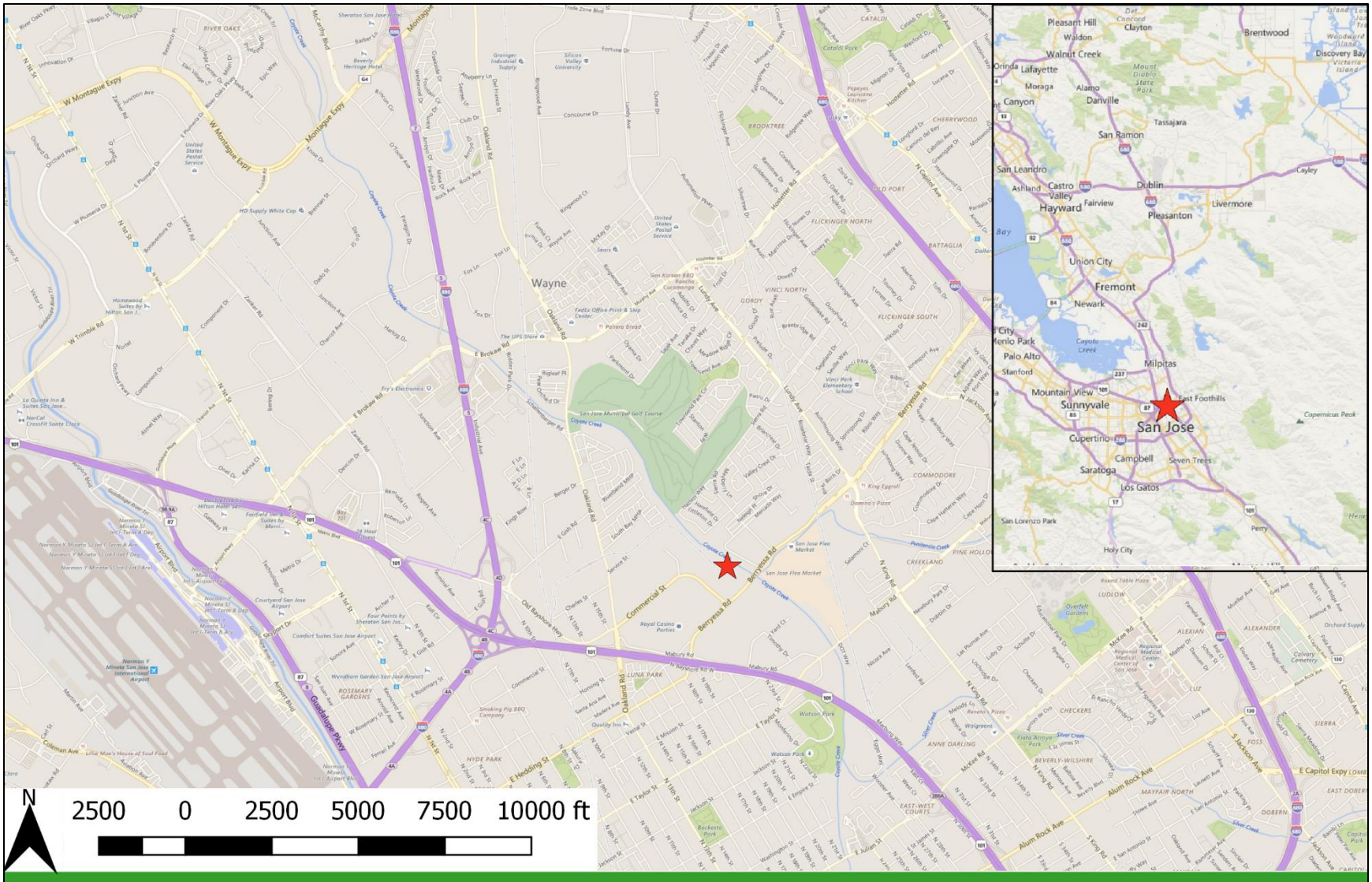

Figure 1
Project Location

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Figure 2
Study Area

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Table 1: Riparian and Upland Species Surveyed For (List taken from Williams 2014)	
Species Name	**Common Name**
Ailanthus altissima	Tree of Heaven
Arundo donax	Giant Reed
Centaurea solstitialis	Yellow Star Thistle
Delairea odorata	Cape Ivy
Foeniculum vulgare	Fennel
Hedera spp.	Ivy
Juglans spp.	Walnut
Quercus ilex	Holly-leaved Oak
Ricinus communis	Castor Bean
Rubus armeniacus	Himalayan Blackberry
Rubus ulmifolius	Elm-leaved Blackberry
Schinus molle	Peruvian Pepper Tree
Ulmus sp.	Elm
Vinca major	Periwinkle
Casuarina cunninghamiana	River She-oak
Cotoneaster spp.	Cotoneaster
Eucalyptus spp.	Eucalyptus
Ligustrum spp.	Privets
Nicotiana glauca	Tree Tobaco
Palm spp. (*Pheonix canariensis*, *Washingtonia robust*)	Palms
Olea europaea	Olive
Populus nigra 'Italica'	Lombardy Poplar
Rhamnus alaternus	Italian Buckthorn
Sesbania punicea	Rattlebox
Acacia spp.	Acacia
Broom spp.	Broom
Conium maculatum	Poison Hemlock
Cortaderia spp.	Pampas Grass, Jubata Grass
Cynara cardunculus	Artichoke Thistle
Dittrichia graveolens	Stinkweed
Lepidium latifolium	Pepperweed
Phalaris aquatica	Harding Grass
Phragmites australis	Common Reed
Robina pseudoacacia	Black Locust
Rubus armeniacus (+ elmifolius)	Himalayan and Elm-leaved Blackberry
Salix babylonia (and hybrids)	Weeping Willow
Tamarix ramosissima	Salt Ceder

2.2.4 GPS Data Collection

All data was collected using a Trimble® GeoXT GPS unit with submeter accuracy in the field. Data was also post-processed utilizing the Trimble Desktop program. All data was collected using the WGS84 projection. Assessor Parcel data was acquired from the Santa Clara County GIS Information Services website (Santa Clara County 2017).

2.2.5 GIS Analysis

Polygon data was smoothed out and extraneous points were corrected using GoogleEarth™ desktop software. KML files were exported from GoogleEarth™ and imported into the QGIS software program as ESRI™ Shapefiles. Polygons were kept as imported. Point and line data were also imported, and based on notes taken in the field, were used to draw polygons to best estimate populations size. Additionally, an aerial photo acquired from GoogleEarth™ was used as a base map, providing additional information used to draw polygons.

2.3 Results

Approximately 318,000 sf. (7.3 acres) was surveyed, representing 2,500 l.f. of south bank and 1,500 l.f. of the north bank of Coyote Creek. An additional 700 l.f. were surveyed that was not on either bank, but rather were setback and along the railroad tracks, representing 14,500 sf. (0.3 acres) of the total area surveyed. Figure 2 shows the study area.

A total of 14 invasive exotic species were observed, covering an area of 111,316 sf. (2.56 acres). Table 2 provide a summary of the species areas observed, and Figure 3 provides a map showing the locations of species observed, along with a chart showing a comparison of the surveyed areas.

Table 2: Area of Invasive Species Observed in the Study Area

Species Name	Common Name	Area (sf.)	Area (acre)
Ailanthus altissima	Tree of Heaven	741	0.02
Arundo donax	Giant Reed	80,598	1.85
Centaurea solstitialis	Yellow Star Thistle	47	0.001
Delairea odorata	Cape Ivy	1,339	0.03
Foeniculum vulgare	Fennel	1,222	0.03
Hedera sp.	Ivy	1,896	0.04
Juglans sp.	Walnut	3,234	0.07
Quercus ilex	Holly-leaved Oak	915	0.02
Ricinus communis	Castor Bean	5,763	0.13
Rubus armeniacus	Himalayan Blackberry	255	0.01
Rubus ulmifolius	Elm-leaved Blackberry	10,105	0.23
Schinus molle	Peruvian Pepper Tree	1	<0.001
Ulmus sp.	Elm	5,196	0.12
Vinca major	Periwinkle	4	<0.001
Total		111,316	2.56

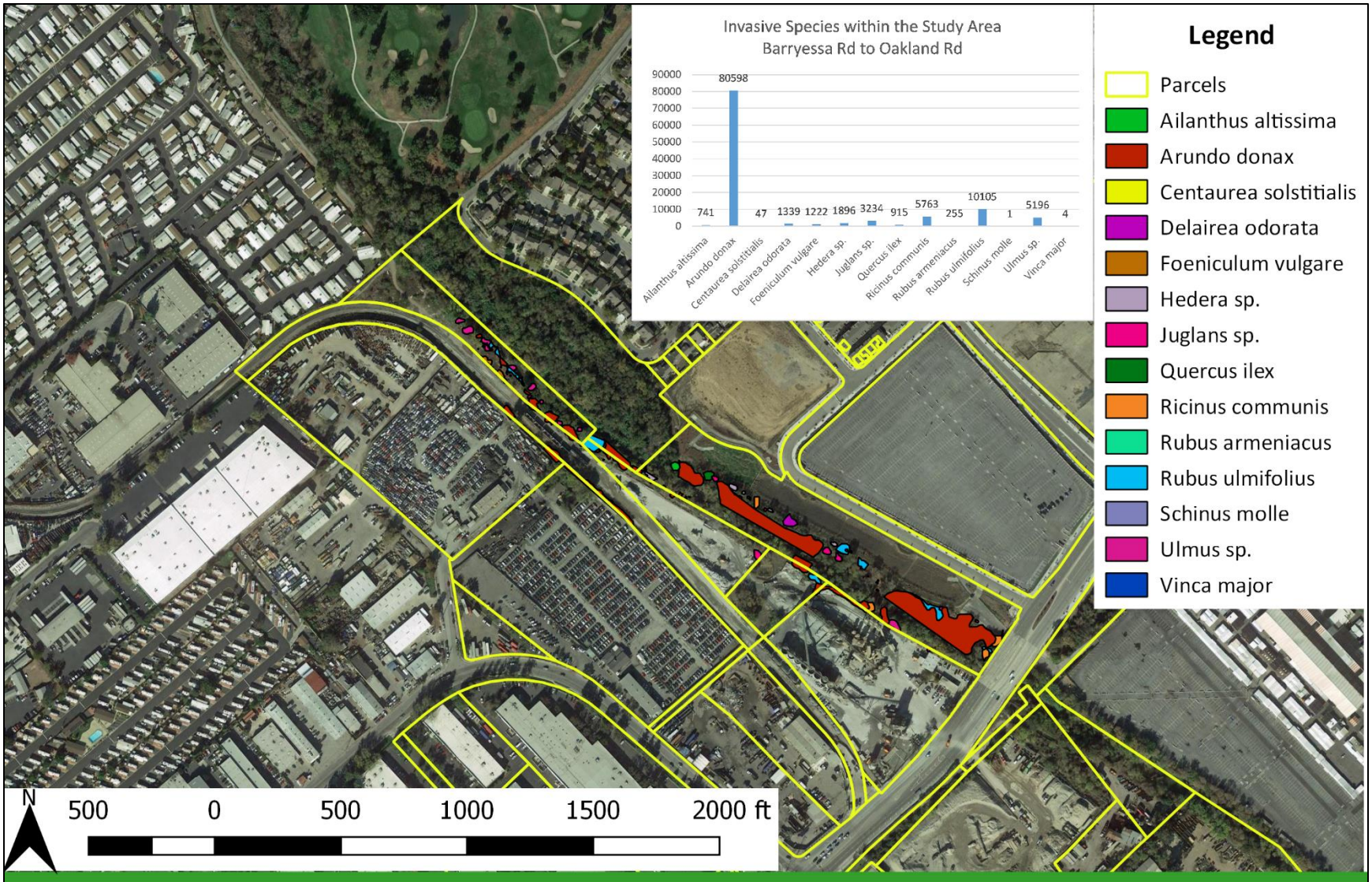

Figure 3
Invasive Species within Study Area

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3. COYOTE CREEK INVASIVE PLANT REMOVAL AND NATIVE PLANT REVEGETATION PROJECT

3.1 Goals and Objectives

The goal of the Invasive Plant Removal and Native Plant Revegetation Project is to remove invasive plants from the banks of Coyote Creek and replace them with native plants characteristic of a healthy riparian community and to implement a program that provides meaningful employment and job skills to homeless or formerly homeless individuals in San Jose through training and direct work experience in habitat restoration projects. The San Jose Conservation Corps has agreed to become an Employer of Record for this project (SEE APPENDIX D).

This report provides the Phase 1 background necessary to implement a pilot project on Coyote Creek in San Jose, CA, that will work towards this goal. The objectives of the Phase 2 project will be to:

- Identify funding sources and implement the pilot project.
- Leverage the partnerships developed and lessons learned in the pilot project in order to create a long-term program that works towards the stated goal through restoration of other riparian areas in the Santa Clara Valley.

The Phase 2 project will consist of the removal of all invasive species within the proposed work area using several techniques. Work crews made up of homeless or formerly homeless individuals, overseen by both a supervisor trained in habitat restoration and a social services specialist, will be given primary responsibility for manual removal. This work requires the least training and so can be implemented quickly. Individuals who are identified as having an aptitude and interest in learning the skills associated with habitat restoration will then be trained in more skilled techniques involving the use of heavy machinery. Extremely specialized skills, such as herbicide application, will only be carried out by the specific habitat restoration specialists brought into the project.

3.2 Proposed Phase 2 Work Area

The results of the Phase 1 project indicate that there is an opportunity to implement a pilot project on Coyote Creek. Graniterock and Sierra Development have shown interest in removal of invasive exotics from their property Furthermore, several local contractors have indicated their interest in hiring individuals with the training offered by this program (SEE APPENDIX D for letters from property owners of authorization for access to implement the project and letters from contractors).

Figure 4 shows the Assessor Parcel Numbers (APN) that were included within the study area. Of these, the following parcels are owned by Graniterock: 241-05-001, 241-05-004, 241-05-014, and 241-05-015. APN 241-04-024 is owned by the San Jose Flea Market.

An additional portion of the study area appears to be within parcel 241-41-107. It should be noted that the APN maps may not align perfectly with the GIS maps used for this analysis, due to both errors and potential differences in GIS projections. For this reason, it is unclear based on the experience in the field whether or not the study area really impinged upon APN 241-41-107, as the study area was based not on the results of surveyed boundaries but rather on the location of the creek (in other words, the survey included the entire riparian area up to the edge of the creek). APN 241-10-001 is within the jurisdiction of the Santa Clara Valley Water District.

Figure 5 shows the species within the proposed work area for the Phase 2 project. For the purposes of this document, the portion of the study area within APN 241-41-107 is presumed to be accessible as part of this project.

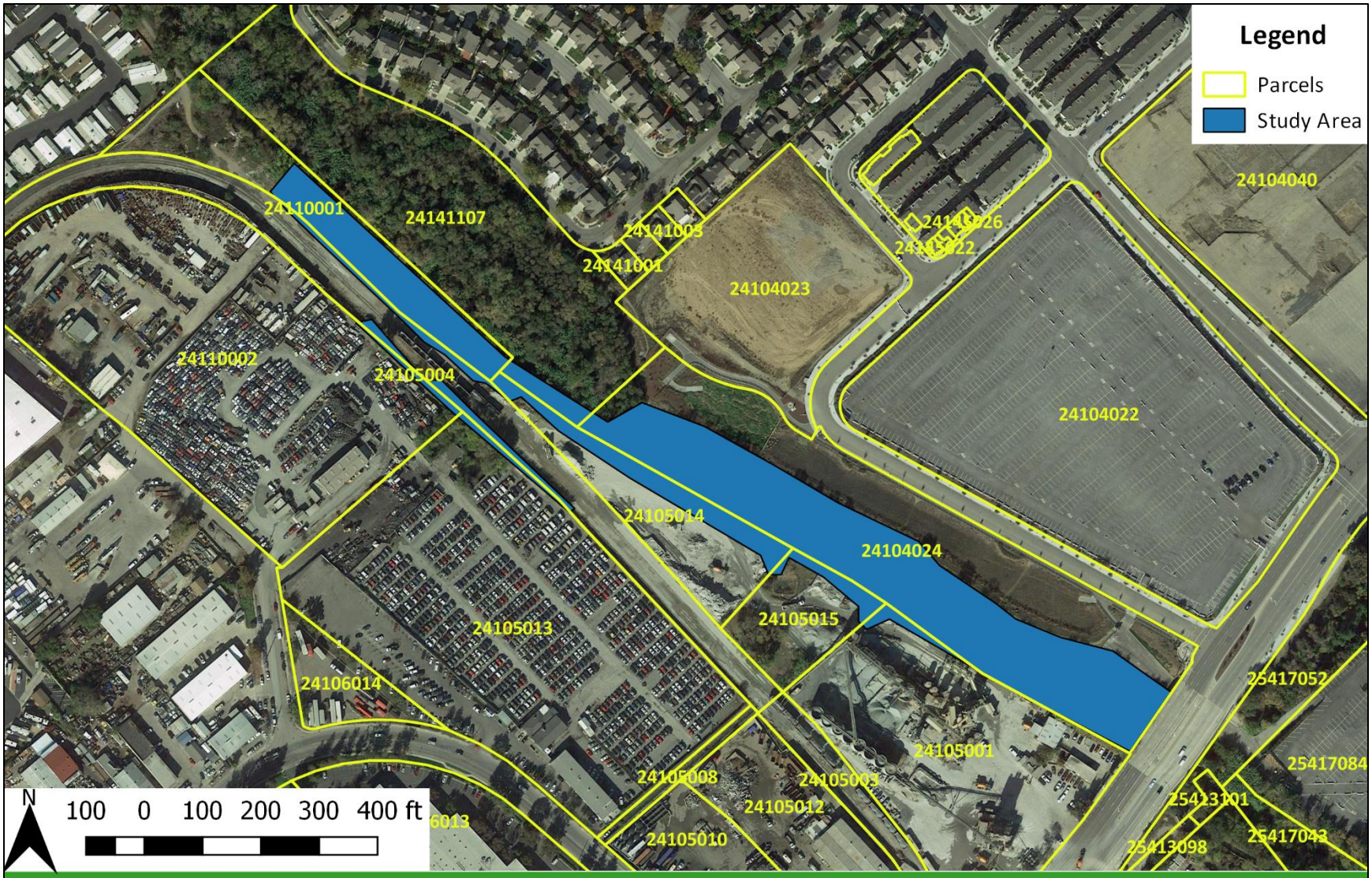

Figure 4
Assessor Parcel Numbers (APN) within Study Area

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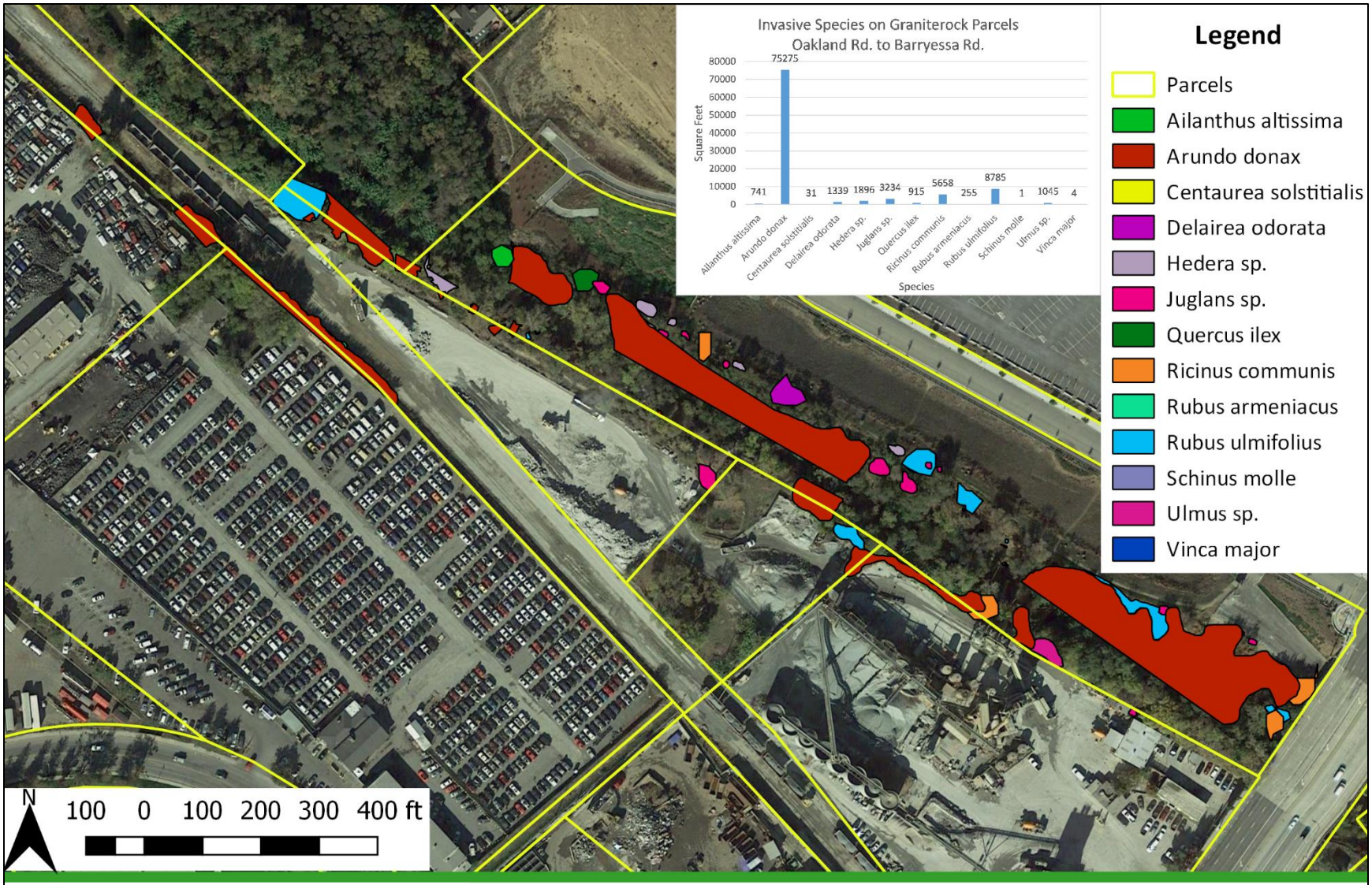

Figure 5:
Invasive Species in Proposed Work Area

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Table 3: Area of Invasive Species Observed in the Proposed Work Area							
Species Name	**Common Name**	**South Side**		**North Side**		**Total**	
		Area (sf.)	**Area (acre)**	**Area (sf.)**	**Area (acre)**	**Area (sf.)**	**Area (acre)**
Ailanthus altissima	Tree of Heaven			741	0.02	741	0.02
Arundo donax	Giant Reed	20,212	0.46	55,063	1.27	75,275	1.73
Centaurea solstitialis	Yellow Star Thistle	31	0.001			31	0.001
Delairea odorata	Cape Ivy			1,339	0.03	1,339	0.03
Hedera sp.	Ivy			1,896	0.04	1,896	0.04
Juglans sp.	Walnut	675	0.02	2,559	0.05	3,234	0.07
Quercus ilex	Holly-leaved Oak			915	0.02	915	0.02
Ricinus communis	Castor Bean	1399	0.03	4,259	0.10	5,658	0.13
Rubus armeniacus	Himalayan Blackberry	255	0.01			255	0.01
Rubus ulmifolius	Elm-leaved Blackberry	1,045	0.02	7,740	0.18	8,785	0.20
Schinus molle	Peruvian Pepper Tree	1	<0.001			1	<0.001
Ulmus sp.	Elm	1,045	0.02			1,045	0.02
Vinca major	Periwinkle	4	<0.001			4	<0.001
Total		27,543	0.63	71,636	1.65	99,179	2.28

3.3 Invasive Species Removal

3.3.1 Species Cover

Table 3 provides the total areas of invasive species observed within the proposed work area.

As indicated in Table 3, the most prevalent invasive plant found was *A. donax*, which represents about 75% of the invasive cover observed. Vine species (*D. odorata, Hedera* sp., *Rubus* sp., and *V. major*) taken together represent 12,279 sf. of cover, or 12%. Invasive trees (*A. altissima*, *Juglans* sp., *Q. ilex*, *S. molle*, and *Ulmus* sp.) provide 5,936 sf. of cover, representing 6%, while *R. communis* alone provides another 6% of cover.

3.3.2 Removal Techniques

APPENDIX A provides an account of each species observed, including appropriate removal techniques. APPENDIX B discusses strategies and specific techniques used in habitat restoration projects.

In order to minimize impacts to riparian areas, the use of herbicides shall be kept to a minimum, and only those herbicides and formulations specifically designated for use in riparian areas shall be used. In particular, formulations containing surfactants shall not be used on this project.

3.3.3 Herbicides

In conducting invasive plant control, non-chemical manual removal will be used to the fullest extent feasible. Only herbicides registered with the California Department of Pesticide Regulation (DPR) shall be applied. Localized spot treatments such as the cut-stump method should be used, when feasible. All herbicides shall be applied in accordance with regulations set by DPR, used according to labeled instructions, and approved for use in an aquatic environment (e.g. Rodeo™). Herbicide application shall be conducted on calm days only with wind less than five (5) miles per hour to prevent airborne transfer of herbicide. Pesticide mixing sites shall be located at existing road sites outside of the stream, riparian or wetland areas.

3.3.4 Species Specific Techniques

Ailanthus altissima, *Juglans* sp., *Quercus ilex*, *Schinus molle*, and *Ulmus* sp.

Seedlings of all trees will be hand pulled. Trees with woody trunks will be cut using a chainsaw. Immediately after cutting, herbicide will be applied using the cut-stump method, with a formulation of 40% Roundup® (Rodeo®, Aquamaster®, or similar formulation).

Follow-up will consist of cutting any resprouts, and applying dabbing roundup on the area at a 40% formulation. Follow-up shall occur in the spring for 1-2 years as needed, or until no further sprouts are observed.

Arundo donax

Crews will use loppers to remove vegetated material from the plants. Stalks will be cut approximately 6 inches from the base of the plant, leaving root wads in place. Plant material will be gathered and stacked onsite, outside of the riparian area. Chipping may also occur, though no chips from *A.* donax will be placed within the riparian area.

Follow-up will consist of applying herbicide (Rodeo®, Aquamaster®, or similar formulation) foliar sprayed at rates recommended on the label in the spring for 1-2 years as needed, or until no further sprouts are observed.

Centaurea solstitialis

Due to the small area, individual plants will be hand dug in the spring as needed.

Follow-up shall occur for 1 – 2 years using the same technique.

Delairea odorata

Due to the small area, plants will be removed by hand and all vegetative material will be removed.

Follow-up shall occur for 1 – 2 years using the same technique.

Hedera sp

Vines growing up trees will be cut with loppers, and plant material left to die. Plants on the ground will be removed by hand, including roots, which will be dug out as necessary.

Follow-up shall occur for 1 – 2 years using the same technique.

Ricinus communis
Due to the small area, individual plants will be hand dug.

Follow-up shall occur for 1 – 2 years using the same technique.

Rubus sp.
Canes will be cut back and removed from the site. Root crowns will be dug out by hand where feasible, or stump painted with a formulation of 40% Roundup® (Rodeo®, Aquamaster®, or similar formulation).

Follow-up will consist of hand digging and further herbicide treatment for 1 – 2 years.

Vinca major
Plants will be lightly masticated with a weed whip. Then herbicide (Rodeo®, Aquamaster®, or similar formulation) will be foliar sprayed at rates recommended on the label.

Follow-up shall occur for 1 – 2 years using the same technique or using hand removal of small patches of resprouts where removal of all roots is feasible.

3.3.5 Waste Disposal
Vegetative debris shall be stored temporarily onsite in a disposal container outside of the riparian restoration area and later hauled offsite to a location to be determined. Alternately, if acceptable to the landowner, an on-site compost pile under laid with tarps and located outside of the riparian corridor may be established. Woody debris will be chipped and used as mulch onsite. Woody debris which is not used onsite will be hauled away with other vegetative waste materials.

3.3.6 Erosion Control
No work will occur within the active, watered channel area, only within dry areas either on the bench or levee of the creek.

It is anticipated that those areas covered by the following species will leave areas of bare soil that require some erosion control efforts: *Centaurea solstitialis, Delairea odorata, Hedera sp., Ricinus communis, Rubus ulmifolius, Vinca major*. These areas are indicated in Figure 6, and represent a total of 17,713 sf. (0.41 acres).

Because trees will be cut and stump treated with herbicides, their removal is not expected to lead to erosion issues. Furthermore, the removal of *A. donax* will leave root wads intact, and so no erosion control measures will be required for this species. The small population of *R. armeniacus* is within the active work area of Granite Rock's property, not within the creek, and so no erosion control work will be required for this area.

Bare soil areas will be hand seeded using a seed mix of native grasses combined with non-invasive cereal barley, at a rate indicated in Table 4.

