WILDLANDS

June 6, 2013

San Diego Regional Water Quality Control Board
Attn: Alan Monji
9174 Sky Park Court, Suite 100
San Diego, CA 92123

OVERNIGHT
(858) 637-7140

SUBJECT: San Luis Rey Mitigation Bank: Section 401 Water Quality Certification – R9-2013-0050

Dear Mr. Monji:

In response to your March 22, 2013 letter, enclosed please find the two items requested in order to deem Wildlands' application No. R9-2013-0050 complete.

1. Grading Plans
2. Habitat Development Plan (Restoration Plan)

As required, prior to issuance of 401 certification copies of the California Environmental Quality Act document and the Storm Water Pollution Prevention Plan will be provided when available.

Regarding the diesel contamination that was discovered in 2006 during a Phase I and Limited Phase II Environmental Site Assessment conducted for the San Diego Association of Governments and California Department of Transportation; the contamination was discovered only in a single sample of 37 samples taken and was determined not to be of environmental concern because no diesel was found in the remaining borings. In a more recent Phase I ESA (Geocon, Inc., 2011), no evidence of any diesel contamination could be found. However, contingency measures have been put in place. These measures can be found in the enclosed letter "Clarification of Recommendations for Soil Reuse" provided by Geocon, Incorporated which states "*Since the location of the diesel-impacted soil is currently unknown, we recommend that if soil that exhibits evidence of potential petroleum hydrocarbon impacts is encountered during site grading, this soil be segregated and a qualified environmental professional contacted.*"

Please feel free to contact me with any additional questions or concerns.

Sincerely,

Cindy Tambini
Director of Planning

Enclosures
1. Grading Plans
2. Habitat Development Plan
3. Geocon, Inc. - Phase I ESA Clarification Letter

SAN LUIS REY MITIGATION BANK

DEVELOPMENT PLAN

Prepared by:

Wildlands
3855 Atherton Road
Rocklin, CA 95765
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November 2012

A. Table of Contents

LIST OF TABLES

LIST OF FIGURES

(**Note:** Figures are located at the end of the document.)

LIST OF ACRONYMS AND ABBREVIATIONS

APN	Assessor Parcel Number
Bank	San Luis Rey Mitigation Bank
Bank Sponsor	Wildlands SLR Holdings I, LLC (Wildlands)
BEI	Bank Enabling Instrument
BMP	best management practice
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cfs	cubic feet per second
CLOMR	Conditional Letter of Map Revision
Corps	U.S. Army Corps of Engineers
CRAM	California Rapid Assessment Method
CWA	Clean Water Act
DFG	California Department of Fish and Game
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESA PWA	