Table 4: Native Revegetation Seed Mix for 0.41 Acres (South 0.15, North 0.26)					
Species Name	**Common Name**	**Pounds Pure Live Seed / Acre**	**South Pounds Pure Live Seed**	**North Pounds Pure Live Seed**	**Total Pounds Pure Live Seed**
Hordeum brachyantherum ssp. californicum	Meadow Barley	16	2.4	4.2	6.6
Elymus glucus	Blue Wildrye	12	1.8	3.1	4.9
Bromus carinatus	California brome	10	1.5	2.6	4.1
Festuca microstachys	Small Fescue	10	1.5	2.6	4.1

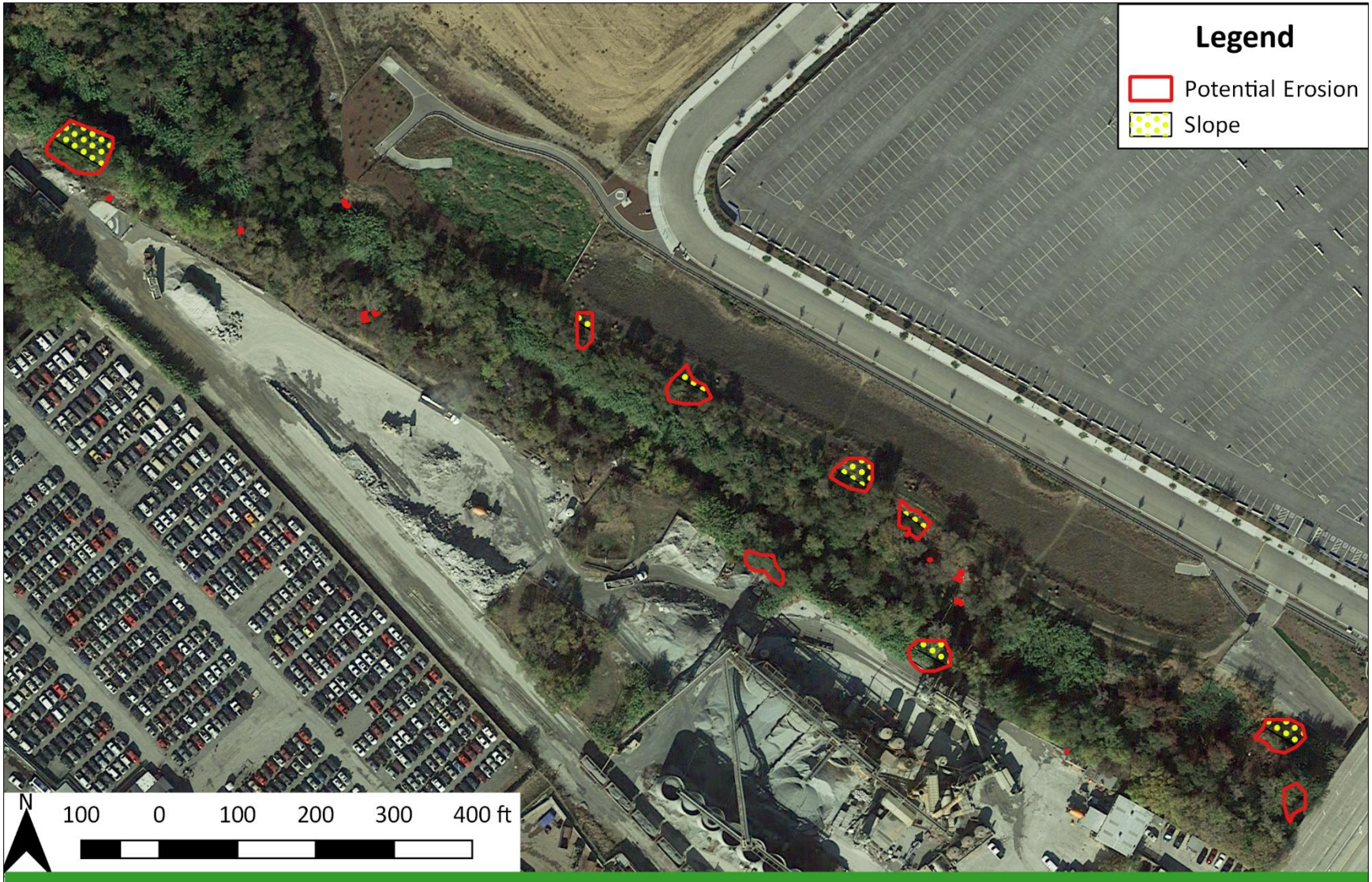

Figure 6
Erosion Control Areas

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Table 5: Typical Wattle Spacing Table	
Slope Aspect	**Distance Between Wattles**
1:1	10 feet
2:1	20 feet
3:1	30 feet
4:1	40 feet

Slopes will be provided with additional erosion control measures consisting of blankets of coconut coir, straw /coconut fiber, or jute net, and wattles as per standard spacing (see Table 5). It is anticipated that approximately 5,512 sf. (0.13 acres) of cleared area will require this additional erosion control work (See Figure 6) – 2,708 sf. (0.06 acres) on the south side; 2804 sf. (0.07 acres) on the north side. All erosion control fabrics used shall consist of 100% biodegradable materials, i.e. no erosion control materials containing plastic monofilament netting or similar material will be used. APPENDIX C provides Best Management Practices for typical erosion control techniques.

3.4 Native Planting Revegetation

Erosion control areas indicated in Figure 6 will be planted using native species. All areas will be planted with a mixture of *Salix* sp. (Willow) pole cuttings. Additionally, *Rubus ursinus* (California blackberry), *Sambucus nigra* (Mexican elderberry), and *Frangula californica* (coffeeberry) will be added on slopes. Plant spacing, numbers, and containers are provided in Table 6.

Areas dominated by *Arundo donax* are not expected to have issues with erosion due to root masses being left in place. These areas within the riparian habitat will be planted with *Salix* sp.

3.4.1 Salix (Willow) Planting

Salix stakes shall be collected during the winter months when plants have lost their leaves. All stakes will be collected from the riparian scrub onsite. Stakes will be 3 feet long with a diameter of ¾" to 1 ½ inches, and may be stored in water for up to three days. Stakes will be buried such that 2/3 of the stake is below the ground level. The stakes will be planted such that the growing end of the stake is above ground. APPENDIX C provides a planting detail sheet for willow installation.

3.4.2 Container Plants

Native plant propagules will be collected from site specific sources. Ideally, seed and/or cuttings will be collected from the Coyote Creek riparian corridor within 5 miles of the project location. However, in the event that insufficient material is available, propagules collected from anywhere within the Santa Clara Valley within 500 ft. elevation of the project site are acceptable. Plant requirements are provided in Table 6.

Native plants other than *Salix* shall be grown at a nursery facility that is certified by the Santa Clara Valley Water District as having implemented BMPs for *Phytophthora ramorum* control. All container plants shall be certified as *Phytophthora* free.

As planting will occur on steep banks, mulch will not be used. Instead, plant basins will be protected using biodegradable 2' x 2' coir mats. Mats are not required for *Salix* stakes.

Table 6: Revegetation Planting Plan						
Planting Zone	**Species**	**On-Center Spacing[1]**	**Container[2]**	**South**	**North**	**Total Plants[3]**
Non-slope	*Salix* sp.	10 ft.	Stakes	37	85	122
Slope	*Artemisia douglasiana*	5 ft.	5" Band	13	14	27
	Frangula californica	8 ft.	1-Gallon	3	4	7
	Quercus agrifolia	8 ft.	1-Gallon	3	4	7
	Rubus ursinus	5 ft.	5" Band	14	14	28
	Salix sp.	10 ft.	Stakes	14	14	28
	Sambucus nigra	8 ft.	1-Gallon	4	4	8
A donax Areas	*Salix* sp.	10 ft.	Stakes	143	636	779

NOTES

1: On-Center spacing based on triangular planting pattern; plants should be slightly offset so as to avoid regular pattern

2: Container may be upsized or replaced by equivalent container type

3: Planting Area Calculation

Non-slope: South – 3,693 sf.; North – 8,508 sf.; Total – 12,201 sf.

Slope: South – 2,708 sf.; North – 2,804 sf.; Total – 5,512 sf.

Arundo Area: South – 12,358 sf.; North – 55,063 sf.; Total – 67,421 sf.; Not Planted – 7,854 sf.

3.4.3 Irrigation

A drip irrigation system shall be designed and installed by a qualified Landscape Contractor with experience in working on restoration projects. The irrigation system will be temporary, and all parts shall be removed upon cessation of plant irrigation (typically two years).

Each plant shall be watered with an emitter providing 2 gallons per week during the dry season, approximately June through October. The Project Biologist may adjust this watering schedule as needed to ensure plant survival. Watering shall be stopped when the Biologist has determined that a plant is sufficiently established to no longer need additional water – typically two years.

In the event that an irrigation system is determined to be impractical, container plants should be hand watered during the dry months with a minimum of 5 gallons/month, once per month.

Watering is only required for container plants. No irrigation is needed for *Salix* stakes.

3.5 Follow-up and Maintenance

The project shall include follow-up restoration actions for a minimum of five years. The primary purpose of these activities is to provide follow-up invasive exotic control. Actions for each species are to be implemented as described under *Invasive Species Removal* above.

Container plants will be maintained for five years. In the first two years, this will require a minimum of one visit per month in the growing season (December – June) and one every other season in the dormant season (July – November) by a maintenance crew. In years three through five, maintenance frequency can be reduced to once per quarter. Maintenance activities to be conducted include:

- Remove vegetation from within planting basins and/or within a two-foot circumference of container plants
- Replace plants as needed (see *Success Criteria* below)
- Maintain the irrigation system
- Remove the irrigation system once the plants are established, likely in year two or three.

3.6 Success Criteria

3.6.1 Salix Stakes

Salix stakes shall exhibit a minimum 80% survival at the end of the second year. If after the first year, less than 80% survival has been attained, plants will be replaced so as to bring the project up to the 80% survival criterion. If after two years less than 80% survival has been attained, plants will be replaced so as to bring the project up to the 80% survival criterion. If at the end of 2 years, success has not been attained, monitoring shall continue until the Year 2 criteria is met.

3.6.2 Container Plants

Minimum success criteria for container plants shall be as follows:

- Year 1: 100%
- Year 2: 80%;
- Year 3: 60%
- Year 5: 50%

In the event that a given year's criteria are not met, additional plants will be installed in order to bring the project back to the given criteria. If at the end of 5 years, success has not been attained, monitoring shall continue until the Year 5 criteria is met.

3.6.3 Invasive Exotic Species

Cover of invasive exotic species controlled as part of this plan shall be less than 5% of the project area by the end of Year 5. In the event that year 5 success criteria is not reached, site maintenance, monitoring, and reporting shall continue until the criteria is met.

3.7 Monitoring and Reporting

A qualified Restoration Ecologist shall visit the site once per year for two years in order to measure the success of the *Salix* planting. Individual plants shall be counted so as to determine if the project is attaining success (See *Success Criteria* above).

The qualified ecologist shall visit the site in years 1, 2, 3, and 5 in order to assess the survival of container plants. Individual plants shall be counted in order to ensure that success is being attained.

Invasive exotic control areas will be assessed in years 1, 2, 3, and 5 in order to determine if follow-up procedures are effective. Percent cover shall be monitored using the point transect method. A minimum of three 100 ft.-transects will be established, with point data collected every 1 ft., on each side of the creek (i.e. minimum six total transects). Transects will be stratified so as to provide data at the bottom, middle, and top areas of the creek/levy. The beginning transect beginning locations shall be marked permanently so that transects can be repeated in the same locations during each monitoring year.

A yearly monitoring report shall be written and submitted to agencies as required by permitting. This report shall include the results of plant counts, qualitative narrative of invasive exotic control, and any recommendations for further project success.

3.8 Additional Site Considerations

3.8.1 Access

The southern creek bank is fenced along the top of the bank to the east, where the Graniterock facility is active. Access from the west would require some hand carrying of debris. Alternatively, sections of the fence could be removed, but these would need to be replaced after completion of the invasive removal.

The northern bank is readily accessible, however the bank itself is very steep.

3.8.2 Homeless Encampments

Several homeless people live on both sides of the creek, particularly within the stands of *A. donax*. Invasive exotic control in this area will certainly lead to disruption of these encampments, and possible conflicts could occur.

4. TRAINING PROGRAM AND PROJECT COST ESTIMATE

4.1 Orientation and Training Program

The project envisions a habitat restoration project that provides training and employment to 10 homeless and formerly homeless youth. Work will begin with a 1 day orientation consisting of classroom time, which will seek to:

- Orient the crew members to the vegetation management profession
- Orient crew members to invasive and native plants of Coyote Creek

Upon completion of the orientation, workers will begin restoration work, which will include hands-on training in:

- Identification and removal of non-native plant species
- Use of hand tools and chain-saws
- Implementation of erosion control BMPs
- Native plant installation, both container plants and willow stakes
- Irrigation system installation

About 25% of the field work time during the life of the project will be devoted to training activities.

ECI will provide 1 crew member for every 5 – 6 trainees. Work will last for 4 weeks, assuming 40 hour work days. The training program is expected to provide complete implementation of the restoration plan, including the removal of invasive exotic species, planting willow stakes and container plants, irrigation system installation, and installing erosion control BMPs.

The training program does not include work associated with implementation of the maintenance and monitoring plan, all of which will occur after the trainees have received their graduation certificate.

Ultimately, this project is envisioned as the beginning of an ongoing program providing similar services to other creeks in Santa Clara County (SEE FUTURE PHASES OF THE PROJECT below).

4.2 Funding Strategy

This Implementation Plan was developed pursuant to a grant from the Santa Clara Valley Water District.

The current funding strategy to implement this project is to apply for a Santa Clara Valley Water District implementation grant and secure the 25% required local match from a variety of sources: Granite Rock, Sierra Development Company (Flea Market), County of Santa Clara, Santa Clara County Creeks Coalition and the California Conservation Corps.

Contributions have been requested from the various parties, but as of the completion of this report, no commitments have been obtained from any sources to achieve the local match. We anticipate these sources will contribute approximately $120,000 which is over 25% of the total project costs of $475,000 as described in the budget below.

4.3 Methods for Cost Estimate Determination

Costs for labor and materials in the above table are based on industry standard practices for overhead, labor burden, and profit calculations in combination with Ecological Concern Inc.'s estimation and project performance experience. Each task, for the sake of estimating, is broken out into basic pieces (i.e. square feet of arundo, number of trees, etc.) and a time required to accomplish that task within each piece. Remove of invasive species is based largely on per square foot timing, while other estimates are based on a unit pricing that has been established through professional experience. Examples of this are the erosion control, revegetation, and irrigation portions of the estimate.

Over the course of 25 years, ECI has identified an average cost for the sake of estimation that it costs to install erosion control measures by the square foot, or linear foot, and planting based on the plant installed and irrigated.

Maintenance costs are estimated primarily based on ECI's standards for habitat restoration maintenance work. Monthly visits by a crew of restoration technicians are compiled based on the number of plants and square footage of invasive species present, and extrapolated over a year to give a total yearly cost.

Finally, monitoring is estimated using professional experience by ECI's consulting staff for the typical amount of time required to fully monitor a given site, based on site and extent of mitigation monitoring requirements, and the time required to draft, edit, and submit a sufficient monitoring report that will both properly describe the site to the reader and meet agency requirements.

All material and equipment costs are based on the costs of maintaining, running, and replacing the required trucks and equipment to perform the above tasks.

4.4 Estimated Project Cost

Invasive Removal and Revegetation								
No	**Task**	**Unit**	**Quantity**	**Cost**	**Extension**	**ECI Crew Hours ($65)**	**SJCC Hours ($41.49)**	**PM Hours ($100)**
Training Program and Restoration Implementation								
1	Permitting	HR	40	$ 100.00	$ 4,000.00			40
2.a	Orientation	LS	1	$ 7,200.00	$ 7,200.00			
2.b	Training Facility	DAY	1	$ 400.00	$ 400.00		80	40
2.c	Equipment and vehicles	LS	1	$ 300.00	$ 300.00			
2.d	Other direct costs (materials, per diems, etc.)	LS	1	$ 200.00	$ 200.00			
3.a	Arundo donax (labor)	SF	75275	$ 2.60	$ 195,800.00			
3.b	Equipment and vehicles	LS	1	$ 26,900.00	$ 26,900.00	575	2876	392
3.c	Other direct costs (materials, per diems, etc.)	LS	1	$ 13,400.00	$ 13,400.00			
4.a	Trees (labor)	SF	5936	$ 0.52	$ 3,100.00			
4.b	Equipment and vehicles	LS	1	$ 900.00	$ 900.00	9	44	28
4.c	Other direct costs (materials, per diems, etc.)	LS	1	$ 900.00	$ 900.00			
4.d	Breeding Bird Survey	HR	20	$ 100.00	$ 2,000.00			
5.a	Other Invasive Species (labor)	SF	17941	$ 1.51	$ 27,100.00			
5.b	Equipment and vehicles	LS	1	$ 4,200.00	$ 4,200.00			
5.c	Other direct costs (materials, per diems, etc.)	LS	1	$ 1,800.00	$ 1,800.00			
5.d	Erosion Control - Blanket (labor & materials)	SF	5512	$ 0.98	$ 5,500.00	177	883	132
5.e	Erosion Control - Wattles (labor & materials)	LF	560	$ 4.95	$ 2,800.00			
5.f	Revegetation (labor & materials)	EA	996	$ 25.00	$ 24,900.00			
5.g	Irrigation (labor & materials)	EA	996	$ 35.00	$ 34,900.00			
Maintenance - Year 1 - 2								
6.a	Maintenance (labor) - Year 1	LS	1	$ 42,600.00	$ 42,600.00			
6.b	Equipment and vehicles	LS	1	$ 6,100.00	$ 6,100.00	764		80
6.c	Other direct costs (materials, per diems, etc.)	LS	1	$ 4,000.00	$ 4,000.00			
7.a	Maintenance (labor) - Year 2	LS	1	$ 32,000.00	$ 32,000.00			
7.b	Equipment and vehicles	LS	1	$ 4,600.00	$ 4,600.00	573		60
7.c	Other direct costs (materials, per diems, etc.)	LS	1	$ 3,000.00	$ 3,000.00			
Monitoring and Reporting Year 1 - 5								
8	Monitoring and Reporting - Year 1	HR	72	$ 100.00	$ 7,200.00	0	0	72
9	Monitoring and Reporting - Year 2	HR	72	$ 100.00	$ 7,200.00	0	0	72
10	Monitoring and Reporting - Year 3	HR	72	$ 100.00	$ 7,200.00	0	0	72
11	Monitoring and Reporting - Year 5	HR	72	$ 100.00	$ 7,200.00	0	0	72
Year 1 Subtotal (Training Program and Restoration Implementation)					$ 356,300.00	761	3883	632
Year 1 Subtotal (Maintenance, Monitoring, and Reporting)					$ 59,900.00	764	0	152
Year 2 Subtotal (Maintenance, Monitoring, and Reporting)					$ 46,800.00	573	0	132
Year 3 Subtotal (Monitoring, and Reporting)					$ 7,200.00	0	0	72
Year 5 Subtotal (Monitoring, and Reporting)					$ 7,200.00	0	0	72
Total Cost					**$ 477,400.00**	**2097**	**3883**	**1060**

5. BIOLOGICAL IMPACT ANALYSIS

5.1 Summary of Proposed Project Actions

The project is habitat restoration consisting of invasive exotic removal combined with seeding and planting of exposed areas with native plants. For purposes of this analysis it is assumed that work will occur on both the south and north banks of the creek.

Invasive exotic work will occur as follows:

- Lopping the tops of *Arundo donax* and treating resprouts with herbicide
- Cutting non-native tree species (*Ailanthus altissima, Juglans sp., Quercus ilex, Schinus molle,* and *Ulmus sp.*), and treating the stumps with herbicide; herbicide treatment as needed for follow-up
- Removal of vine species
    - *Delairea odorata* – hand removal with two years of follow-up with the same technique
    - *Hedera* sp – Cutting and hand removal with two years of follow-up with the same technique
    - *Rubus* sp. – Cut back canes and dig out root crowns; treat root crowns with herbicide where removal not feasible; two years follow-up with hand digging and herbicide treatment
    - *Vinca major* – Lightly masticate plants with weed whip, then apply herbicide with two years of follow-up with the same technique
- *Centaurea solstitialis* and *Ricinus communis* – individual plants to be dug out in the spring with two years of follow-up with the same technique

Herbicide use will be minimized through the implementation of an Integrated Pest Management strategy. This strategy includes:

- Use non-herbicidal techniques where feasible
- Brushing technique used for cut stump treatment
- Use wicking rather than foliar spraying to the greatest extent possible
- Only herbicides certified by the California Department of Pesticide Regulation for use in riparian and wetland areas shall be used

For areas with exposed soil, erosion control Best Management Practices shall be implemented. Exposed areas shall be hand seeded with a native grass seed mix. Slopes shall be provided with biodegradable blankets and wattles. All exposed areas shall be planted with native species, including both site-specific nursery grown plants and *Salix* stakes... Container plants shall be grown a nursery that has implemented BMPs to ensure that *Phytophthora ramorum* is not introduced into the site.

Success criteria are established for the project as follows:

- *Salix* stakes
    - 80% Survival at end of Year 2
- Container Plants
    - 100 % survival at end of Year 1
    - 80% Survival at end of Year 2
    - 60% Survival at end of Year 3
    - 50% survival at end of Year 5
- Invasive Exotic Species
    - Less than 5% cover of controlled species at end of Year 5

Monitoring and reporting shall occur in years 1 and 2 for *Salix* stakes, and in years 1, 2, 3, and 5 for container plants and invasive exotic species. Live *Salix* stakes and live container plants shall be counted and compared to the total number planted in order to ensure that success criteria are met. A minimum of three point-intersect transects per each side of the creek shall be established in order to monitor the percent cover of invasive exotic species on the site. Reports shall be supplied to permitting agencies each year that monitoring occurs.

5.2 Methods

Prior to conducting field studies, a background literature search was conducted to determine which special-status plant and wildlife species have potential to inhabit the study area based on documented occurrences, range distribution and suitable habitat. The primary sources for this search included the California Natural Diversity Data Base (CNDDB) and the United States Fish and Wildlife Service (USFWS) records for Santa Clara County (CNDDB 2017; USFWS 2017).

The Special Animals List and the Special Plant List maintained by the CDFW was used to determine the current regulatory status for each special-status wildlife species known from the region (CDFW 2017a, CDFW 2017b). Locality records from eBird, an online database of bird distribution, were reviewed (eBird 2017; Sullivan, et al. 2009). Additional natural history information was obtained from the NatureServe Explorer database (NatureServe 2017).

The initial list was refined to remove species that are documented in the general region but are not expected to occur on the study area due to range limitation or extirpation, or due to a lack of suitable habitats from the study area. The suitability of the site for special-status plants and vertebrates was assessed based on known habitat requirements for each species, the habitats present on the site and surrounding lands beyond the study area, regional locality records, and knowledge of the target species.

For purposes of this assessment, special-status species are defined to include the following: species listed by the USFWS as Threatened or Endangered; species for which USFWS has sufficient information to list as Endangered or Threatened but listing is precluded (Candidate Species); those species for which a proposed rule to list as Endangered or Threatened has been published by USFWS (Proposed species); species listed by USFWS as Birds of Conservation Concern; species listed by the California Fish and Game Commission as Threatened or Endangered and those species that are Candidates for listing as Threatened or Endangered; species designated by the CDFW as Species of Special Concern; and species listed as "fully protected" in the California Fish and Game Code.

In addition, certain animals that meet the criteria for endangered, threatened or rare species included in Section 15830 of the CEQA Guidelines were also considered. This includes those species listed as Medium and High Priority by the Western Bat Working Group (WBWG), those listed as Rare Plant Ranking 1A (Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere) 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere), 2A (Plants Presumed Extirpated in California, But Common Elsewhere), and 2B (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere) by the California Native Plant Society (CNPS), and those considered locally rare by the Santa Clara Valley Chapter of CNPS.

On November 2, 2017, ECI biologist visited the project site in order to characterize the habitat on the site. Plant species observed were noted, and a list compiled. Evidence of the use of the site by rare animal species was also searched for.

All plant species names are consistent with the Second Edition Jepson Manual (Baldwin *et. al.* 2012). Additional resources used for plant identification include the CalFlora database (CalFlora 2017), and the Jepson Manual eFlora.

GPS data was collected using a Trimble GeoXT field unit at submeter accuracy. All data was collected in WGS 1984 reference. Data was entered into GoogleEarth® for analysis.

5.3 Habitat

Figure 7 provides a map of habitats observed within the proposed work area. Two habitats were observed: Riparian Woodland and Urban Development.

5.3.1 Riparian Woodland

The Riparian Woodland area consists of a highly disturbed riparian area. The river appears to have been channelized at some point in the past, as is evident by the levees bounding both sides. Throughout the proposed work area, the majority of the system has the levee side leading to the water's edge, though some limited sections have a dry-season shelf which is likely underwater during the wet season. The habitat area is dominated by a mixture of native and non-native tree species, with the native tree cover primarily consisting of *Acer negundo* and *Salix laeviagata*. The photo provided below shows the Riparian Woodland as viewed from the Berryessa Rd. bridge looking into the study area, downstream.

5.3.2 Urban Development

The urban development consists of the Granite Rock Cement facility. A population of *A. donax* and a patch of *R. America* occurs within this area.

Photo of Riparian Woodland

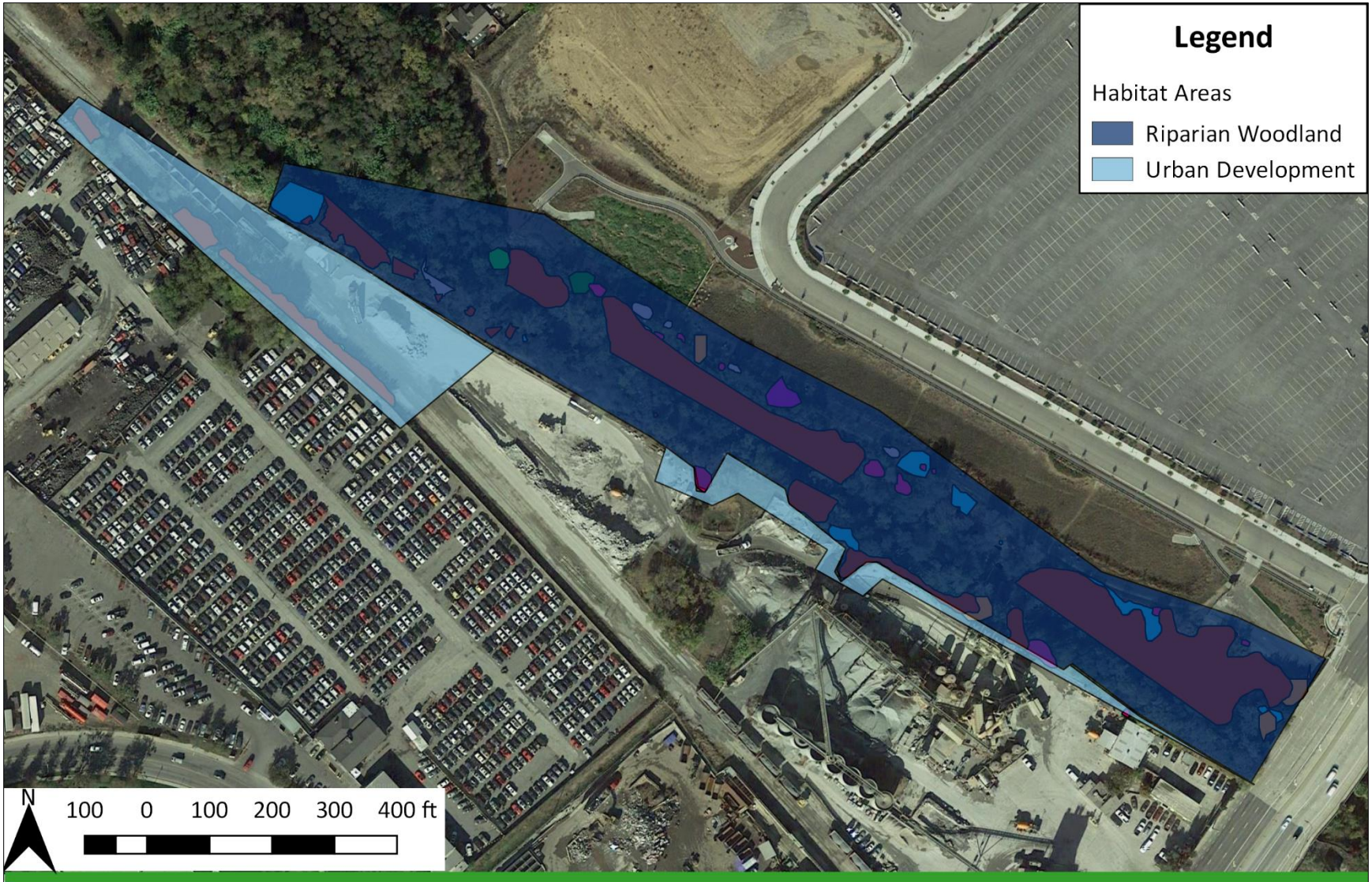

Figure 7
Habitat Areas within Proposed Work Area

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5.4 Plants

Table 7 provides a list of all plant species observed during site visits. The plant list was generated during the late dry season, and so many herbaceous and grass species that occur on the site were likely missed. Despite the timing of the plant survey, sufficient vegetation was identified to adequately characterize the habitat, and so no additional plant surveys are necessary for this project.

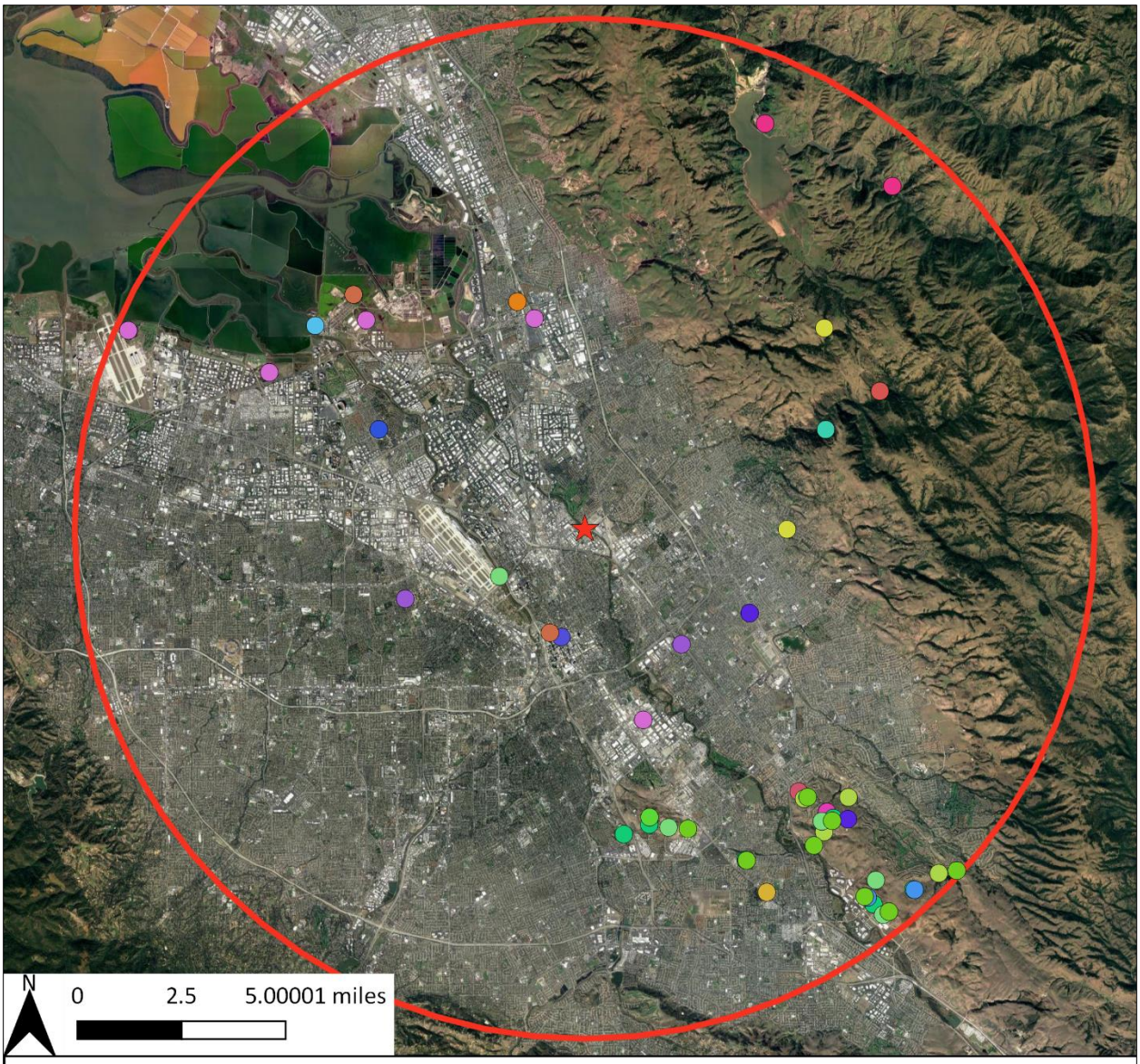
Figure 8 shows all known locations of rare, sensitive, and endangered plants found within a 10-mile radius of the project site, as listed in the CNDDB (CNDDB 2017). Table 8 provides a list of the plants listed on Figure 8, and indicates the potential for those plants to occur within the project site.

No rare, sensitive, or endangered plants were observed during the site visits, nor are any of those species found in the CNDDB expected to occur onsite.

Table 7: Plant Species Observed in the Proposed Project Area

Family	Species Name	Common Name	Native
Sapindaceae	*Acer negundo*	Box Elder	y
Poaceae	*Agrostis capillaris*	Colonial bentgrass	n
Simaroubaceae	*Ailanthus altissima*	Tree of Heaven	n
Poaceae	*Arundo donax*	Giant Reed	n
Poaceae	*Bromus diandrus*	Ripgut grass	n
Asteraceae	*Centaurea solstitialis*	Yellow Star Thistle	n
Convolvulaceae	*Convulvulus arvensis*	Bindweed	n
Asteraceae	*Delairea odorata*	Cape Ivy	n
Apiaceae	*Foeniculum vulgare*	Fennel	n
Araliaceae	*Hedera helix*	Ivy	n
Asteraceae	*Helminthotheca echioides*	Bristly Ox-tongue	n
Juglandaceae	*Juglans sp.*	Walnut	n
Asteraceae	*Lactuca serriola*	Prickly Lettuce	n
Malvaceae	*Malva parviflora*	Cheeseweed	n
Salicaceae	*Populus nigra*	Black Poplar	n
Rosaceae	*Prunus ilicifolia*	Holley-leaved Cherry	y
Fagaceae	*Quercus ilex*	Holly-leaved Oak	n
Euphorbiaceae	*Ricinus communis*	Castor Bean	n
Rosaceae	*Rubus armeniacus*	Himalayan Blackberry	n
Rosaceae	*Rubus ulmifolius*	Elm-leaved Blackberry	n
Rosaceae	*Rubus ursinus*	California blackberry	y
Polygonaceae	*Rumex occidentlis*	Western Dock	y
Salicaceae	*Salix laevigata*	Red Willow	y
Anacardiaceae	*Schinus molle*	Peruvian Pepper Tree	n
Ulmaceae	*Ulmus sp.*	Elm	n
Apocynaceae	*Vinca major*	Periwinkle	n

Table 8: Sensitive Plant Species Potentially Found on the Project Site			
Scientific Name	**Common Name**	**Listing Status**	**Potential to Occur Onsite**
Astragalus tener var. *tener*	alkali milk-vetch	CNPS 1B.2	Low – No appropriate habitat
Balsamorhiza macrolepis	big-scale balsamroot	CNPS 1B.2	Low – No appropriate habitat
California macrophylla	round-leaved filaree	CNPS 1B.2	Low – No appropriate habitat
Campanula exigua	chaparral harebell	CNPS 1B.2	Low – No appropriate habitat
Centromadia parryi ssp. *congdonii*	Congdon's tarplant	CNPS 1B.1	Low – No appropriate habitat
Chloropyron maritimum ssp. *palustre*	Point Reyes salty bird's-beak	CNPS 1B.2	Low – No appropriate habitat
Chorizanthe robusta var. *robusta*	robust spineflower	FE, CNPS 1B.1	Low – No appropriate habitat
Cirsium fontinale var. *campylon*	Mt. Hamilton fountain thistle	CNPS 1B.2	Low – No appropriate habitat
Clarkia concinna ssp. *automixa*	Santa Clara red ribbons	CNPS 4.3	Low – No appropriate habitat
Collinsia multicolor	San Francisco collinsia	CNPS 1B.2	Low – No appropriate habitat
Dudleya abramsii ssp. setchellii	Santa Clara Valley dudleya	FE, CNPS 1B.1	Low – No appropriate habitat
Eryngium aristulatum var. *hooveri*	Hoover's button-celery	CNPS 1B.1	Low – No appropriate habitat
Fritillaria liliacea	fragrant fritillary	CNPS 1B.2	Low – No appropriate habitat
Lasthenia conjugens	Contra Costa goldfields	FE, CNPS 1B.1	Low – No appropriate habitat
Lessingia micradenia var. glabrata	smooth lessingia	CNPS 1B.2	Low – No appropriate habitat
Malacothamnus arcuatus	arcuate bush-mallow	CNPS 1B.2	Low – No appropriate habitat
Malacothamnus hallii	Hall's bush-mallow	CNPS 1B.2	Low – No appropriate habitat
Plagiobothrys glaber	hairless popcornflower	CNPS 1A	Low – No appropriate habitat
Senecio aphanactis	chaparral ragwort	2B.2	Low – No appropriate habitat
Sidalcea malachroides	maple-leaved checkerbloom	CNPS 4.2	Low – No appropriate habitat
Streptanthus albidus ssp. albidus	Metcalf Canyon jewelflower	FE, CNPS 1B.1	Low – No appropriate habitat
Streptanthus albidus ssp. peramoenus	most beautiful jewelflower	CNPS 1B.2	Low – No appropriate habitat
Trifolium hydrophilum	saline clover	CNPS 1B.2	Low – No appropriate habitat



Legend

- Project Location
- 10 Mile Radius
- Astragalus tener var. tener
- Balsamorhiza macrolepis
- California macrophylla
- Campanula exigua
- Centromadia parryi ssp. congdonii
- Chloropyron maritimum ssp. palustre
- Chorizanthe robusta var. robusta
- Cirsium fontinale var. campylon
- Clarkia concinna ssp. automixa
- Collinsia multicolor
- Dudleya abramsii ssp. setchellii
- Eryngium aristulatum var. hooveri
- Fritillaria liliacea
- Lasthenia conjugens
- Lessingia micradenia var. glabrata
- Malacothamnus arcuatus
- Malacothamnus hallii
- Plagiobothrys glaber
- Senecio aphanactis
- Sidalcea malachroides
- Streptanthus albidus ssp. albidus
- Streptanthus albidus ssp. peramoenus
- Trifolium hydrophilum

Figure 8
Rare Plants within 10 Mile Radius found in CNDDB (CNDDB 2017)

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5.5 Animals

Two bird species were observed during the site visit:

- Band-tailed Pigeon (*Patagioenas fasciata*)
- Nuttall's Woodpecker (*Picoides nuttallii*)

No other animals were observed during the site visit.

Figure 9 shows all known locations of rare, sensitive, and endangered animals found within a 10-mile radius of the project site, as listed in the CNDDB (CNDDB 2017). Table 9 provides a list of the animals listed on Figure 9, and indicates the potential for those animals to occur within the project site.

Two species, *Oncorhynchus mykiss* (steelhead salmon) and *O. tshawytscha*, do not have any records in the CNDDB within a ten mile radius of the project location, but there is a potential that the species occurs within the lower sections of Coyote Creek. Both species are included in Table 9, and are discussed below.

Due to the urban setting of the section of Coyote Creek where the project is proposed, many species that might otherwise be potentially found within the riparian woodland habitat are not likely to be present due to the lack of upland habitat areas adjacent to the creek.

5.5.1 Accipiter cooperii (Cooper's hawk)

CDFW Watch List

Cooper's hawk is a medium sized raptor that ranges across North America (NGS 1983). Breeding typically occurs in mature broadleaf or coniferous forests from early April to June, with molting typically beginning in late June (Bent 1937, Brown and Amadon 1968). While some populations require large tracts of land, others have been observed using small woodlots and forest tracts, including within urban/suburban areas where the bird appears to be tolerant of human activities (Hennessy 1978, Herron et al. 1985, Campbell et al 1990, Peterjohn and Rice 1991, Rosenfield et al. 1991).

Two occurrences of the bird are found in the CNDDB within a ten mile radius of the project site, described as follows:

- Two adults and a juvenile observed nesting in 2003 in a coast live oak in riparian area along Calabazas Creek, surrounded by residential housing
- Two adults observed nesting on June 13, 2003 in a commercial parking lot surrounded by a mix of commercial and residential development; specific tree nest observed in not recorded, but trees in the parking lot are listed as redwood, pine, and birch

Cooper's hawk are also listed in the eBird database at nearby locations, including the San Jose Municipal Golf Course between 2015 and 2017 (eBird 2017). No information is provided concerning whether or not these birds were observed nesting.

Based on the locations of observed Cooper's hawks and known nesting sites, this species is considered potentially present on the project site.

5.5.2 Neotoma fuscipes annecten (San Francisco dusky-footed woodrat)
CDFW Species of Special Concern

Neotoma fuscipes annecten is a medium sized rodent found throughout the San Francisco Bay Area in grassland, scrubland, and wooded areas (Hooper 1938, Hall 1981). Feeds mainly on woody plants, especially live oak, maple, coffeeberry, alder, and elderberry when available (Linsdale and Tevis 1951). The animal prefers moderate canopy in a variety of habitats, with live oaks and other thick-leaved trees and shrubs are important habitat components. (Kelly 1990, Williams et al. 1992). Large terrestrial stick houses are built of sticks and leaves at the base of, or in a tree, around a shrub, or at the base of a hill and can last for more than twenty years (English 1923, Linsdale and Tevis, 1951).

One incidence of *Neotoma fuscipes annecten* is reported in the CNDDB within ten miles of the project location, as follows:

- On September 1, 2016, a nest observed under an elderberry bush in riparian corridor on Saratoga Creek, near a recreational trail and surrounded by urban residential development

No evidence of the presence of *Neotoma fuscipes annecten* was observed on the project site, though there is potential habitat for the species onsite. There are no known occurrences on Coyote Creek within ten miles of the project location. Therefore, it is concluded that this animal is not present on the project site, nor will any impacts to the species occur.

5.5.3 Oncorhynchus mykiss (Steelhead Salmon)
Federal Threatened Species (Central California Coastal ESU)

According to records in the CNDDB, *Oncorhynchus mykiss* does not occur within 10 miles of the project location, nor are any records from within Coyote Creek. However, historical accounts indicate that the species did at one time occur throughout the Coyote Creek watershed, and the creek is listed as part of the Critical Habitat designation by the National marine Fisheries Service (Leidy *et al*, NMFS 2005). Coyote and Anderson reservoirs, constructed in 1936 and 1950, respectively, block access to approximately 200 square miles of the upper Coyote Creek watershed, or approximately 56 percent of the total drainage (SCBWMI 2001). The Coyote Canal bypasses and seasonally dewaters an approximately five-mile reach of Coyote Creek beginning at Coyote Diversion Dam approximately 1.2 miles downstream from Anderson Reservoir. Upper Penitencia Creek is the only section of Coyote Creek known to rear the fish, though potential habitat does occur within the reach of the creek between Oakland Rd. and Berryessa Rd (Entrix 2006, Smith 1998)

Although considered unlikely, due to the lack of specific data within the section of creek where work is proposed to occur, combined with the presence of habitat within the stretch of creek*, Oncorhynchus mykiss* is considered potentially present.

5.5.4 Oncorhynchus tshawytscha (Chinook Salmon)
CDFW Species of Special Concern

Fallrun chinook salmon are known to occur in the lower portions of Coyote Creek (Leidy *et al* 2003). The fish has been observed in Coyote Creek since the mid-1980s and successful reproduction has been documented (SCBWMI 2001). Most spawning occurs in the lowermost reaches of Coyote Creek and Penitencia Creek, although adult chinook salmon have been observed as far upstream as Metcalf Dam (Smith 1998).

Oncorhynchus tshawytscha are considered potentially present.

5.5.5 Other Nesting Native Bird Species
In addition to the species listed above, suitable nesting habitat occurs for other bird species protected under the Federal Migratory Bird Treaty Act under Sections 3515 of the California Fish and Game Code. Members of the orders Falconiformes and Strigiformes (birds-of-prey) are protected under California Fish and game Code Section 3503.

Table 9: Animal Species Potentially found on the Project Site			
Scientific Name	**Common Name**	**Listing Status***	**Potential Presence Onsite**
Mammals			
Antrozous pallidus	pallid bat	SSC, WBWG_H	Low – No habitat onsite
Corynorhinus townsendii	Townsend's big-eared bat	SSC, WBWG_H	Low – No habitat onsite
Dipodomys heermanni berkeleyensis	Berkeley kangaroo rat	None	Low – No habitat onsite
Lasiurus cinereus	hoary bat	WBWG_M	Low – No habitat onsite
Myotis evotis	long-eared myotis	WBWG_M	Low – No habitat onsite
Myotis yumanensis	Yuma myotis	WBWG_LM	Low – No habitat onsite
Neotoma fuscipes annectens	San Francisco dusky-footed woodrat	SSC	Low – None observed during site survey, nor are any populations within Coyote Creek known from within 10-mile radius
Reithrodontomys raviventris	salt-marsh harvest mouse	FE, CE, FP	Low – No habitat onsite
Sorex vagrans halicoetes	salt-marsh wandering shrew	SSC	Low – No habitat onsite
Birds			
Accipiter cooperii	Cooper's hawk	WL	Potential – Potential breeding habitat onsite
Agelaius tricolor	tricolored blackbird	SSC	Low – No habitat onsite
Aquila chrysaetos	golden eagle	FP	Low – No habitat onsite
Ardea herodias	great blue heron	None	Low – No habitat onsite
Athene cunicularia	burrowing owl	SSC	Low – No habitat onsite
Buteo swainsoni	Swainson's hawk	BCC, CT	Low – No habitat onsite
Charadrius alexandrinus nivosus	western snowy plover	FT, SSC	Low – No habitat onsite
Coccyzus americanus occidentalis	western yellow-billed cuckoo	FT, CE	Low – species considered extirpated from San Jose
Elanus leucurus	white-tailed kite	FP	Low – No habitat onsite
Geothlypis trichas sinuosa	saltmarsh common yellowthroat	BCC, SSC	Low – No habitat onsite
Laterallus jamaicensis coturniculus	California black rail	BCC, FP, CT	Low – No habitat onsite
Melospiza melodia pusillula	Alameda song sparrow	BCC, SSC	Low – No habitat onsite
Rallus obsoletus	California Ridgway's rail	FE, CE, FP	Low – No habitat onsite

Table 9: Animal Species Potentially found on the Project Site			
Scientific Name	**Common Name**	**Listing Status***	**Potential Presence Onsite**
Reptiles			
Emys marmorata	western pond turtle	SSC	Low – Not found within Coyote Creek within ten miles of project location
Amphibians			
Ambystoma californiense	California tiger salamander	FT, CT	Low – No habitat onsite
Aneides niger	Santa Cruz black salamander	SSC	Low – No habitat onsite
Rana boylii	foothill yellow-legged frog	SSC	Low – Not found within Coyote Creek within ten miles of project location
Rana draytonii	California red-legged frog	FT	Low – Not found within Coyote Creek within ten miles of project location
Arachnids			
Microcina homi	Hom's micro-blind harvestman	None	Low – No habitat onsite
Fish			
Oncorhynchus mykiss	Steelhead Salmon	FT	Potentially present
Oncorhynchus tshawytscha	Chinook Salmon	SSC	Likely Present
Invertebrates			
Adela oplerella	Opler's longhorn moth	None	Low – No habitat onsite
Bombus caliginosus	obscure bumble bee	None	Low – No habitat onsite
Bombus crotchii	Crotch bumble bee	None	Low – No habitat onsite
Bombus occidentalis	western bumble bee	None	Low – No habitat onsite
Euphydryas editha bayensis	Bay checkerspot butterfly	FT	Low – No habitat onsite
Tryonia imitator	mimic tryonia	None	Low – No habitat onsite

***LISTING CODES**

Federal
FE = Federal Endangered
FT = Federal Threatened
BCC = USFWS Bird of Conservation Concern

State
FP = Fully Protected
CE = California Endangered
CT = California Threatened
SSC = Species of Special Concern
WL = CDFW Watchlist

Other
WBWG = Western Bat Working Group
H = High Priority
M = Medium Priority
LM = Low-Medium Priority

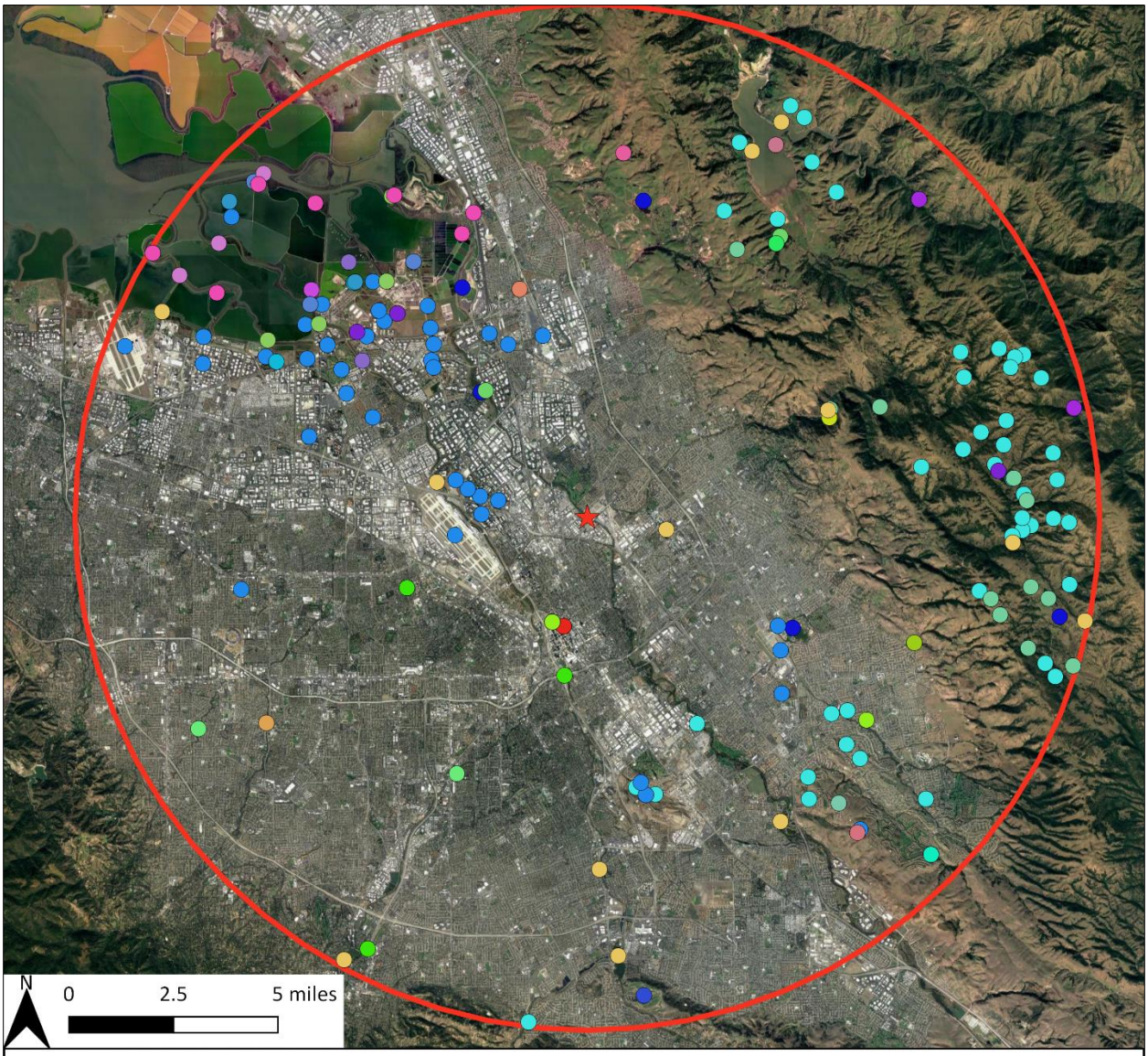


Figure 9
Rare Animals within 10 Mile Radius found in CNDDB (CNDDB 2017)

Ecological Concerns Inc.
Ecological Landscapes | Habitat Restoration | California Native Plants

5.6 Impact Analysis

5.6.1 Riparian Woodland Impacts

The proposed project will remove 99,179 sf. (2.28 acres) of non-native vegetation. Of this, 91,070 sf. (2.09 acres) of non-native species cover will be removed from a 278,286 sf. (6.3 acre) section of Coyote Creek. The entire invasive removal area will be managed so as to arrest the regrowth of invasive exotic species, and the entire area will be planted with native species.of habitat will be replanted with native riparian plant species.

The additional 8,109 (0.19 acres) of non-native vegetation will be removed from the Urban Development habitat area and is not considered a significant project impact due to the highly disturbed nature of this area.

While any vegetation removal within riparian habitat could be considered an impact on that habitat, the proposed project itself will increase the habitat value of the riparian habitat. Furthermore, no net loss of wetland or riparian habitat will occur. Therefore, the project is considered self-mitigating.

Impacts to riparian habitat due to the removal of vegetation are considered less than significant.

While the planting of native species to replace non-natives removed as part of the project will benefit the habitat area, the introduction of *Phytopthera ramorum* from nursery stock could lead to the spread of sudden oak death, which could cause significant harm to the riparian ecosystem. However, due to the highly urbanized setting of this project means that several *Phytopthera* species (including *P. ramorum*) occur within the area. The proposed project includes a stipulation that plants must be bought from a nursery that has implemented appropriate BMPs to stop the spread of *P. ramorum*, which is sufficient for this habitat area.

Potential introduction of *P. ramorum* from nursery stock is considered less than significant.

5.6.2 Impacts to Birds

In the event that birds are nesting in trees removed as part of the project, the removal of non-native trees could impact species protected under both state and federal law.

Removal of nests of protected bird species is considered potentially significant.

5.6.3 Impacts to Fish

As no work will occur within the active river channel, no direct impacts are expected to occur to fish species potentially found within the project area. Although the removal of vegetation from the restoration area could pose some threat due to erosion, the project proposes to implement best management practices to alleviate impacts due to erosion. Therefore, no impacts are anticipated due to erosion.

The use of herbicides could also impact fish species, however the project will limit herbicide use to only those allowed within wetland habitat, and application of herbicides will be minimized. Therefore no impacts due to herbicide use are anticipated to sensitive fish species.

Impacts to sensitive fish species are less than significant.

5.7 Proposed Mitigation Measures

Although the overall project is self-mitigating due to the fact that removal of non-native plant species and planting of native species will provide overall value to the riparian system, some impacts to bird species may occur during the removal of non-native vegetation. In order to mitigate this potential impact to a less than significant level, the following mitigation measure is proposed:

BIO 1

In order to avoid impacts to nesting birds, ground disturbance and tree cutting associated with the habitat restoration should take place outside of the February 1 to August 31 breeding bird season.

If work must be conducted during the breeding season, a qualified biologist should conduct a pre-construction breeding bird survey throughout areas of suitable habitat within 250 feet of the work area within 30 days prior to the onset of any ground disturbance, and weekly as needed during the breeding season. If bird nests are observed, an appropriate buffer zone should be established around all active nests to protect nesting adults and their young from ground disturbance. Buffer zones should be determined by a qualified biologist in consultation with CDFW based on the site conditions and the species potentially impacted. Work within the buffer zone should be postponed until all the young are fledged, as determined by a qualified biologist.

6. REGULATORY CONTEXT AND PERMITTING

6.1 Acronyms

U.S. Army Corps of Engineers (ACOE)
Regional Water Quality Control Board (RWQCB)
US Fish and Wildlife Service (USFWS)
National Marine Fisheries Service (NMFS)
California Department of Fish and Game (CDFW)

6.2 Federal Clean Water Act / California Porter-Cologne Act

The ACOE is responsible under Section 404 of the Clean Water Act to regulate the discharge of fill material into the waters of the United States and their lateral limits, including streams that are tributaries to navigable waters and their adjacent wetlands. The lateral limits of jurisdiction for a non-tidal stream are measured at the line of ordinary high water or the limit of adjacent wetlands.

An area is determined to be a wetland if three elements are present: 1) soils that store water, which are called "hydric;" 2) wetland hydrology, such as standing or flowing water; and 3) plants that are associated with wet conditions. All three of these conditions must be present in order for ACOE to take permit jurisdiction over a project.

The RWQCB regulates discharge into state waters under the Porter-Cologne Act and under Section 401 of the Federal Clean Water Act. Any project that requires a Section 404 Permit will also require a Section 401 Certification.

Projects that do not require a 404 permit may also be subject to regulation under the Porter-Cologne Act. One example are projects that impact waters or wetlands of the state that are not under AOCE jurisdiction. Another example are construction projects, which are subject to permit requirements setup under the National Pollution Discharge Elimination System, which manages potential project impacts due to erosion. Projects larger than 1 acre in size typically require the implementation of a Storm Water Pollution Prevention Plan (SWPPP).

6.3 Federal and California Endangered Species Act

Both the federal and state government have enacted Endangered Species Acts, which provide protections to plants or animals that are at risk of extinction. Listing generally protects a species from "take," which includes killing, harassing, or destroying habitat for the species. The federal act protects animals, including invertebrates, but not plants. The state act protects animals and plants, but not invertebrates. Either the USFWS or the NMFS administers the federal act. CDFW administers the state act.

A project that causes "take" of a listed endangered species requires that a permit be issued. Section 10 of the federal act allows for issuance of a take permit under the condition that the take is part of an otherwise lawful activity, and a habitat conservation plan has been accepted by the appropriate agency. When another federal permit, such as an ACOE wetland permit is issued in endangered species habitat, Section 7 requires that the federal agency issuing that permit must consult with the agency with jurisdiction over the endangered species. A determination must be made that the permit will not put an endangered species in jeopardy, which is a higher threshold than take. Take can then be authorized through the issuance of a Biological Opinion.

The California Endangered Species Act allow CDFW to issue an incidental take permit for a State listed threatened and endangered species only if specific criteria are met. These criteria are as follows:

- The authorized take is incidental to an otherwise lawful activity;
- The impacts of the authorized take are minimized and fully mitigated;
- The measures required to minimize and fully mitigate the impacts of the authorized take:
  a. are roughly proportional in extent to the impact of the taking on the species,
  b. maintain the applicant's objectives to the greatest extent possible, and
  c. are capable of successful implementation;
- Adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with and the effectiveness of the measures; and
- Issuance of the permit will not jeopardize the continued existence of a State-listed species.

CDFW will typically require a mitigation plan, which may or may not be a habitat conservation plan.

Under federal law, "take" is defined as: "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Under state law, take means "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Both Act have been used to protect not only the individuals of a species, but their habitat as well.

6.4 California Fully Protected Species

A limited number of species were protected under laws that pre-date the California Endangered Species Act. Referred to as "fully protected species," no take is allowed under any circumstances, nor can a permit be obtained to take these species. If take is unavoidable, then a project will not be approved.

6.5 Federal Migratory Treaty Bird Act / California Fish and Game Code Sections 3503 and 3515

The Federal Migratory Bird Treaty Act regulates or prohibits taking, killing, and possession of migratory bird species and their nests as listed in Title 50 Code of Federal Regulation (CFR) Section 10.13. Bird species and their nests are also protected under Sections 3515 of the California Fish and Game Code. Members of the orders Falconiformes and Strigiformes (birds-of-prey) are protected under California Fish and game Code Section 3503.

6.6 California Lake and Streambed Alteration Agreement

Fish and Game Code section 1602 requires any person, state or local governmental agency, or public utility to notify CDFW before beginning any activity that will do one or more of the following: 1) substantially obstruct or divert the natural flow of a river, stream, or lake; 2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or 3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. This applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state.

A project that requires a 1602 Permit must receive a Lake and Streambed Alteration Agreement, issued by CDFW. In order to notify the CDFW, the project owner must submit a complete notification package and fee to CDFW regional office that serves the county where the activity will take place. The fee is determined based on the anticipated final construction costs for the project.

After you notify CDFW, the Department will determine whether your notification package is complete. CDFW should make this determination within 30 calendar days of receiving the notification. If the

notification package is incomplete, CDFW will contact the owner and specify the information is needed to make it complete.

After CDFW receives a complete notification package, it will determine whether a Lake or Streambed Alteration Agreement is needed. An agreement will be required if the activity could substantially adversely affect an existing fish and wildlife resource. If an agreement is required, CDFW will conduct an onsite inspection, if necessary, and submit a draft agreement to you. The draft agreement will include measures to protect fish and wildlife resources while conducting the project. If you are applying for a regular agreement, CDFW should submit a draft agreement to you within 60 calendar days after your notification is complete. Failure to complete the process within 60 days causes issuance of a NOPLAW letter

After you receive the draft agreement, you will have 30 calendar days to notify CDFW whether the measures in the draft agreement are acceptable. If you agree with the measures included in the draft agreement, you will need to sign the agreement and submit it to CDFW. If you disagree with any measures in the draft agreement, you must notify CDFW in writing and specify the measures that are not acceptable. Upon written request, CDFW will meet with you within 14 calendar days of receiving the request to resolve the disagreement. If you fail to respond, in writing, within 90 calendar days of receiving the draft agreement, CDFW may withdraw that agreement.

After CDFW receives the signed draft agreement, it will make it final by signing it. However, CDFW will not sign the agreement until it receives your notification fee and complies with the California Environmental Quality Act (CEQA). After you receive the final agreement, you may begin the project the agreement covers, provided you have obtained any other necessary local, state, and federal authorizations.

6.7 California Environmental Quality Act (CEQA)

CEQA applies to any project that requires a discretionary permit. Among other things, the law provides the steps that a proposed project must go through in order to assure that impacts to special status species are considered in the planning process.

Special-Status species are defined as plants and wildlife that may meet one or more of the following:

- Legally protected under the Federal Endangered Species Act and/or California Endangered Species Act or under other regulations;
- Considered sufficiently rare by the scientific community to qualify for such listing; or,
- Considered sensitive because they are unique, declining regionally or locally, or at the extent of their natural range.

Under CEQA, the "lead agency" is the local or state governmental agency that has the principal responsibility for carrying out or approving the activity. All other local or state agencies with discretionary approval authority are "responsible agencies."

The lead agency must determine first whether the activity is exempt from CEQA. Projects which are not exempt, but which have been adequately addressed during a previous CEQA process do not require additional analysis

If the activity is not exempt, the lead agency must prepare an environmental document, which will be a negative declaration, a mitigated negative declaration, or an environmental impact report. A lead agency is entitled to recover all of its CEQA-related costs from the applicant.

The vast majority of projects are approved via a negative declaration (no environmental impact expected) or a mitigated negative declaration (environmental impacts have been mitigated to a less than significant level). If a significant environmental impact is identified during the initial phase of the CEQA process, then an Environmental Impact Report will be required.

CEQA is very oriented towards greater public review and awareness of projects, so if a project is controversial, the lead agency is likely to require greater environmental analysis than would be necessary on uncontested projects.

6.8 City of San Jose Development Permit

This project does not require a Development Permit from the City (SEE APPENDIX E for letter from the City of San Jose regarding this project)

6.9 City of San Jose Heritage Tree Ordinance

The City of San Jose protects trees through its tree ordinance. Pruning or removal of any of the following requires a permit:

- A street tree
  Street trees are those located in the public right-of-way between the curb and sidewalk; in some locations, the public right-of-way may be up to 12 feet from the curb. The City's Department of Transportation (DOT) provides no-cost permits for pruning street trees and oversees their removal.
- A heritage tree
  The City's Heritage Tree List identifies over 100 trees with special significance to the community because of their size, history, unusual species, or unique quality.
- An ordinance-size tree, live or dead
  An ordinance-size tree on private property is either: (1) Single Trunk - 56 inches or more in circumference at 2 feet above ground; or (2) Multi-trunk - The combined measurements of each trunk circumference (at 2 feet above ground) add up to 56 inches or more
- Any tree located on multifamily, commercial, industrial, or mixed use property or in a common area.
  For trees on these properties, a Tree Removal Permit is required if the tree is ordinance sized, or a Permit Adjustment is required if the tree is smaller than ordinance sized.

6.10 Permitting Strategy

Pre-planning for permitting for this project is difficult because permits are generally issued for "development" projects, which typically include grading and building. The proposed restoration project does not appear to qualify as "development," since the purpose of the project is to restore habitat to a more native state.

Based on the methods proposed for the project, the following permits do not appear to be required for this project:

- Clean water Act 404/401 Permit
  The project will have neither filling nor dredging of wetlands as part of the work, therefore there is no need for Clean Water Act permitting.
- Federal / State Endangered Species Incidental Take Permit
  As determined within the BIOLOGICAL IMPACT ANALYSIS above, no take of a listed species is expected to occur due to the project, and so no incidental Take Permits are required. It should also be noted that no take of California Fully Protected Species will occur
- San Jose Development Permit
  See APPENDIX E for letter from the City regarding this project.
- San Jose Tree Ordinance Permit
  No trees within the definition of protected trees will be removed by this project, and so no permit is required.

There is one permit which may be required for this project to proceed

- Lake and Streambed Alteration Agreement
  CDFW will likely require that a Lake and Streambed Alteration Notification be submitted as part of this project because removal of vegetation from the riparian habitat area could be considered "substantially change or use any material from the bed, channel, or bank of a river, stream, or lake"

The California Environmental Quality Act provides an exemption to small scale habitat restoration projects. However the size of this project exceeds the threshold for that exemption, therefore the project is subject to CEQA analysis.

Since CDFW is the only agency likely to require a discretionary permit for this project, this agency will likely be responsible under CEQA as the lead agency.

Based on the results of the BIOLOGICAL IMPACT ANALYSIS above, all potential impacts can be mitigated to a less than significant level. Thus the project will likely be approved under CEQA as a Mitigated Negative Declaration.

It should be noted that in the event that CDFW does not issue an agreement within 60 days of the determination that the application is complete, an OPLAW letter will be issued. This letter takes the place of an agreement, and stipulates that the project may move forward so long as it is the same project as submitted to CDFW with the notification. However, as the CEQA lead agency, it is unlikely that CDFW will issue an OPLAW letter for this project.

7. FUTURE PHASES OF THE PROJECT

This Plan proposes a Phase II pilot project implement a habitat restoration plan on two private parcels on Coyote Creek, owned by Graniterock and Sierra Development. Implementation of the plan includes a job-training program for homeless and formerly homeless youth, hired through the San Jose Conservation Corps.

We also examined possibilities for future phases of the project to train additional Conservation Corps youth. The two sites we looked at were:

1. 1000' feet stretch of Los Gatos Creek on private property
2. 2000' foot stretch of Coyote Creek on City of San Jose Property

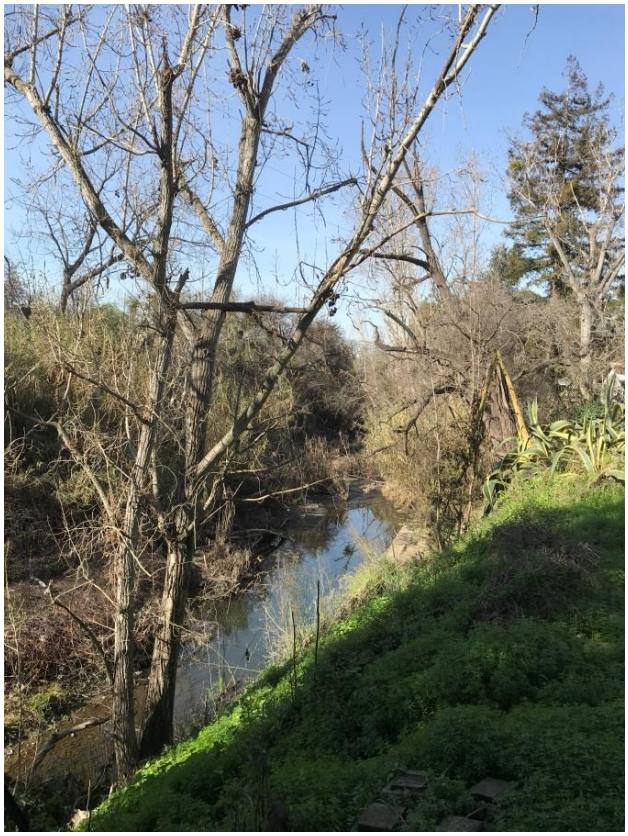
We conducted site visits of these two reaches in February 2018 to assess potential work load to remove invasive exotic plants and replace them with locally appropriate native plants on the Los Gatos Creek properties and to assess the potential work load to revegetate the City Properties.

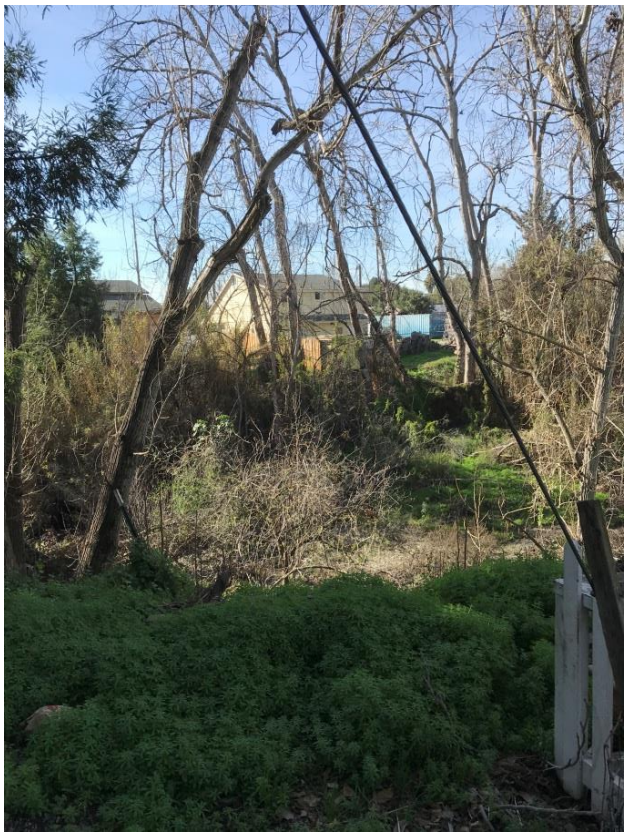
Based on our reconnaissance of these two areas, we estimate that work load is in the range of at least twice the work load of the proposed pilot project. So this would be ideal for a Phase III of the project to train additional Conservation Corps homeless or formerly homeless youth.

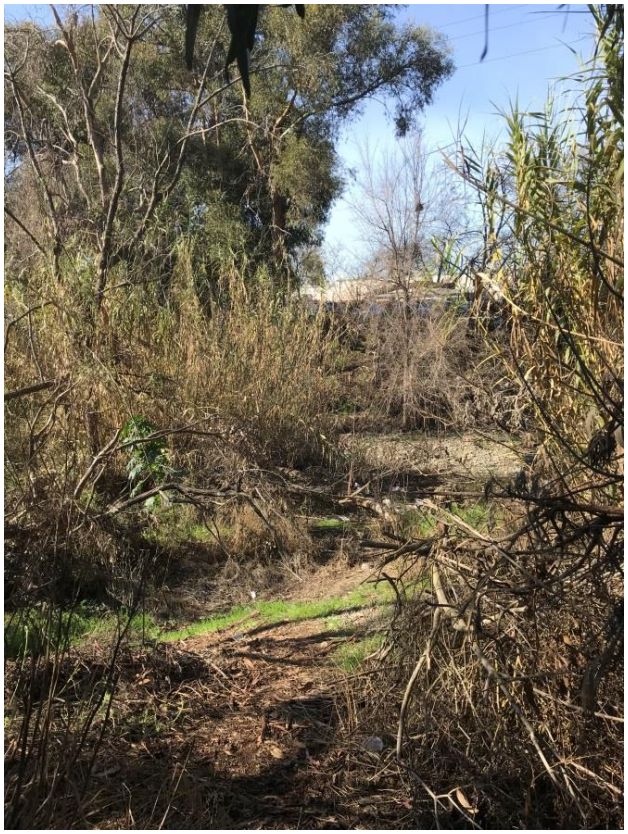
The Implementation Plan envisions applying for a planning grant, in a future grant cycle, to develop a detailed Implementation Plan for these two additional sites supported by what we expect to be successful implementation of the project on Granite Rock and the Flea Market Property.

ATTACHMENTS BELOW
Photos of Los Gatos Creek Invasive Plants
Photos of San Jose Golf Course Property
Maps of Phase III San Jose Properties
Maps of Los Gatos Properties
Example Letter from Los Gatos Creek Property Owner
Letter from City Parks to Jon Laslett RE: Access to San Jose Land July 2017

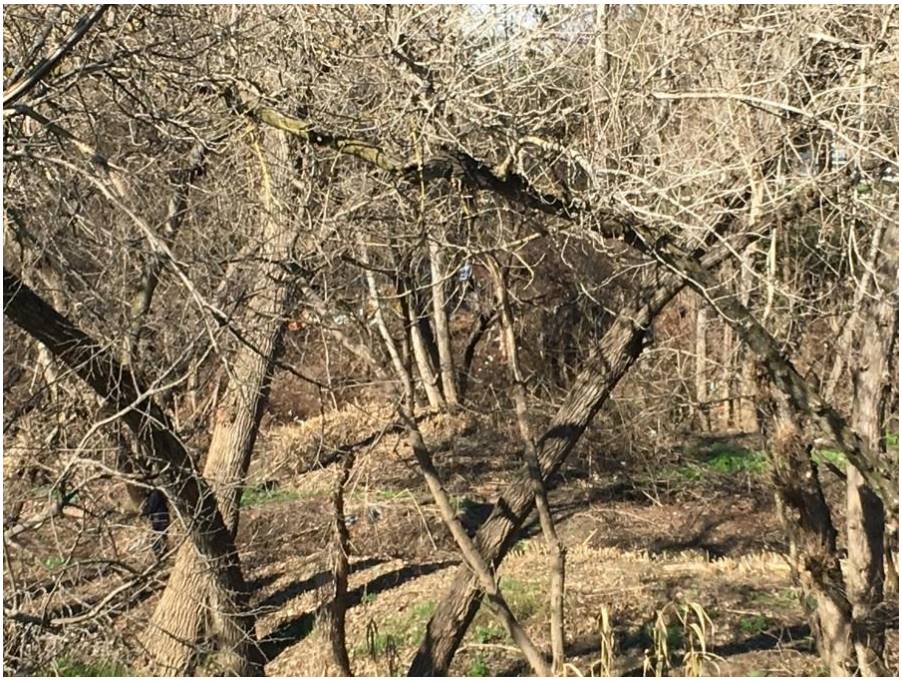
Photos of Los Gatos Creek Invasive Plants



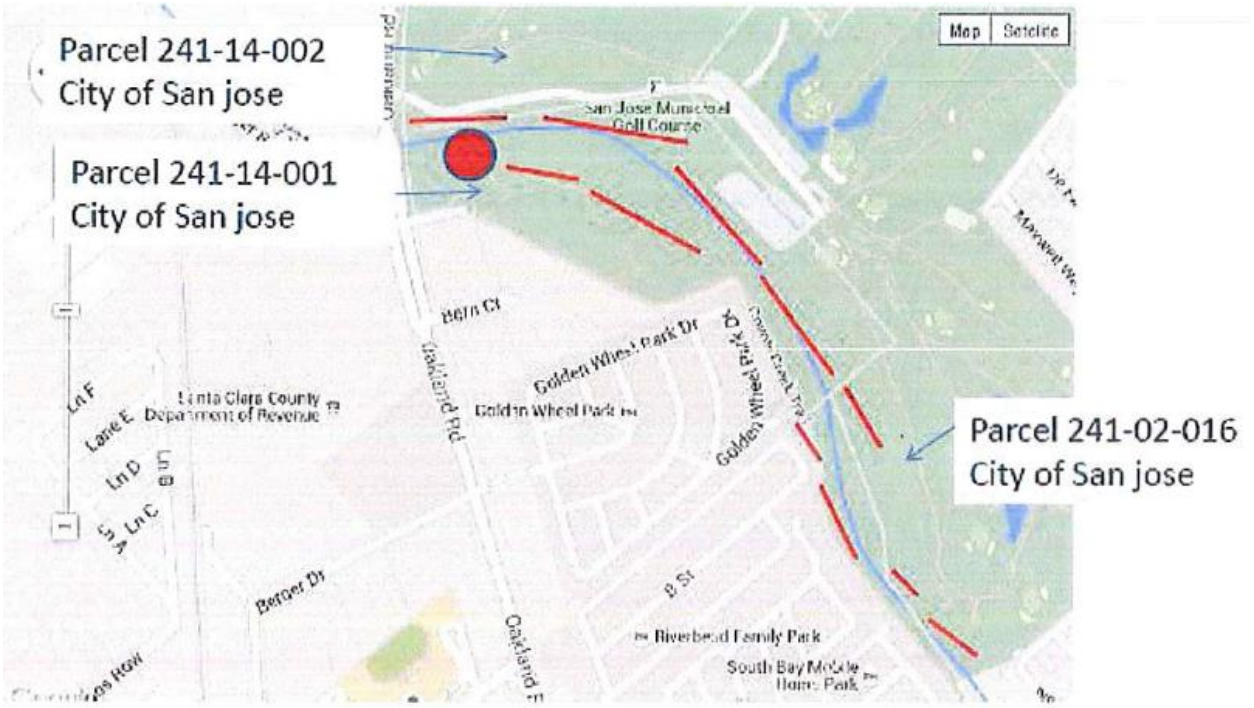


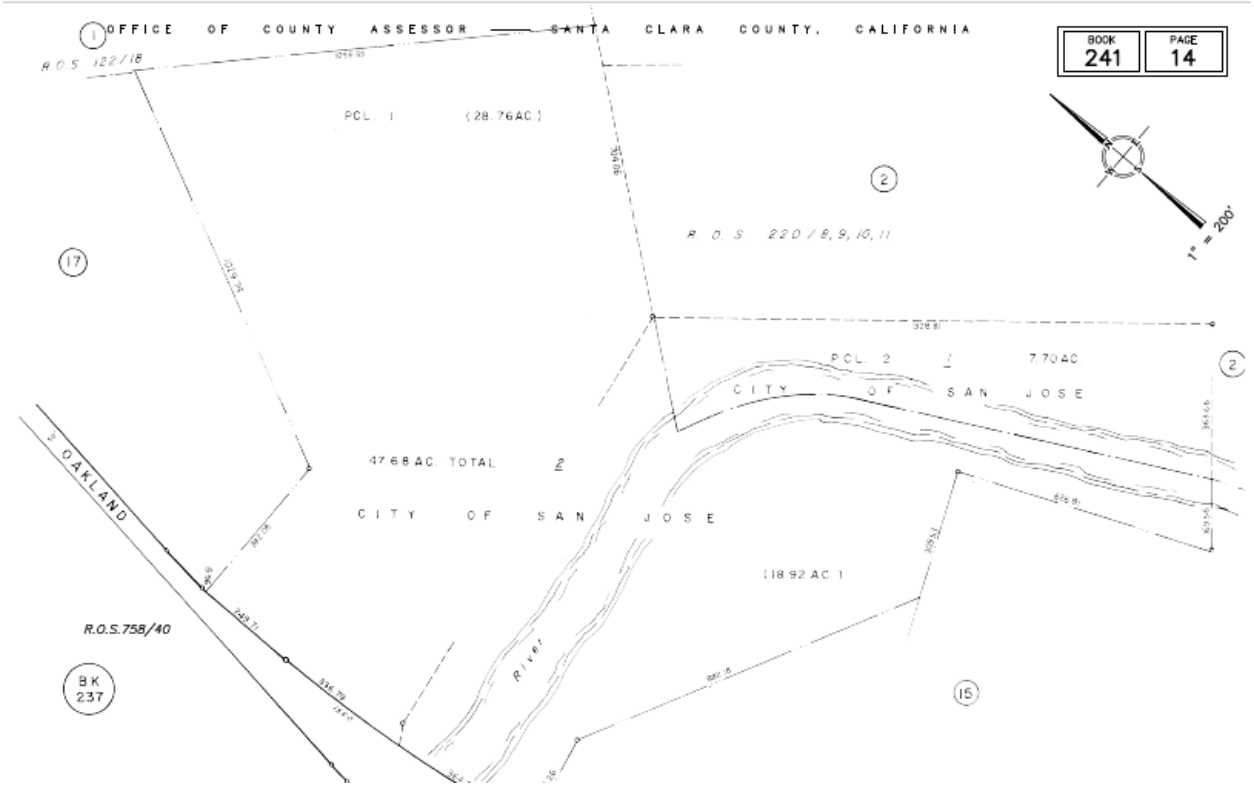



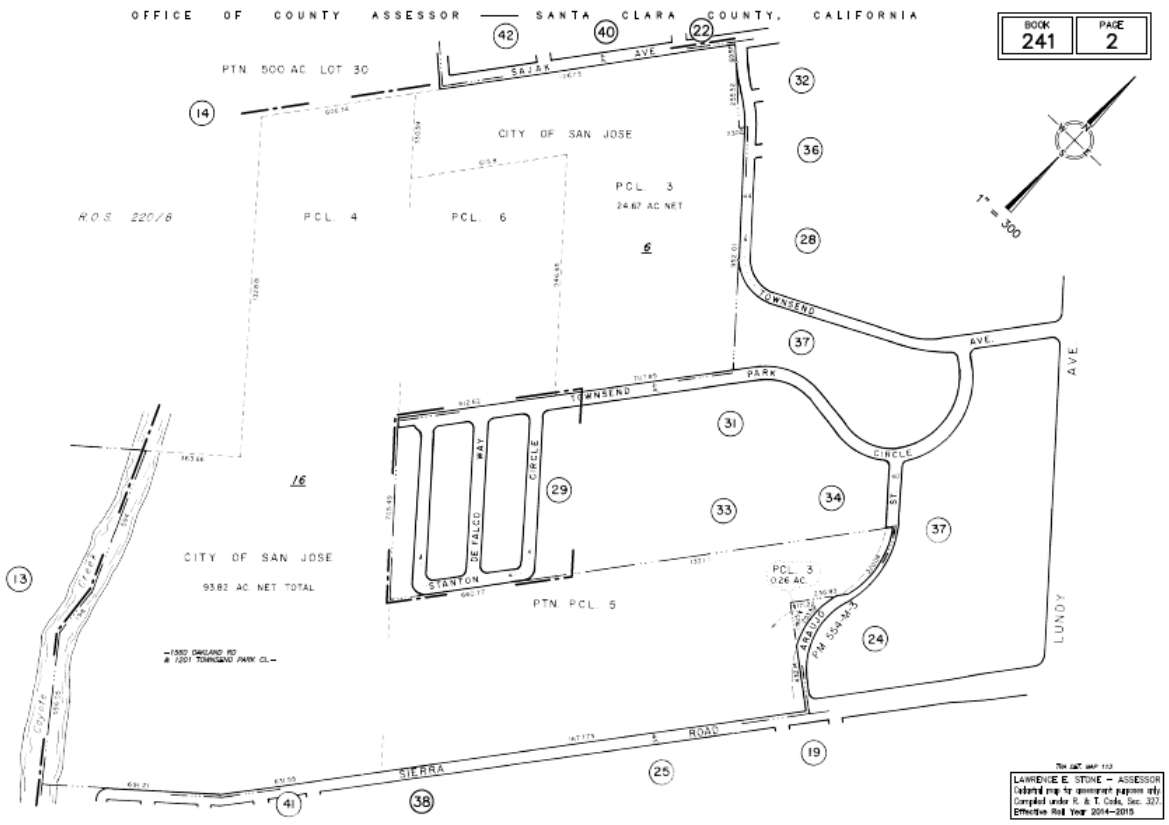
Photos of San Jose Golf Course Property



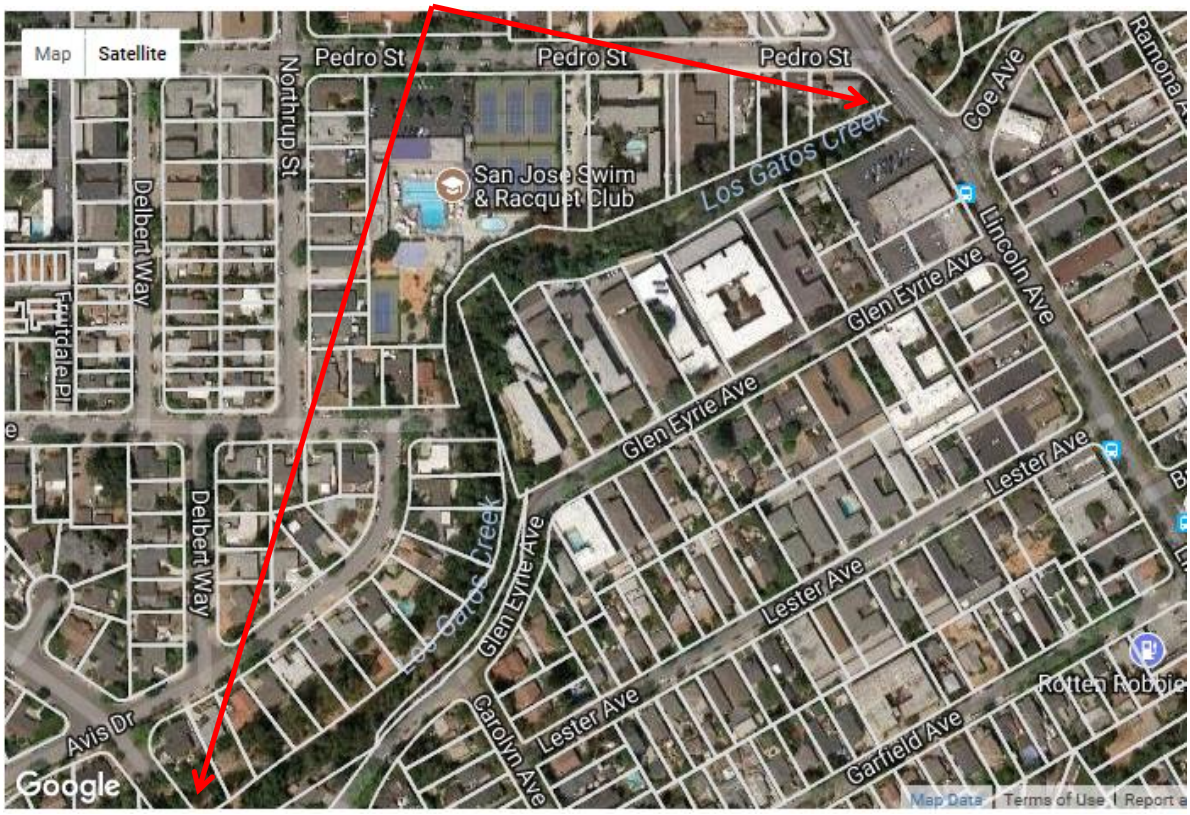
Maps of Phase III San Jose Properties

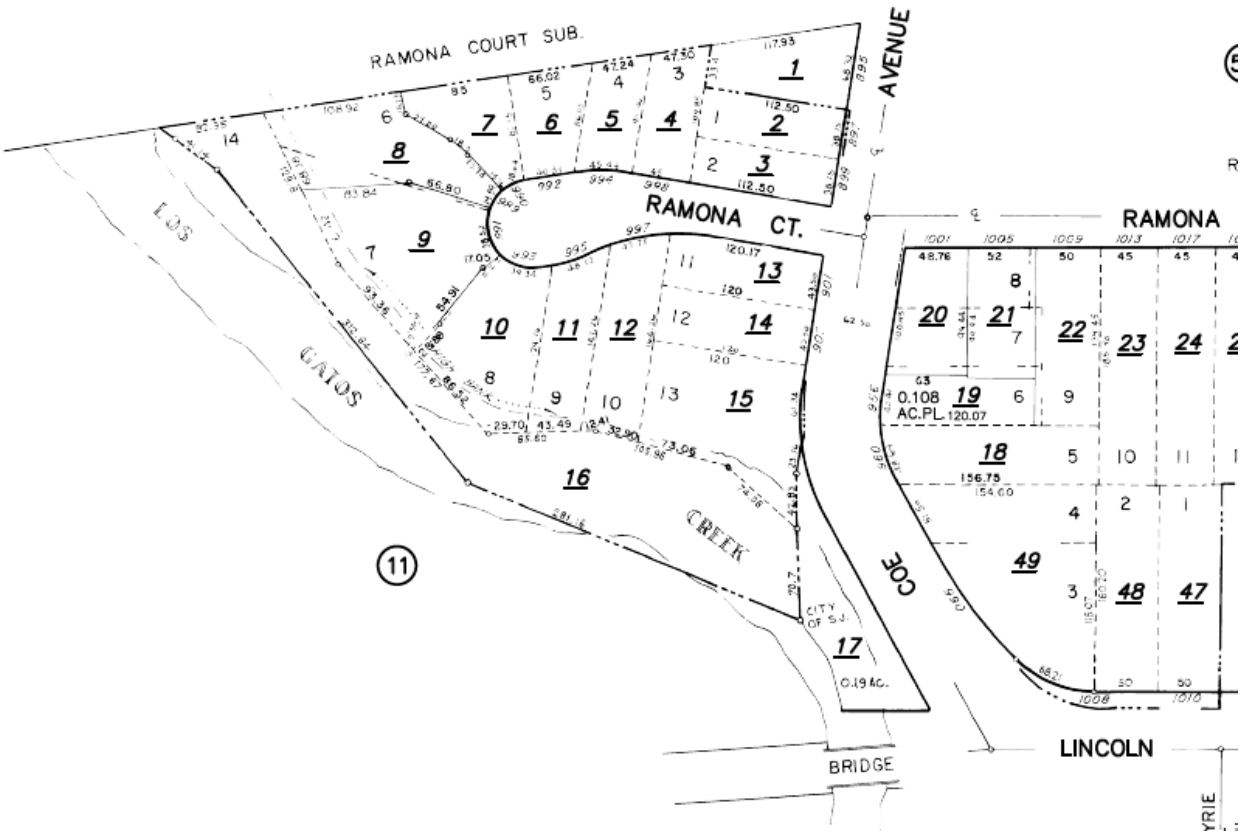


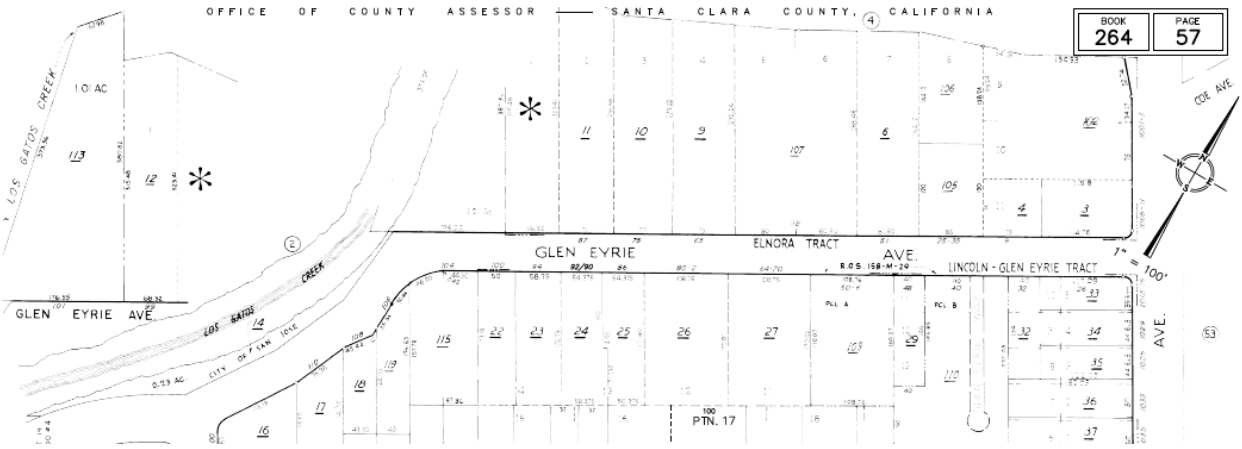


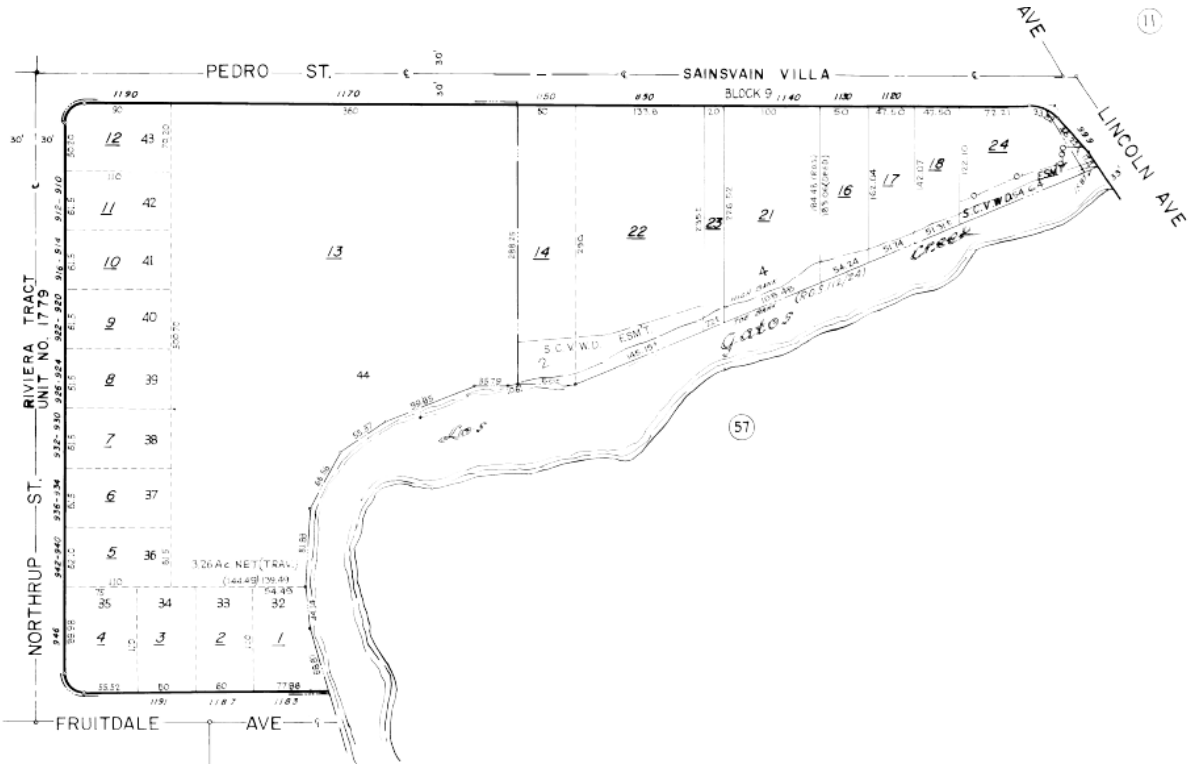

OFFICE OF COUNTY ASSESSOR — SANTA CLARA COUNTY, CALIFORNIA
BOOK 241
PAGE 2
PTN. 500 AC. LOT 30
SAJAK AVE.
CITY OF SAN JOSE
PCL. 3
24.67 AC. NET
R.O.S. 220/8
PCL. 4
PCL. 6
6
TOWNSEND AVE.
TOWNSEND PARK
CIRCLE
DE FALCO WAY
STANTON CIRCLE
16
CITY OF SAN JOSE
93.82 AC. NET TOTAL
PTN. PCL. 5
PCL. 3
0.26 AC.
1350 OAKLAND RD
& 1201 TOWNSEND PARK CT.
COYOTE CREEK
SIERRA ROAD
LUNDY AVE
LAWRENCE E. STONE — ASSESSOR
Cadastral map for assessment purposes only
Compiled under R. & T. Code, Sec. 327.
Effective Roll Year 2014–2015

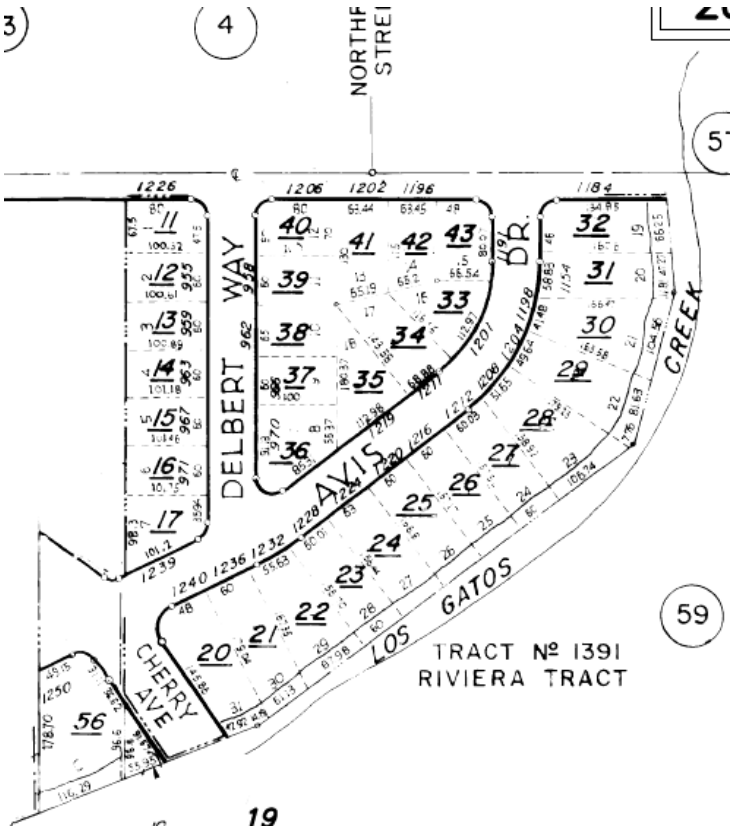
Maps of Los Gatos Properties
Project Boundary on Los Gatos Creek: East of Lincoln and Coe to Race Street




RAMONA COURT SUB.
RAMONA CT.
RAMONA
AVENUE
LOS GATOS CREEK
COE
CITY OF S.J.
0.19 AC.
0.108 AC. PL.
BRIDGE
LINCOLN


OFFICE OF COUNTY ASSESSOR — SANTA CLARA COUNTY, CALIFORNIA
BOOK 264
PAGE 57
LOS GATOS CREEK
1.0 AC
GLEN EYRIE AVE.
ELNORA TRACT
LINCOLN-GLEN EYRIE TRACT
R.O.S. 158-M-29
COE AVE.
1" = 100'
PTN. 17


PEDRO ST.
SAINSVAIN VILLA
BLOCK 9
LINCOLN AVE
RIVIERA TRACT
UNIT NO. 1779
NORTHRUP ST.
FRUITDALE AVE
Los Gatos Creek
S.C.V.W.D. E.S.M.T.
3.26 Ac NET (TRAV.)


NORTH STREET
DELBERT WAY
AXIS DR.
CHERRY AVE
LOS GATOS CREEK
TRACT Nº 1391
RIVIERA TRACT

CAL-WESTERN
PROPERTY MANAGEMENT

January 24, 2018

Mr. John Morley
Ecological Concerns, Inc
609 Pacific Ave #101, Santa Cruz, CA 95060

Dear Mr. Morley,

As property manager and with permission of the owner of the properties on parcel 261-11-004, 264-11-064, and 264-53-016, I authorize you to access these properties for the purpose of making a map of the bamboo and other invasive plants on the property and preparing a plan for their removal.

Sincerely,

Peter Noonan

1270 S. Winchester Blvd. Suite 127 • San Jose, CA 95128 • **TEL: (408) 554-1818** • FAX (408) 246-8941 • www.calwestern.com

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Parks, Recreation and Neighborhood Services
SPECIAL PARK USE

June 27, 2017

Jon Laslett
Ecological Concerns, Inc.
125 Walk Circle
Santa Cruz, CA 95060

Dear Mr. Laslett:

As requested, this letter is authorization for access from the City of San Jose to use City owned areas along Coyote Creek near the Municipal Golf Course, specifically parcels 241-14-001, 241-14-002 and 241-02-016/241-02-041 to conduct a survey of invasive plant species in the area. (map attached)

In accordance with section 13.44.120 of the San Jose Municipal Code, Jon Laslett, Ellen Uhler, Garrick Hansen, Cindy Hudson and Joe Rigney of Ecological Concerns, Inc., are authorized to perform these surveys in the parcels listed. Survey methods will include using GPS or hand mapping on printed aerial photos. Aerial extent and height of species will be visually estimated or measured with a tape, depending on ease of access. Vehicle access and parking was not requested and is not authorized for the purposes of this permit; please park in legally marked spaces.

This letter of access is valid from July 1, 2017 through September 30, 2017 with the provision that when the exact dates and times are finalized, a written notice to Alex Pearson (via email) will be given at least one week in advance of accessing the area. In addition, adjacent property owners (attached) must also be notified with specific dates and times of access prior to entering the areas.

Authorized users must have this letter or a copy of the original, in possession when accessing the areas. Authorization may be revoked at any time at the discretion of the City of San Jose. The Parks, Recreation and Neighborhood Parks Department requests a copy of the survey results be sent (via email) at the completion of the project.

If you have any questions or concerns, please do not hesitate to call, or email me directly.

Sincerely,

Alex Pearson
Parks Manager

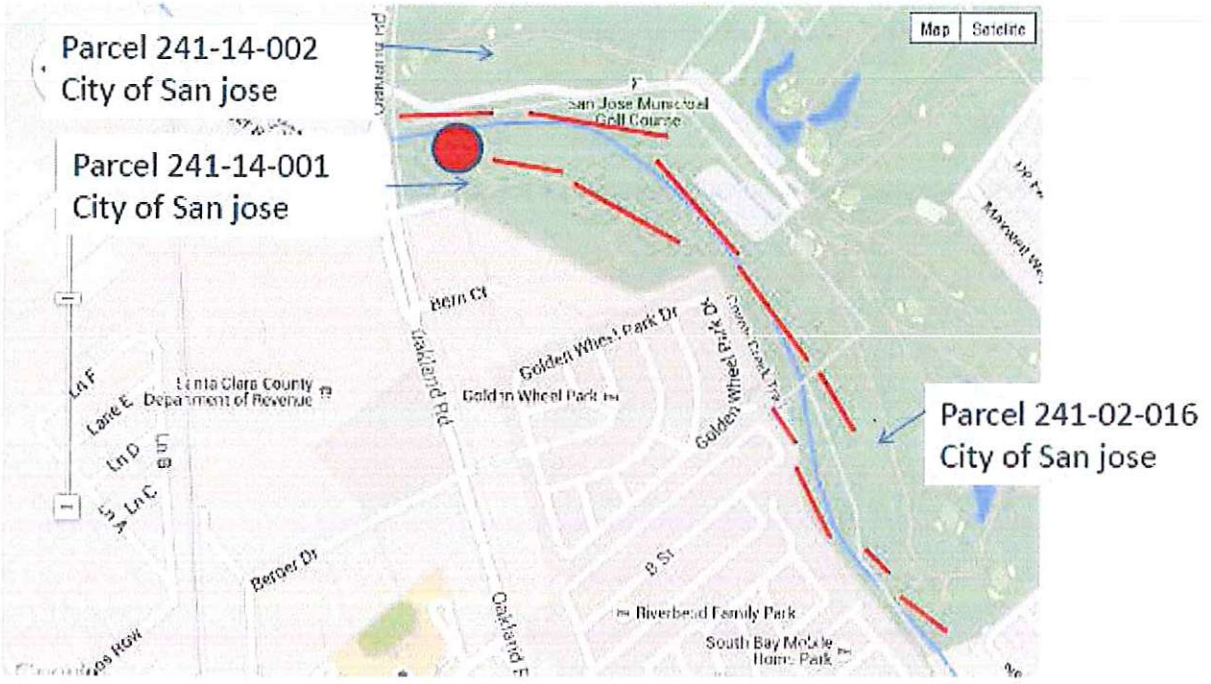
1300 Senter Road San José, CA 95112-2520 *tel* (408) 794-6500 *fax* (408) 286-3682 www.sanjoseca.gov/parks

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Parks, Recreation and Neighborhood Services

SPECIAL PARK USE

Parks, Recreation & Neighborhood Services



Adjacent property owners to be notified:

Kathryn Haider and Scott McCooley, 15900 Kennedy Road, Los Gatos, CA (owner of 1530 Oakland Road)

South Bay Mobile Home Park, PO BOX 32 MOUNTAIN VIEW CA 94042
owner of 1350 Oakland Road)

Santa Clara County Department of Roads and Airport, 1505 Schallenberger Road, San Jose, CA 951311

The New Home Company, 1057 Fox Glove Place, San Jose, 95131

8. CONCLUSION

The proposed habitat restoration project provides several public benefits, encompassing both social and environmental elements.

Specifically, the project includes:

- Training of 10 homeless or formerly homeless youth with useable job skills
- Removal of 2.1 acres of non-native plant species on Coyote Creek
- Habitat restoration of a 6.3 acre section of Coyote Creek

The Granite Rock and Sierra Development (Flea Market) properties on Berryessa Road in San Jose provide an excellent opportunity to implement a pilot project for the Habitat Restoration and Homeless Engagement project. Situated on Coyote Creek, the benefits of such a project will be to provide improved habitat value to the species within the highly urbanized creek.

Implementation of the restoration project will provide extensive training opportunities in both habitat restoration and traditional landscaping techniques, which would be the basis for real-world experience to bring homeless citizens back into the workforce.

If the project is implemented as envisioned in this report, the project will likely require minimal permitting, and any potentially significant impacts can be mitigated to a less than significant level.

As an all-inclusive document, this report can be used as the basis for both fundraising and permitting.

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APPENDIX A: SPECIES ACCOUNTS

Species accounts drawn primarily from the following sources: California Invasive Plants Database (CAL-IPC 2017), UC Davis Weed Research and Information Center (WRIC 2017), and *Weed Control in Natural Areas in the Western United States* (DiTomasio, *et. al.* 2013). Additional information is provided based on ECI's own experience in invasive exotic control.

Ailanthus altissima (Tree of Heaven)

Area of Origin: Eastern China

California Invasive Plant Council Rating: Moderate

Identification:

Deciduous tree with gray bark; branches have prominent heart shaped leaf scars; has large, compound leaves with glands on the underside of most leaflets; crushed leaves have an unpleasant smell; develops distinctive, red, winged fruits with seed in center, in clusters at branch tips; typically grows from either seeds or root sprouts.

Control Methods:

Manual/Mechanical Control – hand pulling is best for young seedlings when soil is moist. Hand digging can be used on larger plants but the rootstock must be removed completely, which is very labor intensive. Cutting sprouts can help, but often requires additional methods and follow-up.

Chemical Control – Small spouts can be controlled with foliar spraying of 4% glyphosate, while young stems are susceptible to 15-20% triclopyr. The most effective method for trees is cut stump treatment with 41% glyphosate.

Other Considerations:

Can be confused with *Juglans* sp. due to similar leaf shape. A single tree can produce a million seeds per year, but the plant does not make a persistent seed bank. Reproduction from roots can lead to thick stands.

Photos of *A. altissima*

Note reddish color of mature seeds in right photo.

See photos of *Juglans* sp. below to compare leaf shape

Arundo donax (Giant Reed)
Area of Origin: Indian sub-continent

California Invasive Plant Council Rating: High

Identification:

Perennial grass that can grow to 30 ft. tall, looks similar to bamboo; spreads vegetatively by rhizomes or fragments; forms dense stands; a variety with variegated leaves was observed during the mapping for this report.

Control Methods:

Manual/Mechanical Control – Hand pulling is effective against small sprouts but requires removal of all rhizomes to avoid resprouting. Rhizomes can be dug up, especially after cutting of plant to the base. Digging is often performed by heavy equipment, such as a backhoe. Cutting, chopping, and/or mowing have been used with some success, though the fibrous nature of the plant makes this difficult and requires specialized equipment. Access can also be an issue when using heavy equipment. Vegetative material should be removed from the site, and several follow-up visits are usually required in order to use up the energy stored in the rhizomes

Biological Control – While there is no currently accepted biological control treatment, ongoing research has pointed to a few insect species that may be helpful.

Chemical Control – Glyphosate at 2-4 qt. of product per acre and spot treatments with a 2% solution. Works well as a follow up to mowing / cutting to control spring re-sprouts. Due to the plant typically growing in riparian areas, surfactants should be avoided.

Other Considerations:

Used extensively by homeless individuals in construction and hiding camp sites in riparian areas.

Photos of *A. donax*
Left: Typical stand (homeless encampments often hidden within stands); Right: Plant in flower

Centaurea solstitialis (Yellow Star Thistle)
Area of Origin: Southern Europe and Western Eurasia

California Invasive Plant Council Rating: High

Identification:

Deep rooted annual or occasionally short-lived perennial. Has one to many solitary spiny yellow flowers produced throughout the spring to the fall. The plant spreads via seed.

Control Methods:

Manual/Mechanical Control – Mowing can be effective so long as seed production is halted, typically by mowing in the spring with a follow-up mowing a few months later. Digging of individual rosettes, while time consuming, is also effective.

Biological Control – Six insect species have been introduced and established in California to control this plant. To date, the efficacy of these introductions has not been very good. Cattle will eat the plant early in its lifecycle before spines have been produced.

Chemical Control – Post-emergence herbicides such as 2,4-D, triclopyr, dicamba, and glyphosate are typically used in non-crop areas. All but glyphosate are selective and preferably applied in late winter or early spring to control seedlings without harming grasses. Once plants have reached the bolting stage, the most effective control can be achieved with glyphosate (1 percent solution). The best time to treat with glyphosate is after annual grasses or forbs have senesced, but prior to yellow starthistle seed production (May-June). The most effective compound for yellow starthistle control is clopyralid at rates of 4-10 oz. formulated product per acre. Apply from December through April.

Photos of *C. solstitialis*
Left: Typical plant; Right: Close up of spiny flower

Delairea odorata (Cape Ivy)
Area of Origin: South Africa

California Invasive Plant Council Rating: High

Identification:

A long-lived, perennial vine in the Aster family with shiny leaves that climbs over and smothers other vegetation. Flowers are yellow, consisting of only disc flowers. Fruits are typically sterile in California. The plant can grow adventitiously from small pieces of either stems or roots. Often found in wet or moist areas.

Control Methods:

Manual/Mechanical Control – Labor intensive, but can be successful; a technique called "the scorched earth method," which requires the clearing of other vegetation in order to gain visual and physical access to the plant, is effective. Roots and stems should be removed completely, typically using a three-pronged rake to loosen the soil. Plants should be bagged prior to taking to the disposal site. Debris can also be composted onsite, however this requires consistent follow-up in order to assure that the pile does not become a new source of infestation.

Biological Control – Field tests of a gall fly (*Parafreutreta regalis*) are currently underway. It is too early to know if this will be an effective control method. While toxic to most mammals, goats have been used with some success.

Chemical Control – A mixture of foliar-sprayed 0.5 percent glyphosate, 0.5 percent triclopyr, and 0.1 percent silicone surfactant in water, applied as a foliar spray at 6.4 liters/ha in two applications, one year apart is effective. Applications must be done in late spring when the plant is photosynthesizing actively but is past flowering, so the active ingredients move down with the sugars that are transported to underground storage organs.
Glyphosate alone and glyphosate with a surfactant kills above-ground foliage, however extensive resprouting occurs from underground parts and so follow-up is required.

Other Considerations:

Cape ivy is difficult to eliminate for two reasons: stolons and underground parts readily fragment while being removed, and plants will grow from almost any remaining fragment. It is necessary to monitor removal sites every four to eight weeks in the first year and every four months in the second year to locate and kill resprouts. Location and retreatment of resprouts is imperative or in six to eight months the ivy can reinfest the whole area from which it was removed.

Cape ivy contains pyrrolizidine alkaloids known to be toxic to mammals and to spiders. Cape ivy foliage may also contain compounds that decrease fish survival. Cape ivy climbs over other vegetation, often reducing native plants by 75-95%. The weight of the plant can cause trees to topple. The shallow root system can contribute to soil erosion on hillsides.

May be easily confused with the California native plant *Marah fabacea* (California man-root). The native plant has tendrils, white flowers, a spiny fruit, is deciduous, and typically does not suffocate other plants.

Photos of *D. odorata* and *M. fabacea*
TOP – Left: Typical *D. odorata* patch, note yellow flowers
Right: *D. odorata* suffocating other plants
BOTTOM – Left: *D. odorata* leaves and stems
Right: *M. fabacea* leaves, flowers, and stems, note tendrils and white flowers

Foeniculum vulgare (Fennel)
Area of Origin: Southern Europe, Mediterranean Region

California Invasive Plant Council Rating: High

Identification:

An erect perennial herb, four to ten feet tall, with finely dissected, almost feathery leaves and characterized by a strong anise or licorice scent originating from stems and leaves. The flowers are yellow and small (one-quarter inch across), and are clustered in large, rounded, umbrella-like groups (compound umbels), roughly four inches across, that are conspicuous from April through July.

Control Methods:

Manual/mechanical Methods - Manual methods are most effective when infestations are light and locally restricted. Digging out individual plants by hand is preferred to plowing or bulldozing because it minimizes soil disturbance, but it is labor-intensive. Cutting, mowing, and chopping are ineffective as methods of removal and minimally impact the spread of fennel stands. Repeated cuts may have more impact by helping to exhaust the resources of the taproot over time. However, intervals between cuts must be short, because fennel recovers rapidly from cutting and begins to replenish its root energy supplies.

Chemical Control - 95 to 100 percent kill can be achieved when amine and ester formulations of triclopyr applied to fennel in early spring at rates of 6 lbs./100 gallons water (1 lb. active ingredient/acre). Glyphosate sprayed in spring at the manufacturers recommended can also be effective. Follow-up is necessary. Cutting prior to spraying did not increase the effectiveness of these treatments.

Other Considerations:

Fennel reproduces from both root crowns and seeds. Because of its prolific seed production and seed viability, a long-lived seedbank can build up rapidly. Seeds may persist in soil for several years without germinating. Germination can occur almost any time of the year.

Photos of *F. vulgare*
Left: Typical stand; Right: Close up of leaves

Hedera sp. (Ivy)

Two species were observed in the study area, which are considered together in this report: 1) *Hedera helix* (English ivy), and 2) *Hedera canariensis* (Algerian ivy)

Area of Origin: England, Ireland, the Mediterranean region, and northern Europe west to the Caucasus Mountains (*H. helix*); Canary Islands and Northern Africa (*H. canariensis*).

California Invasive Plant Council Rating: High

Identification:

A vine with waxy, glossy, evergreen leaves. Often seen growing up the sides of buildings and trees. Leaves may have a strong odor when crushed. The white flowers are in clusters on the ends of stems produced in fall, and the fruits are dark blue or purplish drupes. Roots at leaf nodes with adventitious rootlets that allow the plant to climb vertical surfaces by adhering to, but not penetrating, bark and brick.

Control Methods:

Manual/Mechanical Control – Hand removal of vines using pruners to cut the vines and then pulling the plants up from the forest floor and down from the trees is effective. Removing and killing vines that spread up into trees is especially important because the fertile branches grow primarily on upright portions of the vine. If vines are cut at the base of the tree the upper portions will die quickly but may persist on the tree for some time; vines on the ground around the tree should also be removed to prevent regrowth up the tree. Care should be taken to minimize disturbance during removal.

Prescribed Burning – Burn ivy plants and resprouts with a blow torch at regular interval can be successful. The energy used by the plant to regrow will eventually be depleted.

Chemical Control – Herbicides are fairly ineffective against ivy. This is even true when surfactants, high application rates (4 lb./acre), and second applications are used. Some success has been achieved using a weed whip to remove most of the leaves and young stems and then immediately spraying triclopyr at a rate of 6.5 oz./gal plus a surfactant. Herbicide can also be brushed onto cut stems to prevent resprout.

Other Considerations:

Potentially confused with other vine species. Look for waxy, evergreen leaves and stems lacking tendrils.

Photos of *Hedera* sp.

Left: Typical leaves

Right: Plant climbing a tree trunk

Juglans sp. (Walnut)

The identification of *Juglans* sp. is confused due to the introduction of *J. regiaI (English walnut),* which was often grafted onto native walnut rootstock. Native California species were also introduced from elsewhere in the state into the Santa Clara Valley. For the purposes of this analysis, all *Juglans* species are considered invasive.

Area of Origin: California, England

California Invasive Plant Council Rating: Not listed

Identification:

A large, deciduous tree attaining heights of 25–35 m (80 to 120 ft.), and a trunk up to 2 m (6 ft.) diameter. It is a light-demanding species, requiring full sun to grow well. The leaves are alternately arranged, 25–40 cm (10 to 16 in) long, odd-pinnate with 5–9 leaflets, paired alternately with one terminal leaflet.

Control Methods:

Manual/Mechanical Control – Stump grinding and/or stump tarping may be effective for cut trees.

Chemical Control – Cutting the tree and dabbing with glyphosate will likely kill the tree, though follow-up may be necessary for resprout.

Other Considerations:

Trees release the toxic compound juglone into the soil around the tree, making it uninhabitable by many plants. The toxic juglone extends to the edge of the tree's canopy and sometimes slightly farther out. Tree can be confused with *Ailanthus altissima* due to similar leaf shape. Walnuts have round fruits, while *A. altissima* has reddish seeds with wings.

Photos of *Juglans* sp.

TOP – Left: Typical tree; Right: Fruit

BOTTOM: Leaf (see *Alianthus altissima* above for comparison of leaf shape)

Quercus ilex (Holly Oak)
Area of Origin: Mediterranean

California Invasive Plant Council Rating: Not listed

Identification:

An evergreen tree. The leaves are very variable in shape, most frequently narrowly oval or ovate-lanceolate, 4–8 cm long, 1.2–2.5 cm wide, rounded or broadly tapered at the base, pointed, the margins either entire or toothed. Both surfaces of young leaves young, both are covered in a whitish down, which soon falls away entirely from the upper surface leaving it a dark glossy green; on the lower surface it turns grey or tawny, and persists until the fall of the leaf.

Control Methods:

Manual/Mechanical Control – Stump grinding and/or stump tarping may be effective for cut trees.

Chemical Control – Cutting the tree and dabbing with glyphosate will likely kill the tree, though follow-up may be necessary for resprout.

Other Considerations:

Native *Quercus* sp. occur throughout the Santa Clara Valley, so proper identification is required.

Photos of *Q. ilex*

TOP – Left: Typical tree

Right: Acorn and leaves, note white under leaf

BOTTOM – Tree in flower

Ricinus communis (Castor Bean)
Area of Origin: Asia and Africa

California Invasive Plant Council Rating: Limited

Identification:

A perennial shrub, sometimes tree-like, three to fifteen feet tall, with large, palmately lobed leaves and sharply toothed leaf margins. The leaves are usually deep green, but in some strains they have a reddish cast. They have an odor when crushed. The stems are smooth, round, and frequently red, with clear sap. The flowers are small and greenish, with both male and female flowers on the same plant. The fruit is a quarter-sized, round, spiny capsule, often reddish, containing up to three shiny, smooth, mottled seeds that resemble ticks.

Control Methods:

Manual/Mechanical Control – Pulling plants by hand when small or in wet sandy soils is a feasible technique in most riparian areas. The bulk of the root should be removed. Plants broken at the root crown will regenerate with multiple shoots. Weed wrenches can be used to remove small to medium-sized plants. Gloves should be worn for hand pulling.

Chemical Control – Foliar-sprayed 2 percent glyphosate can be used to kill mature shrubs. Cut-stump treatment with loppers or saws and 25 percent glyphosate can also be used to kill mature shrubs. Small saws (hand or chain) will be required for larger plants.

Other Considerations:

Seeds are highly toxic to humans, cattle, horses, rabbits, sheep, pigs, goats, gophers, cats, dogs, and poultry. Castor oil is associated with allergic reactions, and farm workers exposed to castor beans have developed allergic asthma and undergone anaphylaxis from castor bean dust

Photos of *R. communis*

TOP – Left: Small plant; Right: Fruit

BOTTOM – Large plant, note reddish leaves and stems

Rubus sp. (Blackberry)

Two species consolidated under this heading, (1) *R. armeniacus* (Himalayan blackberry, formerly named *R. discolor*), and 2) *R. ulmifolius* (elmleaf blackberry). The majority of plants observed in this study were *R. ulmifolius*.

Area of Origin: 1) Armenia and Northern Iran; 2) Europe, North Africa

California Invasive Plant Council Rating: High

Identification:

Grows in dense thickets of long, bending branches (canes. Canes on *R. armeniacus* have hooked prickles, while those of *R. ulmifolius* are smooth. Flowers are white, yielding black berries. Compound, palmate leaves are composed of five leaflets. Roots can form on canes at apices.

Control Methods:

Manual/Mechanical Control – Most mechanical control techniques, such as cutting or using a weed wrench, are suitable for Himalayan blackberry. Care should be taken to prevent vegetative reproduction from cuttings. Burning slash piles is an effective method of disposal. However, removal of canes alone is insufficient to control Himalayan blackberry, as root crowns will resprout and produce more canes.

Removing rootstocks by hand digging is an effective way of destroying blackberry, which resprouts from roots. The work must be thorough to be effective because every piece of root that breaks off and remains in the soil may produce a new plant.

Plants may be trimmed back by tractor-mounted mowers on even ground or by scythes on rough or stony ground. This technique usually require several cuttings before underground plant parts exhaust their reserve food supply. If only a single cutting can be made, the best time is when plants begin to flower. At this stage the reserve food supply in the roots has been nearly exhausted, and new seeds have not yet been produced. After cutting or chopping with mechanical equipment, blackberry may resprout from root crowns in greater density if not treated with herbicides.

Prescribed Burning – Burning is suitable for removing large thickets, but requires follow-up to control resprouts.

Biological Control – Sheep, cattle, and horses can be effective in reducing the spread of blackberry. Infestations have been controlled by the grazing of large numbers of goats.

Chemical Control – Cut stems to about 1 foot and treat stumps with 25–50 percent concentration of glyphosate immediately after cutting.

Other Considerations:

Can be confused with the native *R. ursinus* (California blackberry). The native has small, fine, thin prickles on the canes, and the leaves have three leaflets (though it should be noted that very young *R. armeniacus* and *R. ulmifolius* leaves will sometimes only have three leaflets). Sturdy gloves should be used when hand pulling of *R. armeniacus* due to the prickles. Don't use herbicide on or near plants from which people may pick and eat the berries.

Photos of *Rubus* sp.

TOP – Left: Typical patch; Right: Plants with berries

BOTTOM – Left: *R. amerianus* leaf and stem, note stout spines and five leaflets
Right: *R. ursinus* (California native), note fine spines and three leaflets

Schinus molle (Peruvian Pepper Tree)
Area of Origin: Peruvian Andes

California Invasive Plant Council Rating: Limited

Identification:

A quick growing evergreen tree that grows up to 45 feet tall. The upper branches of the tree tend to droop. Pinnately compound leaves measuring 8–25 cm long × 4–9 cm wide, made up of 19-41 alternate leaflets. The fruit are 5–7 mm diameter round drupes with woody seeds that turn from green to red, pink or purplish, carried in dense clusters of hundreds of berries that can be present year-round. The rough grayish bark is twisted and drips sap. The bark, leaves and berries are aromatic when crushed.

Control Methods:

Manual/Mechanical Control – Stump grinding and/or stump tarping may be effective for cut trees.

Chemical Control – Cutting the tree and dabbing with glyphosate will likely kill the tree, though follow-up may be necessary for resprout.

Other Considerations:

Although not related to commercial pepper (*Piper nigrum*), the pink/red berries are sold as pink peppercorns and often blended with commercial pepper. The fruit and leaves are, however, potentially poisonous to poultry, pigs and possibly calves. Records also exist of young children who have experienced vomiting and diarrhea after eating the fruit.

Photos of *S. molle*
Left: Typical tree, note how tree “droops”; Right: Leaves and berries

Ulmus sp. (Elm)
Area of Origin: Northern Hemisphere (no native species in California)

California Invasive Plant Council Rating: Not Listed

Identification:

Deciduous and semi-deciduous trees, the leaves are alternate, with simple, single- or, most commonly, doubly serrate margins, usually asymmetric at the base and acuminate at the apex. The fruit is a round wind-dispersed samara flushed with chlorophyll, facilitating photosynthesis before the leaves emerge.

Control Methods:

Manual/Mechanical Control – Stump grinding and/or stump tarping may be effective for cut trees.

Chemical Control – Cutting the tree and dabbing with glyphosate will likely kill the tree, though follow-up may be necessary for resprouts.

Photos of *Ulmus* sp.
Left: Typical tree; Right: Typical leaves

Vinca major (Periwinkle)
Area of Origin: Western Mediterranean

California Invasive Plant Council Rating: Moderate

Identification:

A spreading perennial vine with glabrous, dark green stems that contain a milky latex. The non-flowering stems grow close to the ground, rooting at the nodes and extending outward to three feet. Flowering stems grow erect to knee-high with solitary, purplish-blue flowers.

Control Methods:

Manual/Mechanical Control – Hand removal yields good results if careful attention is paid to removing all root nodes and stolons. An effective method is to work inward from the perimeter of the patch and pull the periwinkle back in on itself to prevent further spread of the weed between removal sessions.

Chemical Control – Glyphosate works if plants are mechanically treated first and then sprayed immediately afterward. Treating with a weed whip or brush cutter breaks through the waxy cuticle and allows better foliar penetration of the herbicide. Care should be taken to run the weed whip at low RPMs in order to "beat up" or "masticate" the leaves and stems rather than completely severing them, leaving sufficient surface area for treatment. Using the cut and spray method, a 5 percent glyphosate solution can provide nearly 100 percent control. To reduce native plant death in the area, a 3 percent solution provides 70-75 percent control and yields good results if followed by spot applications. A wick applicator is suggested for spot treatments, and a backpack sprayer is recommended for treating large areas. To aid chemical distribution throughout the plant, use surfactant and apply herbicide during an optimal growing period of good moisture and warm temperatures (70-80 degrees F) usually in late spring or early fall.

Other Considerations:

In California periwinkle reproduces vegetatively, not by seed. The plant spreads by sprawling stems that form a shallow root at the nodes. This creates a carpet of vegetation. Wet periods rapidly accelerate vegetative growth. Periwinkle will die back in a frost, but will resprout when optimal conditions return. It does not grow well in dry soil or direct sunlight, but does well in a moist microclimate with shaded areas.

Post treatment monitoring is recommended. Follow-up on any removal actions is necessary, as any overlooked stem or plant fragments will quickly resprout. Following chemical removal, the population should be checked twice, in early fall and late spring. With manual removal, follow-up should be performed every three months to remove resprouts. After the patch is eradicated it should be checked twice a year in optimal growing seasons.

Because periwinkle has the ability to resprout, mowing or cutting results in abundant regrowth and is not recommended


Photos of *V. major*
Left: Typical patch; Right: Flower

APPENDIX B: INVASIVE EXOTIC CONTROL TECHNIQUES

Information on invasive exotic control techniques are drawn primarily from *The Weed Workers Handbook* (Holloran *et. al.* 2004) and from ECI's experience working in habitat restoration.

Impact Minimization

Invasive exotic removal is often performed in natural and wildland areas as part of habitat restoration. While the short-term impacts of invasive species removal are typically outweighed by the long-term benefit to habitat areas, minimization of impacts is necessary due to the often sensitive nature of the places where work is being performed.

The removal of plant material can lead to significant erosion problems if not taken into account early in the planning process. The area of soil impacts, and the extent of those impacts should be minimized through choosing the least harmful effective technique. Potential erosion problems should be anticipated, and appropriate best management practices should be implemented as necessary.

Both mechanical and chemical control of plants can have immediate short-term negative impacts to wildlife species, such as nesting birds or listed endangered species. Of particular concern is the use of herbicides with added surfactants within riparian areas. Prior to initiating a large scale removal project, appropriate biological analysis should be performed to determine the potential to harm species during project activities.

The removal of non-native species does not automatically lead to the return of native species. In most cases, revegetating areas with appropriate native species is an important component of a successful restoration project.

Integrated Pest Management (IPM)

Integrated Pest Management (IPM) can be defined as an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and nontarget organisms, and the environment (UCIPM 2017).

IPM programs can be implemented in any of a wide variety of contexts, from kitchen and bathroom cleaning to rodent and weed management. The basic outline of such a program is to use the least toxic method whenever and wherever possible, implementing chemical control only when other methods are deemed unfeasible or ineffective.

Non-herbicidal control of invasive exotic species can often be prohibitively expensive due to the scale of invasions. Typically, and IPM strategy would involve selective actions followed by minimal herbicide treatment. An example of this might include cutting a tree then selectively applying herbicide to the outside edge of the stump in order to prevent the tree from resprouting.

Manual/Mechanical Control

These methods include a wide variety of techniques utilizing hand tools and engines to remove plants. Often, manual/mechanical control methods are combine with chemical control methods.

Pulling, Digging, Scraping

These methods are used to remove above and below ground growth. These techniques can be very labor intensive, and appropriate protective clothing should be worn, such as gloves, sturdy boots, gloves, and clothing that covers the entire body. For certain species, such as those with spines, eye protection might also be necessary.

Hand pulling can be very effective technique, though it can be very hard on the body. Care should be taken to protect the back, using the legs to lift rather than the back. Wrists and forearms are also sensitive to repetitive motion injuries.

Specialized tools such as a weed wrench can be used to minimize bodily stress. The Weed Wrench (or its analogues, such as the Pullerbear or the Extractagator) has a tall vertical handle connected to moveable jaws set on a base that rests on the ground. As the handle is pulled back, the jaws close around the woody stem and the base becomes a fixed point against which the plant can be levered out of the ground. They come in several sizes.

Digging is often used in conjunction with pulling. Tools such as hand trowels, dandelion diggers, shovels, Pulaskis, mattocks, hand picks, and even steel bars are used to dig around and loosen roots from the soil. To the greatest extent possible, plants should be shaken in order to loosen soil and leave it on the site. For extensive digging, workers should stay aware of any archeological artifacts exposed during work.

Scraping is used to kill seedlings and small weeds. Pattern hoes, oscillating hoes, McCleods, and mattocks are useful in scraping plants from the soil. Rakes and other tools with claws can be useful by digging removing shallow roots from loose soil or duff.

Cutting, Mowing, Weed Whipping / Brush Cutting

Many plants will die if cut close to the ground. Hand tools such as pruners and loppers can be used on smaller plants, while mechanical tools like chainsaws are necessary for cutting trees. Chainsaws should only be used by workers trained in their use, and personal protective equipment such as head, face, ear, and eye protection, and chaps should always be used.

Mowing, weed whipping, and brush cutting are used to remove above ground growth through mechanical means. While weed whipping and brush cutting use similar machines, weed whipping uses a string to cut plants, while brush cutting uses a blade. Note that only certain machines sold as weed whips can be outfitted with blades. Proper personal protective equipment should always be worn when using these tools, such as gloves and eye protection, and the machines should only be used by workers who have received training in their use.

Typical Tools Used for Invasive Exotic Removal

First Row: Dandelion digger (left), Weed Wrench (middle), Pulaski (right)

Second Row: Loppers (left), McCleod (right)

Third Row: Brush mower (left), Heavy Duty Push Mower (right)

Fourth Row: Flamer

Stump Tarping, Stump Grinding

When cut, invasive tree species often resprout. Tarping or grinding of tree stumps are sometimes effective techniques used to overcome resprouts. Covering a stump with dark, thick plastic or landscape fabric can stop resprouts from getting light, thus killing the tree. The fabric is spread at least two to three feet beyond the edges of the root crown to prevent resprouts from photosynthesizing. Because seams tend to be a source of failure, avoid using tarps with seams if you can. The fabric is staked down every few feet—or even every six inches—with U-shaped wire staples, or a trench can be dug to bury the edges of the tarp, to make sure the fabric is securely fastened. Tarped plants need to be checked two to three times a year to ensure that sprouts haven't burst through the fabric or emerged around the edge. Cut stumps may require up to a year or more of covering to prevent resprouting. The fabric can also be covered with mulch to improve the aesthetics.

Stump grinding or macerating can also be used to prevent stump resprouts. Stumps are typically ground to a depth of about two feet below the ground using a chainsaw. Some practitioners macerate cut stumps to inhibit resprouts. They do this by using a chainsaw to make cuts in a grid pattern (one- to two-inch squares) approximately two to four inches deep in the cut surface of the stump.

Biological Control

Biological control involves using other species to do the work for you. For a handful of plants, one or more insects or fungus can be released into the wild that target the invasive plant. While this method does not typically eradicate a species, it can bring down the population such that it is no longer invasive. Finding an insect or fungus that specifically targets only one species while not causing other harms to either humans or the environment often takes more than a decade of very expensive research and so very few invasive plants have such biological control vectors available.

Another type of biological control is through the use of grazing. Grazing animals such as cattle or sheep will often eat invasive plants, particularly at certain points in the plants life cycle. In California, goats have been used quite effectively on several large scale invasive exotic removal projects.

Chemical Control

The use of herbicides for invasive exotic control is quite common, as it is can be very cost effective. However, care should be taken that the correct herbicide is chosen for the job. In particular, surfactants should be avoided in riparian and wetland areas, as these can cause severe health problems for amphibians and fish. Workers using herbicides must work under a valid herbicide applicator's license, and herbicides should be used in accordance with the instructions on the label. Applicators require special protective clothing in order to minimize exposure to these potentially dangerous chemicals.

Cut Stump Treatment

Due to the potential for resprout from cut stumps, herbicide is applied to the cut face of the stump either by painting it on with a small brush or by spraying it on using a small bottle like those used to mist houseplants. Because you have direct access to the cambium, the amount of herbicide required is low, especially given the size of the plant. In fact, using too much herbicide or at too high of a concentration can actually be less effective ass the cambium is killed before the herbicide has a chance to be fully transported into the roots of the plant.

Foliar Spray

This technique delivers herbicide to a plant through its foliage. Because the herbicide is being sprayed, there is the possibility of contacting non-target plants, which can result in undesired damage if you're using a non-selective herbicide like glyphosate. Many applicators use a backpack sprayer, which typically carries several gallons of diluted herbicide. Wind conditions are always measured, because you are prohibited from spraying in any breeze over a low threshold (often set at 10 mph) to avoid drift. To ensure sufficient uptake into target plants it is necessary to cover their leafy surfaces thoroughly. Foliar spray tends to be ineffective on plants that have leaves with thick waxy cuticles.

Wicking

A wicking wand has a sponge on the end that is used to wipe herbicide onto a plant. This can be used for a foliar treatment, in which it has the advantage of getting less herbicide on non-target plants, but the disadvantage of taking more time to coat all surfaces. Wicking wands can also be used for basal bark treatments on woody plants, where herbicide is painted around the bark at the base of the main trunk. This treatment uses special additives that allow the herbicide to penetrate the bark and move into the root system.

Solarizing

This technique takes advantage of the vulnerability of plant tissue to extreme heat. A clear or black plastic tarp allows sunlight to penetrate but traps the heat. In sunny climates the heat can be high enough to kill the plants under the tarp. Solarizing may require up to a year or more of covering to kill the plants underneath the tarp. This technique is often ineffective in foggy coastal areas, though cutting off the plants' access to light using black plastic may still be effective with some species.

Flaming

A propane torch is used to literally boil the leaves of plants. Only effective on seedlings, the technique is not particularly useful for grasses or perennials with basal rosettes. Flaming has several advantages, including avoiding ground disturbance and providing greater selectivity than herbicides. Technique, timing, and safety issues are key concerns. The seedlings are not actually burned, but rather heated to the point at which the water in the plant cells boils and ruptures the cells. This is not always obvious to the torch operator, since the plants will still appear to be alive immediately after treatment, so it can be a difficult technique to learn properly. This treatment should be used only when it is raining or immediately thereafter in order to avoid fire.

Mulching

Mulching can be effective for smothering small infestations of some herbaceous weeds. Cover the area with a weed barrier—landscape fabric, nylon, plastic, even cardboard or old carpet—and then place three to six inches of rice straw or wood chips on top of that. Fabric is preferred over plastic because of its superior ability to let water infiltrate into the soil and prevent erosion problems. Once the plants underneath are dead, removing the weed barrier will allow you to revegetate the area. If the barrier material is biodegradable, such as cardboard, planting can be performed directly into the barrier, cutting small holes to insert plants.

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Prescribed Burning

Some invasive exotic plants are susceptible to fire, and so large scale prescribed burning can be used as a landscape level control technique. Special training and techniques are required for such projects.

Debris Management

Whether pulled, dug, or cut, invasive plants are still invasive plants. Dealing with such debris is an important and often underestimated dimension of weed work. In particular, plants capable of re-sprouting from small pieces of plant material can be very problematic, as controlling weeds in one area may just cause another problem elsewhere. When making plans about how to manage invasive plant debris, considerations like the plant's biology, vehicular access to the site, available resources, and site aesthetics must be taken into account.

Leaving In Place

This simple method only works if your target plant cannot reroot or resprout, occurs in low densities, and decomposes quickly, as is the case with many herbaceous plants.

Piling On-site

Piling the debris in a few stacks rather than scattering it across the entire site frees up space for native plants to begin regenerating. Debris piles often need to be monitored for resprouts. If your target is a resprouting vine like Cape ivy, it is often best to cut a containment line around the debris or pile it in the middle of a large tarp. Bucking and tarping on top can also help. Avoid piling dead plant material in areas where target weeds are likely to grow.

Hauling Off-site

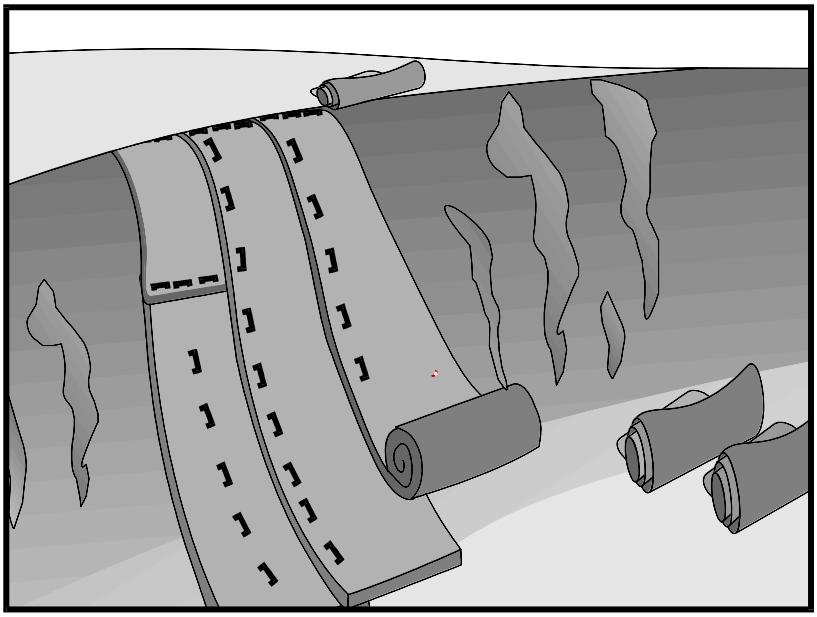
This treatment is feasible only when the site is easy to access by vehicle. It is a useful option when working with tree debris or weeds like Cape ivy that have the ability to resprout from the tiniest stem. Hauling and dumping fees can be quite expensive, so be sure to estimate accurately the volume of debris before choosing this technique. For plants that spread by seed, you can reduce the amount of debris by cutting and bagging the seed heads from the invasive plant before removal.

Chipping On-site

This treatment can be useful if you are dealing with tree debris and the site is easy to access by vehicle. Branches up to three to four inches in diameter can be chipped into the back of a truck or, if ecologically appropriate, left on-site. Larger pieces of wood can be hauled away for lumber or firewood or left on-site. Like chainsaws and brushcutters, using a chipper requires training and careful safety practices.

APPENDIX C: EROSION CONTROL BEST MANAGEMENT PRACTICES

Geotextiles and Mats EC-7



Categories		
EC	Erosion Control	☑
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	☒
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

EC-3 Hydraulic Mulch

EC-4 Hydroseeding

Description and Purpose

Mattings, or Rolled Erosion Control Products (RECPs), can be made of natural or synthetic materials or a combination of the two. RECPs are used to cover the soil surface to reduce erosion from rainfall impact, hold soil in place, and absorb and hold moisture near the soil surface. Additionally, RECPs may be used to stabilize soils until vegetation is established or to reinforce non-woody surface vegetation.

Suitable Applications

RECPs are typically applied on slopes where erosion hazard is high and vegetation will be slow to establish. Mattings are also used on stream banks, swales and other drainage channels where moving water at velocities between 3 ft/s and 6 ft/s are likely to cause scour and wash out new vegetation, and in areas where the soil surface is disturbed and where existing vegetation has been removed. RECPs may also be used when seeding cannot occur (e.g., late season construction and/or the arrival of an early rain season). RECPs should be considered when the soils are fine grained and potentially erosive. RECPs should be considered in the following situations.

- Steep slopes, generally steeper than 3:1 (H:V)
- Slopes where the erosion potential is high
- Slopes and disturbed soils where mulch must be anchored
- Disturbed areas where plants are slow to develop

- Channels with flows exceeding 3.3 ft/s
- Channels to be vegetated
- Stockpiles
- Slopes adjacent to water bodies

Limitations

- RECP installed costs are generally higher than other erosion control BMPs, limiting their use to areas where other BMPs are ineffective (e.g. channels, steep slopes).
- RECPs may delay seed germination, due to reduction in soil temperature.
- RECPs are generally not suitable for excessively rocky sites or areas where the final vegetation will be mowed (since staples and netting can catch in mowers). If a staple or pin cannot be driven into the soil because the underlying soil is too hard or rocky, then an alternative BMP should be selected.
- If used for temporary erosion control, RECPs should be removed and disposed of prior to application of permanent soil stabilization measures.
- The use of plastic should be limited to covering stockpiles or very small graded areas for short periods of time (such as through one imminent storm event) until more environmentally friendly measures, such as seeding and mulching, may be installed.
    - Plastic sheeting is easily vandalized, easily torn, photodegradable, and must be disposed of at a landfill.
    - Plastic sheeting results in 100% runoff, which may cause serious erosion problems in the areas receiving the increased flow.
- RECPs may have limitations based on soil type, slope gradient, or channel flow rate; consult the manufacturer for proper selection.
- Not suitable for areas that have foot traffic (tripping hazard) – e.g., pad areas around buildings under construction.
- RECPs that incorporate a plastic netting (e.g. straw blanket typically uses a plastic netting to hold the straw in place) may not be suitable near known wildlife habitat. Wildlife can become trapped in the plastic netting.
- RECPs may have limitations in extremely windy climates. However, when RECPs are properly trenched at the top and bottom and stapled in accordance with the manufacturer's recommendations, problems with wind can be minimized.

Implementation

Material Selection

- Natural RECPs have been found to be effective where re-vegetation will be provided by re-seeding. The choice of material should be based on the size of area, side slopes, surface conditions such as hardness, moisture, weed growth, and availability of materials.

- Additional guidance on the comparison and selection of temporary slope stabilization methods is provided in Appendix F of the Handbook.

- The following natural and synthetic RECPs are commonly used:

Geotextiles

- Material can be a woven or a non-woven polypropylene fabric with minimum thickness of 0.06 in., minimum width of 12 ft and should have minimum tensile strength of 150 lbs (warp), 80 lbs (fill) in conformance with the requirements in ASTM Designation: D 4632. The permittivity of the fabric should be approximately 0.07 sec^{-1} in conformance with the requirements in ASTM Designation: D4491. The fabric should have an ultraviolet (UV) stability of 70 percent in conformance with the requirements in ASTM designation: D4355. Geotextile blankets must be secured in place with wire staples or sandbags and by keying into tops of slopes to prevent infiltration of surface waters under geotextile. Staples should be made of minimum 11 gauge steel wire and should be U-shaped with 8 in. legs and 2 in. crown.

- Geotextiles may be reused if they are suitable for the use intended.

Plastic Covers

- Generally plastic sheeting should only be used as stockpile covering or for very small graded areas for short periods of time (such as through one imminent storm event). If plastic sheeting must be used, choose a plastic that will withstand photo degradation.

- Plastic sheeting should have a minimum thickness of 6 mils, and must be keyed in at the top of slope (when used as a temporary slope protection) and firmly held in place with sandbags or other weights placed no more than 10 ft apart. Seams are typically taped or weighted down their entire length, and there should be at least a 12 in. to 24 in. overlap of all seams. Edges should be embedded a minimum of 6 in. in soil (when used as a temporary slope protection).

- All sheeting must be inspected periodically after installation and after significant rainstorms to check for erosion, undermining, and anchorage failure. Any failures must be repaired immediately. If washout or breakages occur, the material should be re-installed after repairing the damage to the slope.

Erosion Control Blankets/Mats

- Biodegradable RECPs are typically composed of jute fibers, curled wood fibers, straw, coconut fiber, or a combination of these materials. In order for an RECP to be considered 100% biodegradable, the netting, sewing or adhesive system that holds the biodegradable mulch fibers together must also be biodegradable. See typical installation details at the end of this fact sheet.

- **Jute** is a natural fiber that is made into a yarn that is loosely woven into a biodegradable mesh. The performance of jute as a stand-alone RECP is low. Most other RECPs outperform jute as a temporary erosion control product and therefore jute is not commonly used. It is designed to be used in conjunction with vegetation. The material is supplied in rolled strips, which should be secured to the soil with U-shaped staples or stakes in accordance with manufacturers' recommendations.

- **Excelsior** (curled wood fiber) blanket material should consist of machine produced mats of curled wood excelsior with 80 percent of the fiber 6 in. or longer. The excelsior blanket should be of consistent thickness. The wood fiber must be evenly distributed over the entire area of the blanket. The top surface of the blanket should be covered with a photodegradable extruded plastic mesh. The blanket should be smolder resistant without the use of chemical additives and should be non-toxic and non-injurious to plant and animal life. Excelsior blankets should be furnished in rolled strips, a minimum of 48 in. wide, and should have an average weight of 0.8 lb/yd^2, ±10 percent, at the time of manufacture. Excelsior blankets must be secured in place with wire staples. Staples should be made of minimum 11 gauge steel wire and should be U-shaped with 8 in. legs and 2 in. crown.

- **Straw blanket** should be machine produced mats of straw with a lightweight biodegradable netting top layer. The straw should be attached to the netting with biodegradable thread or glue strips. The straw blanket should be of consistent thickness. The straw should be evenly distributed over the entire area of the blanket. Straw blanket should be furnished in rolled strips a minimum of 6.5 ft wide, a minimum of 80 ft long and a minimum of 0.5 lb/yd^2. Straw blankets must be secured in place with wire staples. Staples should be made of minimum 11 gauge steel wire and should be U-shaped with 8 in. legs and 2 in. crown.

- **Wood fiber blanket** is composed of biodegradable fiber mulch with extruded plastic netting held together with adhesives. The material is designed to enhance re-vegetation. The material is furnished in rolled strips, which must be secured to the ground with U-shaped staples or stakes in accordance with manufacturers' recommendations.

- **Coconut fiber blanket** should be a machine produced mat of 100 percent coconut fiber with biodegradable netting on the top and bottom. The coconut fiber should be attached to the netting with biodegradable thread or glue strips. The coconut fiber blanket should be of consistent thickness. The coconut fiber should be evenly distributed over the entire area of the blanket. Coconut fiber blanket should be furnished in rolled strips with a minimum of 6.5 ft wide, a minimum of 80 ft. long and a minimum of 0.5 lb/yd^2. Coconut fiber blankets must be secured in place with wire staples. Staples should be made of minimum 11 gauge steel wire and should be U-shaped with 8 in. legs and 2 in. crown.

- **Coconut fiber mesh** is a thin permeable membrane made from coconut or corn fiber that is spun into a yarn and woven into a biodegradable mat. It is designed to be used in conjunction with vegetation and typically has longevity of several years. The material is supplied in rolled strips, which must be secured to the soil with U-shaped staples or stakes in accordance with manufacturers' recommendations.

- **Straw coconut fiber blanket** should be machine produced mats of 70 percent straw and 30 percent coconut fiber with a biodegradable netting top layer and a biodegradable bottom net. The straw and coconut fiber should be attached to the netting with biodegradable thread or glue strips. The straw coconut fiber blanket should be of consistent thickness. The straw and coconut fiber should be evenly distributed over the entire area of the blanket. Straw coconut fiber blanket should be furnished in rolled strips a minimum of 6.5 ft wide, a minimum of 80 ft long and a minimum of 0.5 lb/yd^2. Straw coconut fiber blankets must be secured in place with wire staples. Staples should be made of minimum 11 gauge steel wire and should be U-shaped with 8 in. legs and 2 in. crown.

- Non-biodegradable RECPs are typically composed of polypropylene, polyethylene, nylon or other synthetic fibers. In some cases, a combination of biodegradable and synthetic fibers is used to construct the RECP. Netting used to hold these fibers together is typically non-biodegradable as well.

  - **Plastic netting** is a lightweight biaxially oriented netting designed for securing loose mulches like straw or paper to soil surfaces to establish vegetation. The netting is photodegradable. The netting is supplied in rolled strips, which must be secured with U-shaped staples or stakes in accordance with manufacturers' recommendations.

  - **Plastic mesh** is an open weave geotextile that is composed of an extruded synthetic fiber woven into a mesh with an opening size of less than ¼ in. It is used with re-vegetation or may be used to secure loose fiber such as straw to the ground. The material is supplied in rolled strips, which must be secured to the soil with U-shaped staples or stakes in accordance with manufacturers' recommendations.

  - **Synthetic fiber with netting** is a mat that is composed of durable synthetic fibers treated to resist chemicals and ultraviolet light. The mat is a dense, three dimensional mesh of synthetic (typically polyolefin) fibers stitched between two polypropylene nets. The mats are designed to be re-vegetated and provide a permanent composite system of soil, roots, and geomatrix. The material is furnished in rolled strips, which must be secured with U-shaped staples or stakes in accordance with manufacturers' recommendations.

  - **Bonded synthetic fibers** consist of a three dimensional geomatrix nylon (or other synthetic) matting. Typically it has more than 90 percent open area, which facilitates root growth. It's tough root reinforcing system anchors vegetation and protects against hydraulic lift and shear forces created by high volume discharges. It can be installed over prepared soil, followed by seeding into the mat. Once vegetated, it becomes an invisible composite system of soil, roots, and geomatrix. The material is furnished in rolled strips that must be secured with U-shaped staples or stakes in accordance with manufacturers' recommendations.

  - **Combination synthetic and biodegradable RECPs** consist of biodegradable fibers, such as wood fiber or coconut fiber, with a heavy polypropylene net stitched to the top and a high strength continuous filament geomatrix or net stitched to the bottom. The material is designed to enhance re-vegetation. The material is furnished in rolled strips,

which must be secured with U-shaped staples or stakes in accordance with manufacturers' recommendations.

Site Preparation

- Proper soil preparation is essential to ensure complete contact of the RECP with the soil. Soil Roughening is not recommended in areas where RECPs will be installed.
- Grade and shape the area of installation.
- Remove all rocks, clods, vegetation or other obstructions so that the installed blankets or mats will have complete, direct contact with the soil.
- Prepare seedbed by loosening 2 to 3 in. of topsoil.

Seeding/Planting

Seed the area before blanket installation for erosion control and re-vegetation. Seeding after mat installation is often specified for turf reinforcement application. When seeding prior to blanket installation, all areas disturbed during blanket installation must be re-seeded. Where soil filling is specified for turf reinforcement mats (TRMs), seed the matting and the entire disturbed area after installation and prior to filling the mat with soil.

Fertilize and seed in accordance with seeding specifications or other types of landscaping plans. The protective matting can be laid over areas where grass has been planted and the seedlings have emerged. Where vines or other ground covers are to be planted, lay the protective matting first and then plant through matting according to design of planting.

Check Slots

Check slots shall be installed as required by the manufacturer.

Laying and Securing Matting

- Before laying the matting, all check slots should be installed and the seedbed should be friable, made free from clods, rocks, and roots. The surface should be compacted and finished according to the requirements of the manufacturer's recommendations.
- Mechanical or manual lay down equipment should be capable of handling full rolls of fabric and laying the fabric smoothly without wrinkles or folds. The equipment should meet the fabric manufacturer's recommendations or equivalent standards.

Anchoring

- U-shaped wire staples, metal geotextile stake pins, or triangular wooden stakes can be used to anchor mats and blankets to the ground surface.
- Wire staples should be made of minimum 11 gauge steel wire and should be U-shaped with 8 in. legs and 2 in. crown.
- Metal stake pins should be 0.188 in. diameter steel with a 1.5 in. steel washer at the head of the pin, and 8 in. in length.
- Wire staples and metal stakes should be driven flush to the soil surface.

Installation on Slopes

Installation should be in accordance with the manufacturer's recommendations. In general, these will be as follows:

- Begin at the top of the slope and anchor the blanket in a 6 in. deep by 6 in. wide trench. Backfill trench and tamp earth firmly.
- Unroll blanket down slope in the direction of water flow.
- Overlap the edges of adjacent parallel rolls 2 to 3 in. and staple every 3 ft (or greater, per manufacturer's specifications).
- When blankets must be spliced, place blankets end over end (shingle style) with 6 in. overlap. Staple through overlapped area, approximately 12 in. apart.
- Lay blankets loosely and maintain direct contact with the soil. Do not stretch.
- Staple blankets sufficiently to anchor blanket and maintain contact with the soil. Staples should be placed down the center and staggered with the staples placed along the edges. Steep slopes, 1:1 (H:V) to 2:1 (H:V), require a minimum of 2 staples/yd^2. Moderate slopes, 2:1 (H:V) to 3:1 (H:V), require a minimum of 1 ½ staples/yd^2. Check manufacturer's specifications to determine if a higher density staple pattern is required.

Installation in Channels

Installation should be in accordance with the manufacturer's recommendations. In general, these will be as follows:

- Dig initial anchor trench 12 in. deep and 6 in. wide across the channel at the lower end of the project area.
- Excavate intermittent check slots, 6 in. deep and 6 in. wide across the channel at 25 to 30 ft intervals along the channels.
- Cut longitudinal channel anchor trenches 4 in. deep and 4 in. wide along each side of the installation to bury edges of matting, whenever possible extend matting 2 to 3 in. above the crest of the channel side slopes.
- Beginning at the downstream end and in the center of the channel, place the initial end of the first roll in the anchor trench and secure with fastening devices at 12 in. intervals. Note: matting will initially be upside down in anchor trench.
- In the same manner, position adjacent rolls in anchor trench, overlapping the preceding roll a minimum of 3 in.
- Secure these initial ends of mats with anchors at 12 in. intervals, backfill and compact soil.
- Unroll center strip of matting upstream. Stop at next check slot or terminal anchor trench. Unroll adjacent mats upstream in similar fashion, maintaining a 3 in. overlap.

- Fold and secure all rolls of matting snugly into all transverse check slots. Lay mat in the bottom of the slot then fold back against itself. Anchor through both layers of mat at 12 in. intervals, then backfill and compact soil. Continue rolling all mat widths upstream to the next check slot or terminal anchor trench.
- Alternate method for non-critical installations: Place two rows of anchors on 6 in. centers at 25 to 30 ft. intervals in lieu of excavated check slots.
- Staple shingled lap spliced ends a minimum of 12 in. apart on 12 in. intervals.
- Place edges of outside mats in previously excavated longitudinal slots; anchor using prescribed staple pattern, backfill, and compact soil.
- Anchor, fill, and compact upstream end of mat in a 12 in. by 6 in. terminal trench.
- Secure mat to ground surface using U-shaped wire staples, geotextile pins, or wooden stakes.
- Seed and fill turf reinforcement matting with soil, if specified.

Soil Filling (if specified for turf reinforcement mat (TRM))

Installation should be in accordance with the manufacturer's recommendations. Typical installation guidelines are as follows:

- After seeding, spread and lightly rake ½-3/4 inches of fine topsoil into the TRM apertures to completely fill TRM thickness. Use backside of rake or other flat implement.
- Alternatively, if allowed by product specifications, spread topsoil using lightweight loader, backhoe, or other power equipment. Avoid sharp turns with equipment.
- Always consult the manufacturer's recommendations for installation.
- Do not drive tracked or heavy equipment over mat.
- Avoid any traffic over matting if loose or wet soil conditions exist.
- Use shovels, rakes, or brooms for fine grading and touch up.
- Smooth out soil filling just exposing top netting of mat.

Temporary Soil Stabilization Removal

- Temporary soil stabilization removed from the site of the work must be disposed of if necessary.

Costs

Installed costs can be relatively high compared to other BMPs. Approximate costs for installed materials are shown below:

Rolled Erosion Control Products		Installed Cost per Acre (2004)[1]	Estimated Cost per Acre (2009)[2]
Biodegradable	Jute Mesh	$6,000-$7,000	$6,600-$7,700
	Curled Wood Fiber	$8,000-$10,500	$8,800-$11,050
	Straw	$8,000-$10,500	$8,800-$11,050
	Wood Fiber	$8,000-$10,500	$8,800-$11,050
	Coconut Fiber	$13,000-$14,000	$14,300-$15,400
	Coconut Fiber Mesh	$30,000-$33,000	$33,000-$36,300
	Straw Coconut Fiber	$10,000-$12,000	$11,000-$13,200
Non-Biodegradable	Plastic Netting	$2,000-$2,200	$2,200-$2,220
	Plastic Mesh	$3,000-$3,500	$3,300-$3,850
	Synthetic Fiber with Netting	$34,000-$40,000	$37,400-$44,000
	Bonded Synthetic Fibers	$45,000-$55,000	$49,500-$60,500
	Combination with Biodegradable	$30,000-$36,000	$33,000-$39,600

1. Source: Cost information received from individual product manufacturers solicited by Geosyntec Consultants (2004).

2. 2009 costs reflect a 10% escalation over year 2004 costs. Escalation based on informal survey of industry trends. Note: Expected cost increase is offset by competitive economic conditions.

Inspection and Maintenance

- RECPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Areas where erosion is evident shall be repaired and BMPs reapplied as soon as possible. Care should be exercised to minimize the damage to protected areas while making repairs, as any area damaged will require reapplication of BMPs.
- If washout or breakage occurs, re-install the material after repairing the damage to the slope or channel.
- Make sure matting is uniformly in contact with the soil.
- Check that all the lap joints are secure.
- Check that staples are flush with the ground.

References

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005

Erosion Control Pilot Study Report, State of California Department of Transportation (Caltrans), June 2000.

Guides for Erosion and Sediment Controls in California, USDA Soils Conservation Service, January 1991.

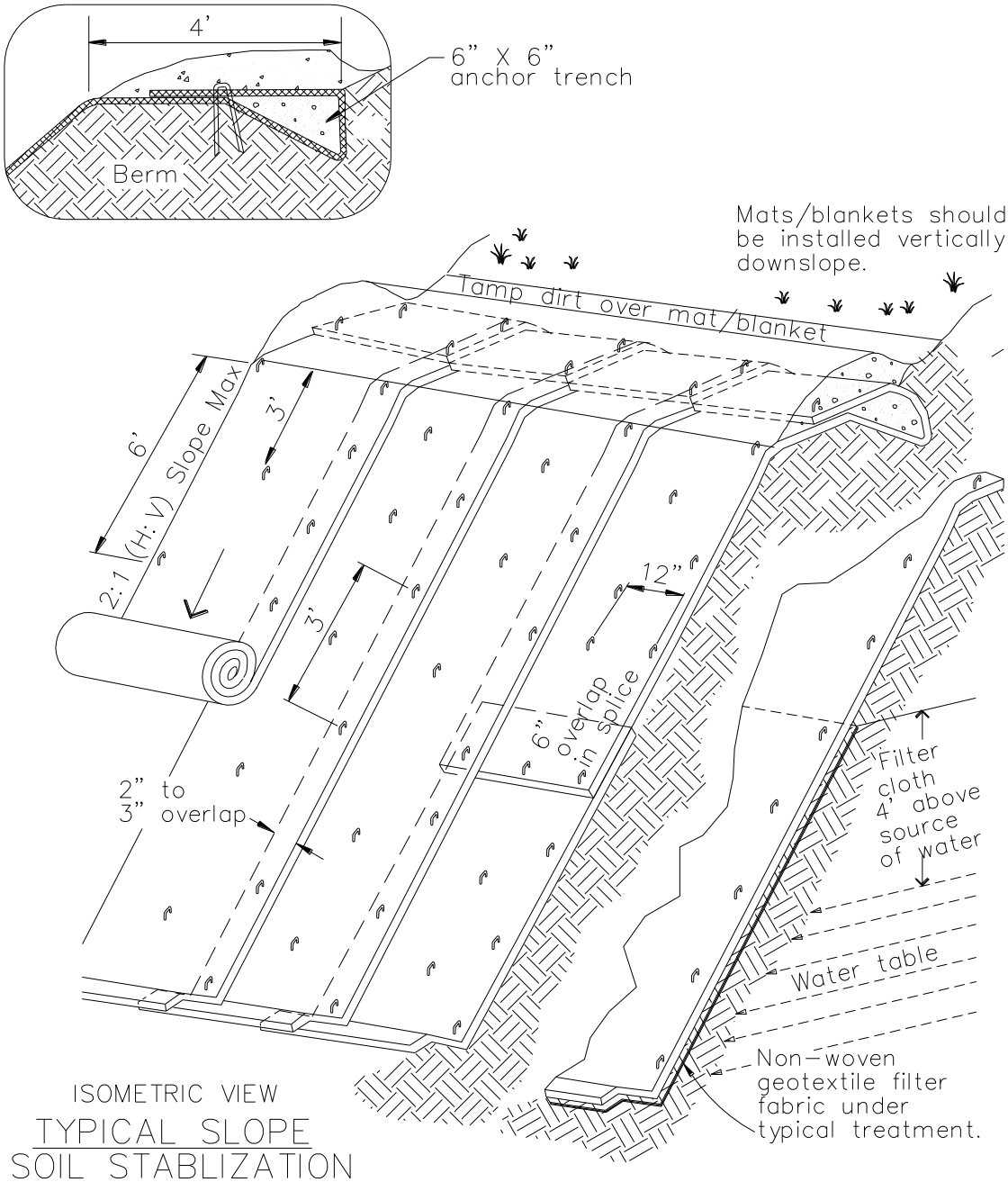
National Management Measures to Control Nonpoint Source Pollution from Urban Areas, United States Environmental Protection Agency, 2002.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Guidance Document: Soil Stabilization for Temporary Slopes, State of California Department of Transportation (Caltrans), November 1999.

Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

Water Quality Management Plan for The Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.



ISOMETRIC VIEW

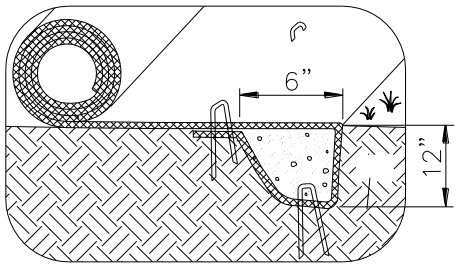
TYPICAL SLOPE
SOIL STABLIZATION
NTS

WET SLOPE LINING
NTS

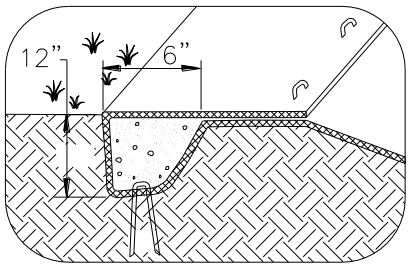
NOTES:

1. Slope surface shall be free of rocks, clods, sticks and grass. Mats/blankets shall have good soil contact.
2. Lay blankets loosely and stake or staple to maintain direct contact with the soil. Do not stretch.
3. Install per manufacturer's recommendations

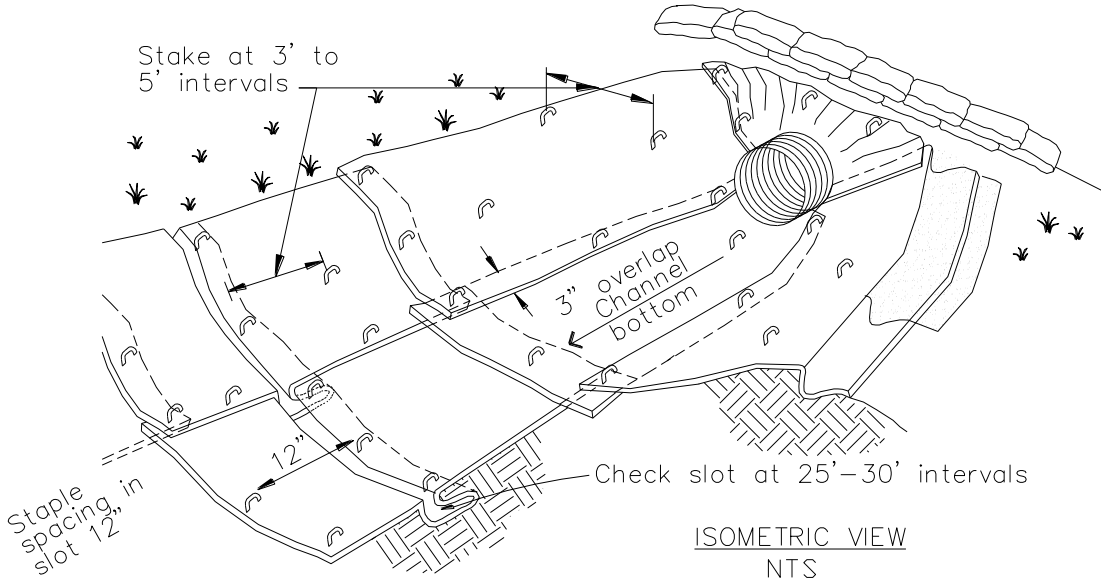
TYPICAL INSTALLATION DETAIL



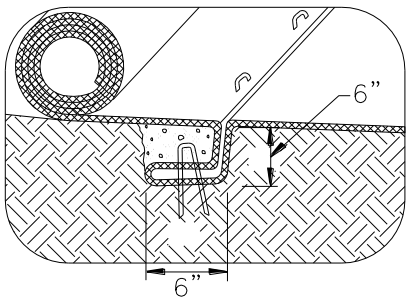
INITIAL CHANNEL ANCHOR TRENCH
NTS



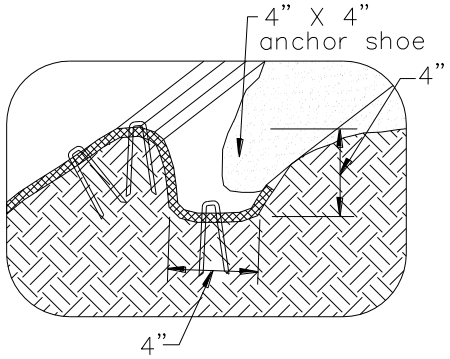
TERMINAL SLOPE AND CHANNEL ANCHOR TRENCH
NTS



ISOMETRIC VIEW
NTS



INTERMITTENT CHECK SLOT
NTS

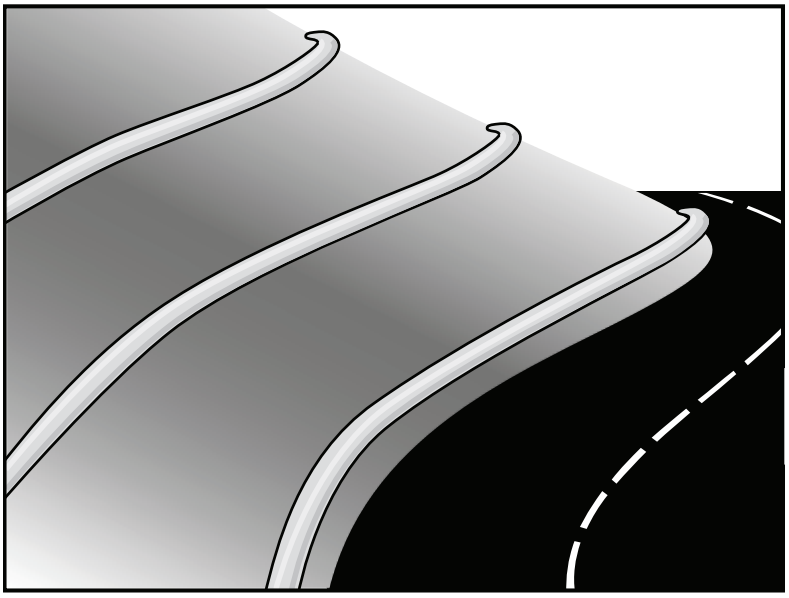


LONGITUDINAL ANCHOR TRENCH
NTS

NOTES:
1. Check slots to be constructed per manufacturers specifications.
2. Staking or stapling layout per manufacturers specifications.
3. Install per manufacturer's recommendations

TYPICAL INSTALLATION DETAIL

Fiber Rolls SE-5



Description and Purpose

A fiber roll consists of straw, coir, or other biodegradable materials bound into a tight tubular roll wrapped by netting, which can be photodegradable or natural. Additionally, gravel core fiber rolls are available, which contain an imbedded ballast material such as gravel or sand for additional weight when staking the rolls are not feasible (such as use as inlet protection). When fiber rolls are placed at the toe and on the face of slopes along the contours, they intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff (through sedimentation). By interrupting the length of a slope, fiber rolls can also reduce sheet and rill erosion until vegetation is established.

Suitable Applications

Fiber rolls may be suitable:

- Along the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.
- At the end of a downward slope where it transitions to a steeper slope.
- Along the perimeter of a project.
- As check dams in unlined ditches with minimal grade.
- Down-slope of exposed soil areas.
- At operational storm drains as a form of inlet protection.

Categories

EC	Erosion Control	☒
SE	Sediment Control	☑
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence

SE-6 Gravel Bag Berm

SE-8 Sandbag Barrier

SE-12 Manufactured Linear Sediment Controls

SE-14 Biofilter Bags

- Around temporary stockpiles.

Limitations

- Fiber rolls are not effective unless trenched in and staked.
- Not intended for use in high flow situations.
- Difficult to move once saturated.
- If not properly staked and trenched in, fiber rolls could be transported by high flows.
- Fiber rolls have a very limited sediment capture zone.
- Fiber rolls should not be used on slopes subject to creep, slumping, or landslide.
- Rolls typically function for 12-24 months depending upon local conditions.

Implementation

Fiber Roll Materials

- Fiber rolls should be prefabricated.
- Fiber rolls may come manufactured containing polyacrylamide (PAM), a flocculating agent within the roll. Fiber rolls impregnated with PAM provide additional sediment removal capabilities and should be used in areas with fine, clayey or silty soils to provide additional sediment removal capabilities. Monitoring may be required for these installations.
- Fiber rolls are made from weed free rice straw, flax, or a similar agricultural material bound into a tight tubular roll by netting.
- Typical fiber rolls vary in diameter from 9 in. to 20 in. Larger diameter rolls are available as well.

Installation

- Locate fiber rolls on level contours spaced as follows:
  - Slope inclination of 4:1 (H:V) or flatter: Fiber rolls should be placed at a maximum interval of 20 ft.
  - Slope inclination between 4:1 and 2:1 (H:V): Fiber Rolls should be placed at a maximum interval of 15 ft. (a closer spacing is more effective).
  - Slope inclination 2:1 (H:V) or greater: Fiber Rolls should be placed at a maximum interval of 10 ft. (a closer spacing is more effective).
- Prepare the slope before beginning installation.
- Dig small trenches across the slope on the contour. The trench depth should be ¼ to 1/3 of the thickness of the roll, and the width should equal the roll diameter, in order to provide area to backfill the trench.

- It is critical that rolls are installed perpendicular to water movement, and parallel to the slope contour.
- Start building trenches and installing rolls from the bottom of the slope and work up.
- It is recommended that pilot holes be driven through the fiber roll. Use a straight bar to drive holes through the roll and into the soil for the wooden stakes.
- Turn the ends of the fiber roll up slope to prevent runoff from going around the roll.
- Stake fiber rolls into the trench.
  - Drive stakes at the end of each fiber roll and spaced 4 ft maximum on center.
  - Use wood stakes with a nominal classification of 0.75 by 0.75 in. and minimum length of 24 in.
- If more than one fiber roll is placed in a row, the rolls should be overlapped, not abutted.
- See typical fiber roll installation details at the end of this fact sheet.

Removal

- Fiber rolls can be left in place or removed depending on the type of fiber roll and application (temporary vs. permanent installation). Typically, fiber rolls encased with plastic netting are used for a temporary application because the netting does not biodegrade. Fiber rolls used in a permanent application are typically encased with a biodegradeable material and are left in place. Removal of a fiber roll used in a permanent application can result in greater disturbance.
- Temporary installations should only be removed when up gradient areas are stabilized per General Permit requirements, and/or pollutant sources no longer present a hazard. But, they should also be removed before vegetation becomes too mature so that the removal process does not disturb more soil and vegetation than is necessary.

Costs

Material costs for regular fiber rolls range from $20 - $30 per 25 ft roll.

Material costs for PAM impregnated fiber rolls range between 7.00-$9.00 per linear foot, based upon vendor research.

Inspection and Maintenance

- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Repair or replace split, torn, unraveling, or slumping fiber rolls.
- If the fiber roll is used as a sediment capture device, or as an erosion control device to maintain sheet flows, sediment that accumulates in the BMP should be periodically removed

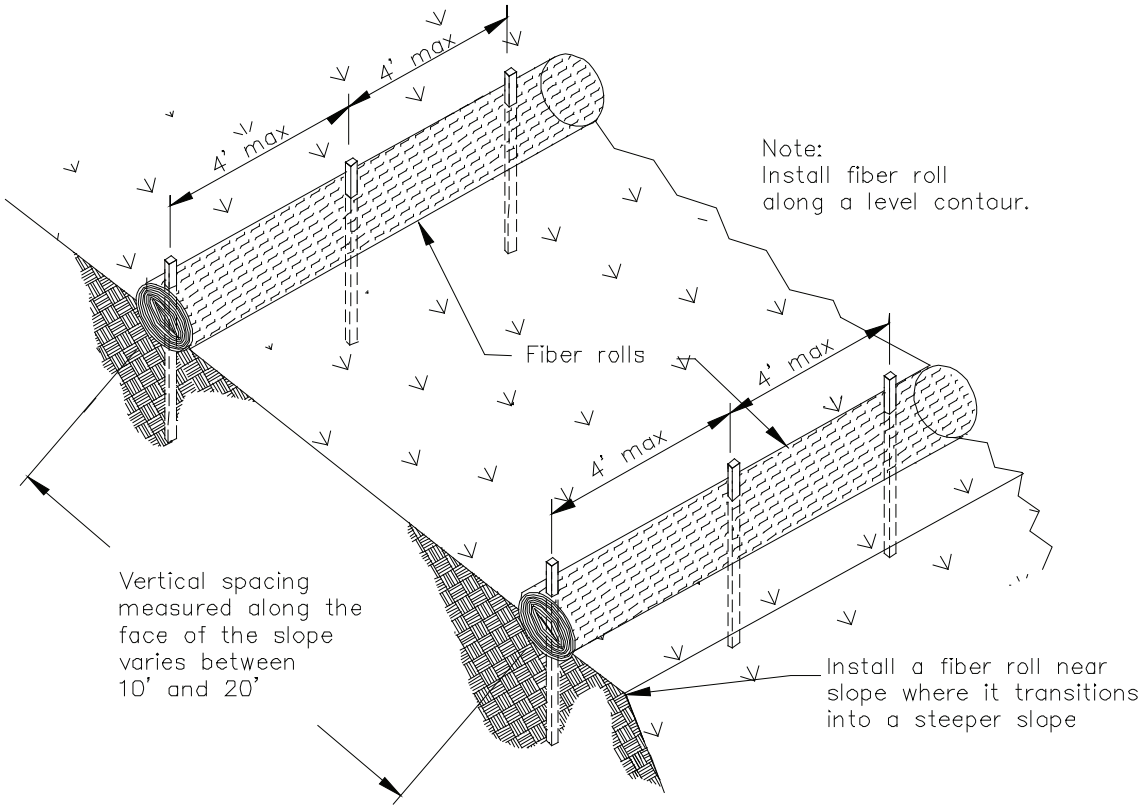
in order to maintain BMP effectiveness. Sediment should be removed when sediment accumulation reaches one-third the designated sediment storage depth.

- If fiber rolls are used for erosion control, such as in a check dam, sediment removal should not be required as long as the system continues to control the grade. Sediment control BMPs will likely be required in conjunction with this type of application.
- Repair any rills or gullies promptly.

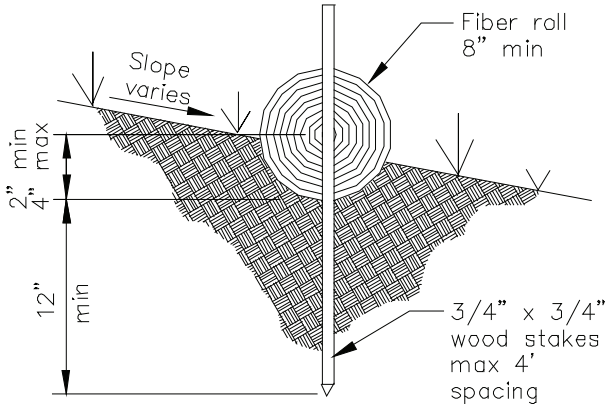
References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

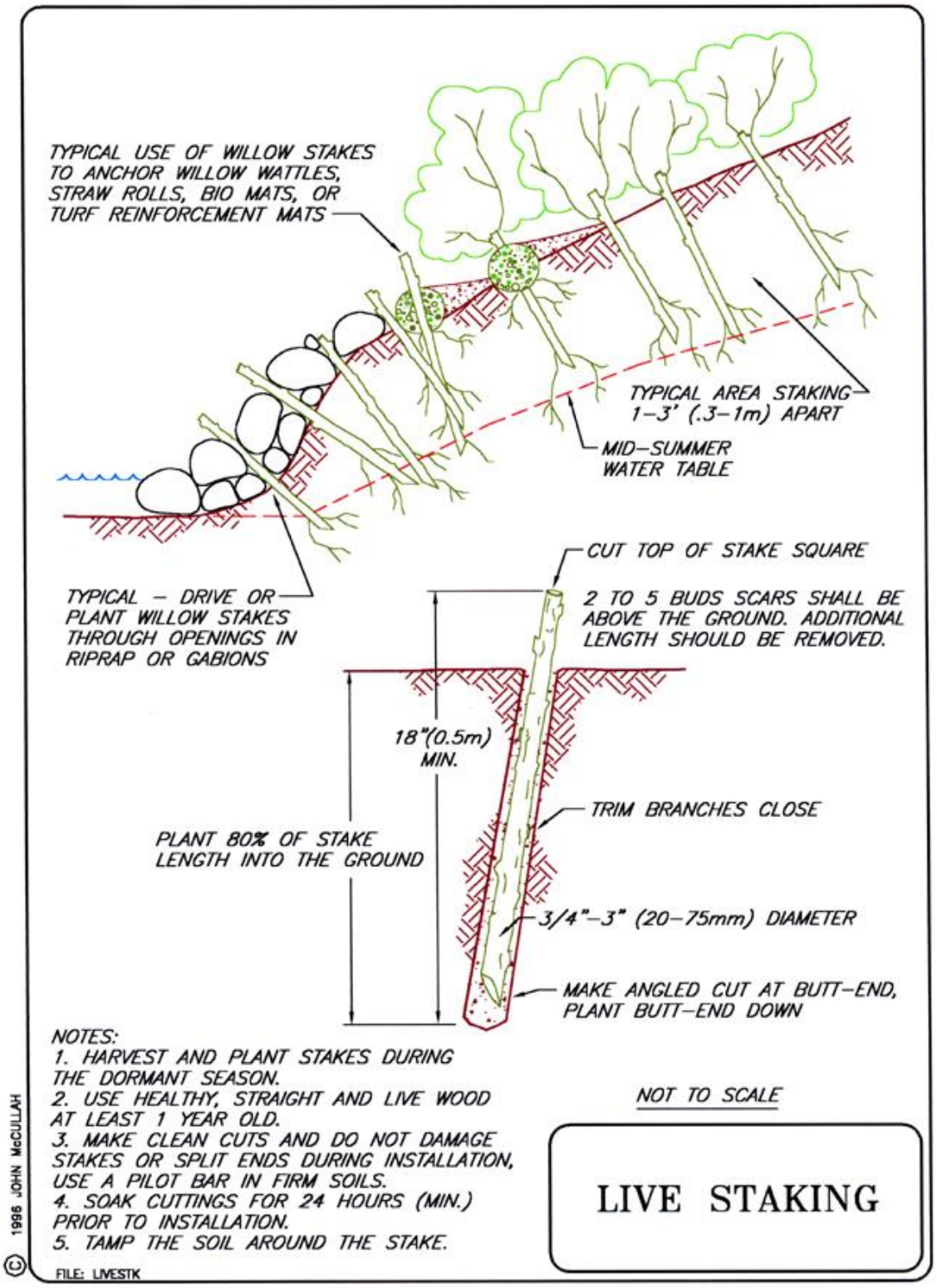


TYPICAL FIBER ROLL INSTALLATION
N.T.S.



ENTRENCHMENT DETAIL
N.T.S.

Willow Planting Specification



APPENDIX D: LETTERS OF SUPPORT

San Jose Conservation Corps – Employer of Record
Graniterock – Property Owner
Sierra Development – Property Owner
California Native Garden Foundation - Contractor
Ecological Concerns Incorporated – Contractor
Middlebrook Gardens – Contractor
California Nativescapes – Contractor
The Landscape Company – Contractor
Confluence Restoration - Contractor

December 15, 2017

Grants Program Administrator
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

RE: Support for Coyote Creek Habitat Restoration Project

Dear Friends,

It is with great enthusiasm that we submit this letter of support for the Coyote Creek Habitat Restoration Project grant application!

The San Jose Conservation Corps is prepared and available to act as the Employer of Record for the upcoming Coyote Creek Habitat Restoration project. We are fully capable and ready to employ, through existing internal structure, a restoration crew of at-risk-youth to work under the supervision of Ecological Concerns Inc.'s Restoration Technicians on invasive species removal and habitat restoration activities. During this project, it is also our understanding that the workers will be provided soft and hard skills training to prepare them for interview processes after the project is complete. We are also prepared to utilize our existing employment path to aid these individuals in gaining employment once the project has been completed.

We would serve as the employer of record for a crew of 10 to 15 youth who are or have been homeless, screen and select individuals who are likely to succeed in this program, maintain attendance and payroll records, transport crew to the work site, provide onsite supervision in coordination with the technical staff of Ecological Concerns. We would maintain a wait list of individuals who are willing and able to participate in the program in the event of any needed terminations. We have an existing monthly invoice process with the SCVWD for the work crews, for work crew supervision and for project administration.

The SJCC&CS offers a comprehensive youth development program that utilizes prevention, intervention, remedial and support strategies in a continuum of services to address the needs of socially, educationally and economically disadvantaged youth. Since 1987, the San Jose Conservation Corp & Charter School has given thousands of students in San Jose a second chance at completing their high school diploma and gaining the education they need to obtain a living wage job or continue their education beyond high school.

Beyond academic preparation, students at SJCC&CS also have the opportunity to gain valuable work and job skills through the career technical education and job-training program in environmental careers. SJCC&CS offers training through its recycling/zero waste, natural resource protection, energy efficiency and solar photovoltaic hands-on, paid job-training programs and projects. Through these programs, students learn specific skills related to those areas as well as developing a life-long environmental ethos.

Please feel free to contact me if you need any additional information. Thank you for your consideration of our request!

Sincerely,

Dorsey Moore
Executive Director/CEO
San Jose Conservation Corps & Charter School
408-439-6653
dmoore@sjcccs.org

January 7, 2016

Working Partnerships
Pelican Network
c/o Mr. Richard McMurty
Santa Clara County Creeks Coalition
24010 Summit Road
Los Gatos, CA 95033

Dear Mr. McMurty,

Granite Rock Company (Graniterock) has implemented projects to remove *Arundo donax*, giant reed, on our property on Berryessa Road in San Jose, California.

As we understand it, your project involves the removal of the giant reed from the banks of Coyote Creek. We understand this would include the reaches of the creek on the San Jose Property at the San Jose Municipal Golf Course, to the north of our Berryessa property. We understand you would like Graniterock to allow access to our site to enable giant reed removal.

Graniterock would value the removal of this plant from our property. If the plant removal and revegetation will occur without significant impacts on our operations or the incursion of significant liability or safety issues, we would be willing to grant access to our site for the plant removal and revegetation subject to an access agreement that protects our interests.

This access would include access to parcels 241-05-001 and 241-05-14 as shown on the attached map.

For more discussion, please do not hesitate to contact me at asimons@graniterock.com or phone at 831-334-2083.

Sincerely,

Alex Simons-Environmental Specialist

Cc: Mike McGrath
Lisa Cole

Attachment: Map showing parcels to be included in the planning process for the "Coyote Creek Habitat Improvement and Homeless Engagement Project".

S. J. SIERRA GROUP LLC

a Delaware limited liability company

January 30, 2018

Mr. John Morley
Ecological Concerns
609 Pacific Ave #101
Santa Cruz, CA 95060

Dear Mr. Morley,

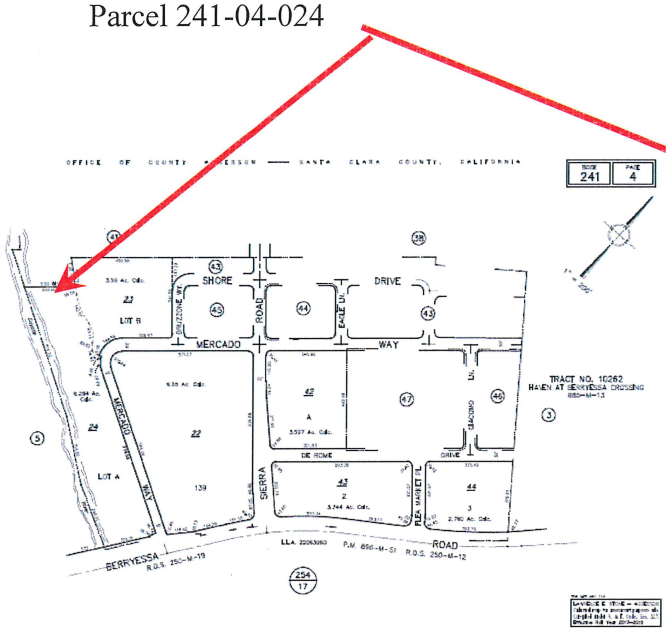
On behalf of the S.J. Sierra Group LLC, as owner of Parcel Number 241-04-024 (see maps below), I am writing to indicate support for your Coyote Creek Invasive Plant Removal and Revegetation Project and authorizing you to implement the project on our property provided you document that you have the proper permits and insurance and that you send us an acceptable access plan indicating how you will implement the project without disrupting operations at the Flea Market.

We are pleased with your help in removing the bamboo which is a nuisance for us and replacing them with appropriate native plants.

Sincerely,

LOREN B. VACCAREZZA
General Counsel

Parcel 241-04-024



1590 Berryessa Road, San Jose, CA 95133
(408) 453-1141◊ Fax (408) 437-9011

California Native Garden Foundation
76 Race Street, San Jose, CA 95126
t 408.292.9993 • f 408.292.0856 • info@cngf.org
www.cngf.org • www.elsee-gardens.org

ELSEE
The Environmental Laboratory for Sustainability and Ecological Education

January 26, 2018

Ms. John Morley
Ecological Concerns
609 Pacific Ave #101
Santa Cruz, CA 95060

Dear John,

California Native Garden Foundation is interested in participating in the Coyote Creek Invasive Plant Removal and Native Plant Revegetation Program. We would be willing to hire a graduate of your program provided:

1. the Program documents that the individual has successfully completed the training program.
2. the Program provide us with a summary of the skills acquired by the graduates and the time spent in the program
3. the individual successfully completes an interview process with us.
4. the individual successfully completes a 12 week probationary period with us
5. we have job openings for projects at the time your candidates are available.

Sincerely,

Ecological Concerns Inc.
Ecological Landscapes
Habitat Restoration
California Native Plants

Office (831) 459-0656
Fax (831) 457-1606
CCL #778397

January 12, 2018

John Morley
Ecological Concerns
609 Pacific Ave #101
Santa Cruz, CA 95060

RE: Coyote Creek Invasive Plant Removal and Native Plant Revegetation Program

Dear John,

Ecological Concerns Inc. is interested in participating in the Coyote Creek Invasive Plant Removal and Native Plant Revegetation Program. We would be willing to hire a graduate of your program provided:

1. The Program documents that the individual has successfully completed the training program.
2. The Program provide us with a summary of the skills acquired by the graduates and the time spent in the program
3. The individual successfully completes an interview process with us.
4. The individual successfully completes a 12 week probationary period with us
5. We have job openings for projects at the time your candidates are available.

Sincerely,

By: _____

Josh T. Fodor

MIDDLEBROOK
GARDENS

January 26, 2019

Ms. John Morley
Ecological Concerns
609 Pacific Ave #101
Santa Cruz, CA 95060

Dear John,

Middlebrook Gardens is interested in participating in the Coyote Creek Invasive Plant Removal and Native Plant Revegetation Program. We would be willing to hire a graduate of your program provided:

1. the Program documents that the individual has successfully completed the training program.
2. the Program provide us with a summary of the skills acquired by the graduates and the time spent in the program
3. the individual successfully completes an interview process with us.
4. the individual successfully completes a 12 week probationary period with us
5. we have job openings for projects at the time your candidates are available.

Sincerely,

76 Race Street, San Jose, CA 95126 | 408 292 9993 | info@middlebrook-gardens.com | http://middlebrook-gardens.com/

Letter from Prospective Employers

John Morley
Ecological Concerns
609 Pacific Ave #101
Santa Cruz, CA 95060

Dear John,

California Nativescapes, LLC (your company) is interested in participating in the Coyote Creek Invasive Plant Removal and Native Plant Revegetation Program. We would be willing to hire a graduate of your program provided:

1. the Program documents that the individual has successfully completed the training program.
2. the Program provide us with a summary of the skills acquired by the graduates and the time spent in the program
3. the individual successfully completes an interview process with us.
4. the individual successfully completes a 12 week probationary period with us
5. we have job openings for projects at the time your candidates are available.

Sincerely,

R. Schoenenberger
owner, California Nativescapes LLC

THE LANDSCAPE COMPANY

John Morley
Ecological Concerns
609 Pacific Ave #101
Santa Cruz, CA 95060

Dear John,

The Landscape Company is interested in participating in the Coyote Creek Invasive Plant Removal and Native Plant Revegetation Program. We would be willing to hire a graduate of your program provided:

1. the Program documents that the individual has successfully completed the training program.
2. the Program provides us with a summary of the skills acquired by the graduates and the time spent in the program.
3. the individual successfully completes an interview process with us.
4. the individual successfully completes a 12 week probationary period with us.
5. we have job openings for projects at the time your candidates are available.

Sincerely,

Phil Dundas-President
The Landscape Company

Private Client Services
1840 41st Ave, Ste 102, PMB #228 | Capitola CA 95010
phone (831) 476-7070 | fax (831) 401-2460 | info@thelandscapecompany.com

Confluence Restoration

721 Seaside St. Santa Cruz, CA 95060 LIC#889071
Phone (831) 621-8084 Fax (831) 336-9514

John Morley
Ecological Concerns
609 Pacific Ave #101
Santa Cruz, CA 95060

Dear John,

Confluence Restoration is interested in participating in the Coyote Creek Invasive Plant Removal and Native Plant Revegetation Program. We would be willing to hire a graduate of your program provided:

1. the Program documents that the individual has successfully completed the training program.
2. the Program provide us with a summary of the skills acquired by the graduates and the time spent in the program
3. the individual successfully completes an interview process with us.
4. the individual successfully completes a 12 week probationary period with us
5. we have job openings for projects at the time your candidates are available.

Sincerely,

Ryan Yarbrough, General Partner

APPENDIX E: PERMITTING

City Development Permit Not Required for Coyote Creek Invasive Plant Removal and Native Plant Revegetation Project

From: Van Der Zweep, Cassandra [mailto:Cassandra.VanDerZweep@sanjoseca.gov]
Sent: Friday, February 09, 2018 4:07 PM
To: Richard McMurtry
Subject: Re: Follow Up Phone Call

Hi Mr. McMurty,

To follow up:
I spoke with the project manager's supervisor and confirmed since this is unrelated to any construction activities, San Jose City Planning would not require any permits.

Cassandra van der Zweep
Planner II| Planning Division | PBCE
City of San José | 200 East Santa Clara Street
Email: cassandra.vanderzweep@sanjoseca.gov | Phone: (408)-535-7659

From: Richard McMurtry <rmcmurtry@baymoon.com>
Sent: Friday, February 9, 2018 3:19:09 PM
To: Van Der Zweep, Cassandra
Subject: RE: Follow Up Phone Call

Dear Ms. Van Der Zweep,

It is my understanding based on our phone call that based on your conversations with the Berryessa project officer, no permit will be required by the City of San Jose for our invasive plant removal and native plant revegetation on that property, provided we get the appropriate permit from the California Department of Fish and Wildlife.

Is that correct?

Richard McMurtry

FOR DEPARTMENT USE ONLY				
Date Received	*Amount Received*	*Amount Due*	*Date Complete*	*Notification No.*
	$	*$*		
Assigned to:				

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

Complete EACH field, unless otherwise indicated, following the enclosed instructions and submit ALL required enclosures. Attach additional pages, if necessary.

1. APPLICANT PROPOSING PROJECT

Name	Richard Mcurty		
Business/Agency	Santa Clara County Creeks Coalition		
Mailing Address	24010 Summit Rd		
City, State, Zip	Los Gatos, CA 95033		
Telephone	408-442-4932	Fax	
Email	mcmurty@baymoon.com		

2. CONTACT PERSON (*Complete only if different from applicant*)

Name	Joe Rigney		
Street Address	125 Walk Circle		
City, State, Zip	Santa Cruz, CA 95060		
Telephone	831-459-0656 ext 705	Fax	
Email	jrigney@ecologicalconcerns.com		

3. PROPERTY OWNER (*Complete only if different from applicant*)

Name	See Attachment		
Street Address			
City, State, Zip			
Telephone		Fax	
Email			

4. PROJECT NAME AND AGREEMENT TERM

A. Project Name		Coyote Creek Invasive Plant Removal and Revegetation Plan		
B. Agreement Term Requested		☑ Regular (*5 years or less*) ☐ Long-term (*greater than 5 years)*		
C. Project Term		D. Seasonal Work Period		E. Number of Work Days
Beginning (*year*)	Ending (*year*)	Start Date (*month/day*)	End Date (*month/day*)	
2018	2020	4/15	10/15	366

5. AGREEMENT TYPE

Check the applicable box. If box B, C, D, E, or F is checked, complete the specified attachment.	
A.	☑ Standard *(Most construction projects, excluding the categories listed below)*
B.	☐ Gravel/Sand/Rock Extraction (*Attachment A*) *Mine I.D. Number:*_____
C.	☐ Timber Harvesting (*Attachment B*) *THP Number:* _____
D.	☐ Water Diversion/Extraction/Impoundment (*Attachment C*) *SWRCB Number:* _____
E.	☐ Routine Maintenance (*Attachment D*)
F.	☐ Cannabis Cultivation (*Attachment E*)
G.	☐ Department Grant Programs *Agreement Number:* _____
H.	☐ Master
I.	☐ Master Timber Operations

6. FEES

See the current fee schedule to determine the appropriate notification fee. Itemize each project's estimated cost and corresponding fee. ***Note: The Department may not process this notification until the correct fee has been received.***

	A. Project	B. Project Cost	C. Project Fee
1	Coyote Creek Invasive Plan Removal and Restoration Plan	347,800	4,320.25
2			
3			
4			
5			
6			
7			
8			
9			
10			
		D. Base Fee *(if applicable)*	
		E. TOTAL FEE*	4320.25

** Cash, check, and Visa or MasterCard payments are accepted.*

7. PRIOR NOTIFICATION AND ORDERS

A. Has a notification previously been submitted to, or a Lake or Streambed Alteration Agreement previously been issued by, the Department for the project described in this notification?

☐ Yes (*Provide the information below*) ☑ No

Applicant	Notification Number	Date

B. Is this notification being submitted in response to a court or administrative order or notice, or a notice of violation (NOV) issued by the Department?

☑ No ☐ Yes (*Enclose a copy of the order, notice, or NOV. If the applicant was directed to notify the Department verbally rather than in writing, identify the person who directed the applicant to submit this notification and the agency he or she represents, and describe the circumstances relating to the order.*)

☐ *Continued on additional page(s)*

8. PROJECT LOCATION

A. Address or description of project location.

(*Include a map that marks the location of the project with a reference to the nearest city or town, and provide driving directions from a major road or highway*)

See attachment

☑ *Continued on additional page(s)*

B. River, stream, or lake affected by the project.	Coyote Creek
C. What water body is the river, stream, or lake tributary to?	San Francisco Bay (Pacific Ocean)
D. Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts?	☐ Yes ☑ No ☐ Unknown
E. County	Santa Clara

F. USGS 7.5 Minute Quad Map Name	G. Township	H. Range	I. Section	J. ¼ Section
San Jose West	n/a	n/a	n/a	n/a

☐ *Continued on additional page(s)*

K. Meridian (*check one*) ☐ Humboldt ☑ Mt. Diablo ☐ San Bernardino

L. Assessor's Parcel Number(s)

241-05-001, 241-05-015, 241-05-014, 241-04-024

☐ *Continued on additional page(s)*

M. Coordinates (*If available, provide at least latitude/longitude or UTM coordinates and check appropriate boxes)*			
Latitude/Longitude	*Latitude:* 37°22'4.23"N	*Longitude:* 121°52'56.03"W	
	☑ Degrees/Minutes/Seconds	☐ Decimal Degrees	☐ Decimal Minutes
UTM	*Easting:*	*Northing:*	☐ Zone 10 ☐ Zone 11
Datum used for Latitude/Longitude or UTM	☐ NAD 27	☑ NAD 83 or WGS 84	

9. PROJECT CATEGORY

WORK TYPE	NEW CONSTRUCTION	REPLACE EXISTING STRUCTURE	REPAIR-MAINTAIN-OPERATE EXISTING STRUCTURE
Bank stabilization – bioengineering/recontouring	☐	☐	☐
Bank stabilization – rip-rap/retaining wall/gabion	☐	☐	☐
Boat dock/pier	☐	☐	☐
Boat ramp	☐	☐	☐
Bridge	☐	☐	☐
Channel clearing/vegetation management	☐	☐	☐
Culvert	☐	☐	☐
Debris basin	☐	☐	☐
Dam	☐	☐	☐
Filling of wetland, river, stream, or lake	☐	☐	☐
Geotechnical survey	☐	☐	☐
Habitat enhancement – revegetation/mitigation	☑	☐	☐
Levee	☐	☐	☐
Low water crossing	☐	☐	☐
Road/trail	☐	☐	☐
Sediment removal: pond, stream, or marina	☐	☐	☐
flood control	☐	☐	☐
Storm drain outfall structure	☐	☐	☐
Temporary stream crossing	☐	☐	☐
Utility crossing: horizontal directional drilling	☐	☐	☐
jack/bore	☐	☐	☐
open trench	☐	☐	☐
Water diversion without facility	☐	☐	☐
Water diversion with facility	☐	☐	☐
Other *(specify)*:	☐	☐	☐

10. PROJECT DESCRIPTION

A. Describe the project in detail. Include photographs of the project location and immediate surrounding area.

- Written description of all project activities with detailed step-by-step description of project implementation.
- Include any structures (e.g., rip-rap, culverts) that will be placed or modified in or near the stream, river, or lake, and any channel clearing.
- Specify volume, and dimensions of all materials and features (e.g., rip rap fields) that will be used or installed.
- If water will be diverted or drafted, specify the purpose or use.
- Enclose diagrams, drawings, plans, and maps that provide all of the following: site specific construction details; dimensions of each structure and/or extent of each activity in the bed, channel, bank or floodplain; overview of the entire project area (i.e., "bird's-eye view") showing the location of each structure and/or activity, significant area features, stockpile areas, areas of temporary disturbance, and where the equipment/machinery will access the project area.

See Attachement

☐ *Continued on additional page(s)*

B. Specify the equipment and machinery that will be used to complete the project.

Hand equipment such as loppers, shovels, hoes, rakes, and pulaskis; chainsaws and weed whips are only power equipment proposed for use

☐ *Continued on additional page(s)*

C. Will water be present during the proposed work period (specified in box 4.D) in the stream, river, or lake (specified in box 8.B).	☑ Yes ☐ No (*Skip to box 11*)
D. Will the proposed project require work in the wetted portion of the channel?	☐ Yes (*Enclose a plan to divert water around work site*) ☑ No

11. PROJECT IMPACTS

A. Describe impacts to the bed, channel, and bank of the river, stream, or lake, and the associated riparian habitat. Specify the dimensions of the modifications in length (linear feet) and area (square feet or acres) and the type and volume of material (cubic yards) that will be moved, displaced, or otherwise disturbed, if applicable.

Project impacts entirely associated with removal of non-native vegetation along an 1170 linear foot section of the creek. The proposed project will remove 91,070 sf. (2.09 acres) of non-native species cover from a 278,286 sf. (6.3 acre) section of Coyote Creek.

☐ *Continued on additional page(s)*

B. Will the project affect any vegetation? ☑ Yes (*Complete the tables below*) ☐ No (*Include aerial photo with date supporting this determination)*

Vegetation Type	Temporary Impact	Permanent Impact
Non-native vegetation	Linear feet: 1170 Total area: 2.09 Acres	Linear feet: 0 Total area: 0
	Linear feet: _____ Total area: _____	Linear feet: _____ Total area: _____

Tree Species	Number of Trees to be Removed	Trunk Diameter (range)
See Attachment		

☑ *Continued on additional page(s)*

C. Are any special status animal or plant species, or habitat that could support such species, known to be present on or near the project site?

☑ Yes *(List each species and/or describe the habitat below)* ☐ No ☐ Unknown

Riparian Habitat; Accipiter cooperii (Cooper's hawk); Oncorhynchus mykiss (Steelhead Salmon); Oncorhynchus tshawytscha (Chinook Salmon); Other Nesting Native Bird Species

☐ *Continued on additional page(s)*

D. Identify the source(s) of information that supports a “yes” or “no” answer above in Box 11.C.

Biological Assessment (Attached as "5. BIOLOGICAL IMPACT ANALYSIS")

☐ *Continued on additional page(s)*

E. Has a biological study been completed for the project site?

☑ Yes (*Enclose the biological study*) ☐ No

Note: A biological assessment or study may be required to evaluate potential project impacts on biological resources.

F. Has a hydrological study been completed for the project or project site?

☐ Yes (*Enclose the hydrological study*) ☑ No

Note: A hydrological study or other information on site hydraulics (e.g., flows, channel characteristics, and/or flood recurrence intervals) may be required to evaluate potential project impacts on hydrology.

G. Have fish or wildlife resources or waters of the state been mapped or delineated on the project site?

☐ Yes (*Enclose the mapped results*) ☑ No

Note: Check "yes" if fish and wildlife resources or waters of the state on the project site have been mapped or delineated. "'Wildlife' means and includes all wild animals, birds, plants, fish, amphibians, reptiles and related ecological communities, including the habitat upon which the wildlife depends." (Fish & G. Code, § 89.5.) If "yes" is checked, submit the mapping or delineation. If the mapping or delineation is in digital format (e.g., GIS shape files or KMZ), you must submit the information in this format for the Department to deem your notification complete. If "no" is checked, or the resolution of the mapping or delineation is insufficient, the Department may request mapping or delineation (in digital or non-digital format), or higher resolution mapping or delineation for the Department to deem the notification complete.

12. MEASURES TO PROTECT FISH, WILDIFE, AND PLANT RESOURCES

A. Describe the techniques that will be used to prevent sediment from entering watercourses during and after construction.

1) No work to occur within the active channel
2) Root removal and soil disturbance limited to 5,512 sf. (0.13 acres)
3) Erosion control BMPs to be implemented after vegetation removal
4) All restoration implementation work to occur during the dry season
5) Installation of native plant species for long-term erosion control

☐ *Continued on additional page(s)*

B. Describe project avoidance and/or minimization measures to protect fish, wildlife, and plant resources.

1) No work to occur in active channel
2) No dredging or filling work to occur
3) No heavy equipment to be used (chainsaws and weed whips are only power equipment proposed for use)
4) Herbicide use to be minimized through integrated pest management approach
5) Only herbicides registered by state of California for use in wet areas will be used
6) Only plants grown by nursery that has implemented BMPs for Phytophthora control will be installed

☐ *Continued on additional page(s)*

C. Describe any project mitigation and/or compensation measures to protect fish, wildlife, and plant resources.

BIO 1
In order to avoid impacts to nesting birds, ground disturbance and tree cutting associated with the habitat restoration should take place outside of the February 1 to August 31 breeding bird season.

If work must be conducted during the breeding season, a qualified biologist should conduct a pre-construction breeding bird survey throughout areas of suitable habitat within 250 feet of the work area within 30 days prior to the onset of any ground disturbance, and weekly as needed during the breeding season. If bird nests are observed, an appropriate buffer zone should be established around all active nests to protect nesting adults and their young from ground disturbance. Buffer zones should be determined by a qualified biologist in consultation with CDFW based on the site conditions and the species potentially impacted. Work within the buffer zone should be postponed until all the young are fledged, as determined by a qualified biologist.

☐ *Continued on additional page(s)*

13. PERMITS

List any local, State, and federal permits required for the project and check the corresponding box(es). Enclose a copy of each permit that has been issued.

A. no additional permits required ☐ Applied ☐ Issued

B. _____ ☐ Applied ☐ Issued

C. _____ ☐ Applied ☐ Issued

D. Unknown whether ☐ local, ☐ State, or ☐ federal permit is needed for the project. (*Check each box that applies*)

☐ *Continued on additional page(s)*

14. ENVIRONMENTAL REVIEW

A. Has a draft or final document been prepared for the project pursuant to the California Environmental Quality Act (CEQA) and/or National Environmental Protection Act (NEPA)?

☐ Yes (*Check the box for each CEQA or NEPA document that has been prepared and enclose a copy of each.*)

☑ No (*Check the box for each CEQA or NEPA document listed below that will be or is being prepared.*)

☐ Notice of Exemption	☐ Mitigated Negative Declaration	☐ NEPA document (*type*):
☐ Initial Study	☐ Environmental Impact Report	_____
☐ Negative Declaration	☐ Notice of Determination *(Enclose)*	
☐ THP/ NTMP	☐ Mitigation, Monitoring, Reporting Plan	

B. State Clearinghouse Number (*if applicable*)			
C. Has a CEQA lead agency been determined?	☐ Yes (*Complete boxes D, E, and F*)	☑ No (*Skip to box 14.G*)	
D. CEQA Lead Agency			
E. Contact Person		F. Telephone Number	

G. If the project described in this notification is not the "whole project" or action pursuant to CEQA, briefly describe the entire project (Cal. Code Regs., tit. 14, § 15378).

This is the whole project.

☐ *Continued on additional page(s)*

H. Has a CEQA filing fee been paid pursuant to Fish and Game Code section 711.4?

☐ Yes (*Enclose proof of payment*) ☑ No (*Briefly explain below the reason a CEQA filing fee has not been paid)*

No CEQA lead agency has yet been determined

Note: If a CEQA filing fee is required, the Lake or Streambed Alteration Agreement may not be finalized until paid.

15. SITE INSPECTION

Check one box only.

☐ In the event the Department determines that a site inspection is necessary, I hereby authorize a Department representative to enter the property where the project described in this notification will take place at any reasonable time, and hereby certify that I am authorized to grant the Department such entry.

☑ I request the Department to first contact (*insert name*) Richard McMurty at (*insert telephone number*) 408-442-4932 to schedule a date and time to enter the property where the project described in this notification will take place. I understand that this may delay the Department's determination as to whether a Lake or Streambed Alteration Agreement is required and/or the Department's issuance of a draft agreement pursuant to this notification.

16. DIGITAL FORMAT

Is any of the information included as part of the notification available in digital format (i.e., CD, DVD, etc.)?

☑ Yes (Please enclose the information via digital media with the completed notification form)

☐ No

17. SIGNATURE

I hereby certify that to the best of my knowledge the information in this notification is true and correct and that I am authorized to sign this notification as, or on behalf of, the applicant. I understand that if any information in this notification is found to be untrue or incorrect, the Department may suspend processing this notification or suspend or revoke any draft or final Lake or Streambed Alteration Agreement issued pursuant to this notification. I understand also that if any information in this notification is found to be untrue or incorrect and the project described in this notification has already begun, I and/or the applicant may be subject to civil or criminal prosecution. I understand that this notification applies only to the project(s) described herein and that I and/or the applicant may be subject to civil or criminal prosecution for undertaking any project not described herein unless the Department has been separately notified of that project in accordance with Fish and Game Code section 1602 or 1611.

_____ _____

Signature of Applicant or Applicant's Authorized Representative Date

Richard McMurty

Print Name

ATTACHMENT

NOTIFICATION OF LAKE OR STREAMBED ALTERATION
COYOTE CREEK INVASIVE PLANT REMOVAL AND REVEGETATION PLAN

3. PROPERTY OWNER

1) North Side Bank
   Name: SJ Sierra Group LLC
   Street Address: 1590 Berryessa Rd
   City, State, Zip: San Jose, CA 95133
   Telephone: 408-453-1141
   Fax: 408-437-9011
   Email:

2) South Side Bank
   Name: Granite Rock, Attn – Alex Simmons
   Street Address: 11711 Berryessa Road
   City, State, Zip: San Jose, CA 95133-1012
   Telephone: 831-334-2083
   Fax:
   Email: asimons@graniterock.com

8. PROJECT LOCATION

A. Address or description of project location

The proposed restoration project will occur on both banks of Coyote Creek downstream from Berryessa Rd. in San Jose, CA.

Address:

North Side Bank
1590 Berryessa Rd
San Jose, CA 95133

South Side Bank
11711 Berryessa Road
San Jose, CA 95133-1012

See Map on next page for project location

Directions: From Highway 101 South of the junction with Highway 880, take exit for Oakland Rd and turn left. Take the first right onto Maybury Rd. Turn left onto Berryessa Rd. Project location is on left, where berryess Rd. crosses Coyote Creek.

ATTACHMENT

NOTIFICATION OF LAKE OR STREAMBED ALTERATION
COYOTE CREEK INVASIVE PLANT REMOVAL AND REVEGETATION PLAN

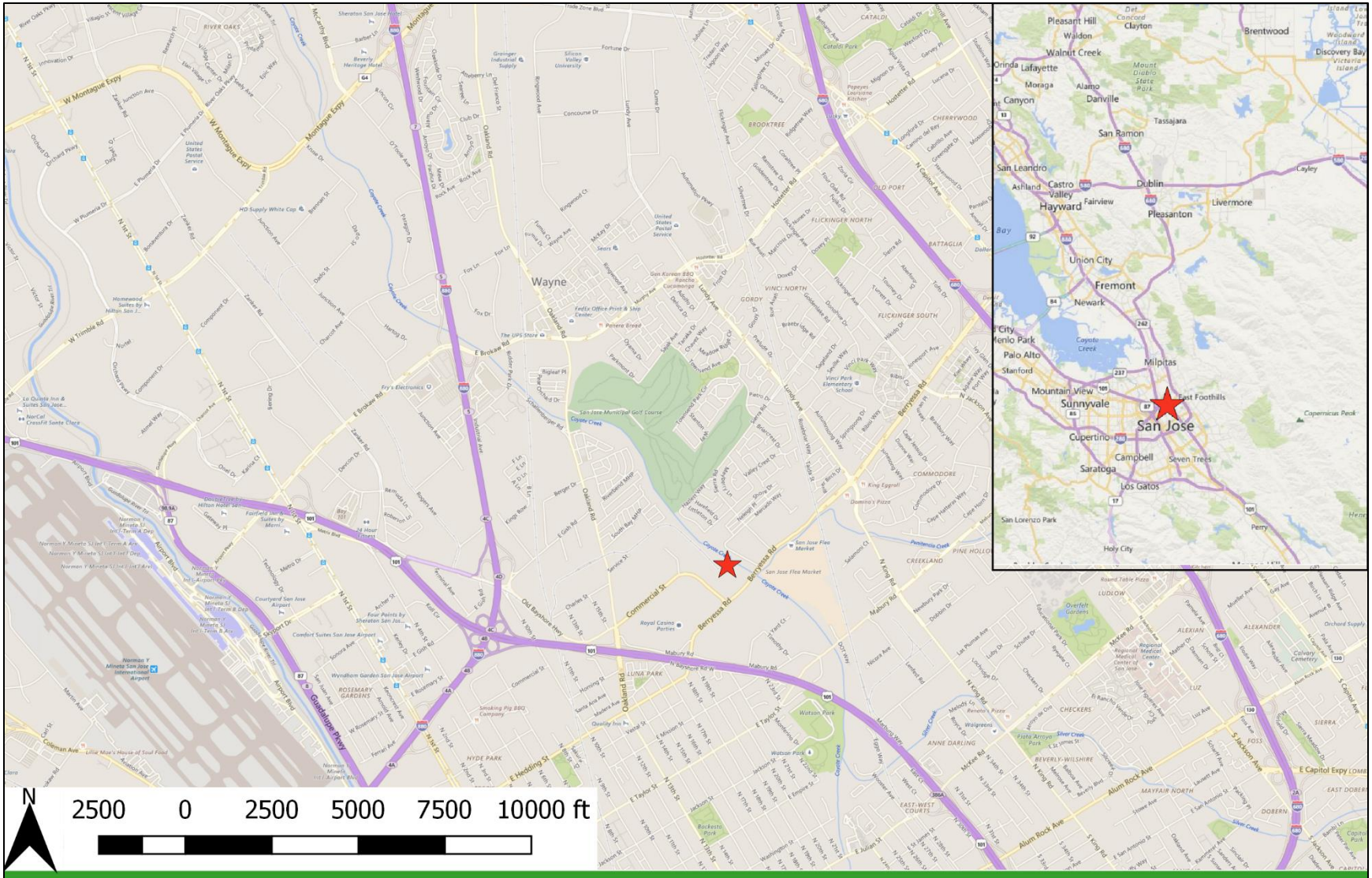


Figure 1
Project Location

Ecological Concerns Inc.
Ecological Landscapes | Habitat Restoration | California Native Plants
125 Walk Circle, Santa Cruz CA 95066 Office: (831) 459-0656 Fax: (831) 457-1666
www.ecologicalconcerns.com

ATTACHMENT

NOTIFICATION OF LAKE OR STREAMBED ALTERATION
COYOTE CREEK INVASIVE PLANT REMOVAL AND REVEGETATION PLAN

11B. PROJECT IMPACTS (TREES)

Tree Species		Number of Trees to be Removed	Trunk Diameter (range
Ailanthus altissima	Tree of Heaven	1	5”
Juglans sp.	Walnut	19	1” – 10”
Quercus ilex	Holly-leaved Oak	1	5”
Schinus molle	Peruvian Pepper Tree	1	5”
Ulmus sp.	Elm	1	10”

12C. MEASURES TO PROTECTECT FISH, WILDLIFE, AND PLANT RESOURCES

Success criteria are established for the project as follows:

- *Salix* stakes
  - 80% Survival at end of Year 2
- Container Plants
  - 100 % survival at end of Year 1
  - 80% Survival at end of Year 2
  - 60% Survival at end of Year 3
  - 50% survival at end of Year 5
- Invasive Exotic Species
  - Less than 5% cover of controlled species at end of Year 5

Monitoring and reporting shall occur in years 1 and 2 for *Salix* stakes, and in years 1,2,3, and 5 for container plants and invasive exotic species. Live *Salix* stakes and live container plants shall be counted and compared to the total number planted in order to ensure that success criteria are met. A minimum of three point-intersect transects per each side of the creek shall be established in order to monitor the percent cover of invasive exotic species on the site. Reports shall be supplied to permitting agencies each year that monitoring occurs.

Although the overall project is self-mitigating due to the fact that removal of non-native plant species and planting of native species will provide overall value to the riparian system, some impacts to bird species may occur during the removal of non-native vegetation. In order to mitigate this potential impact to a less than significant level, the following mitigation measure is proposed:

BIO 1
In order to avoid impacts to nesting birds, ground disturbance and tree cutting associated with the habitat restoration should take place outside of the February 1 to August 31 breeding bird season.

If work must be conducted during the breeding season, a qualified biologist should conduct a pre-construction breeding bird survey throughout areas of suitable habitat within 250 feet of the work area within 30 days prior to the onset of any ground disturbance, and weekly as needed during the breeding season. If bird nests are observed, an appropriate buffer zone should be established around all active nests to protect nesting adults and their young from ground disturbance. Buffer zones should be

determined by a qualified biologist in consultation with CDFW based on the site conditions and the species potentially impacted. Work within the buffer zone should be postponed until all the young are fledged, as determined by a qualified biologist.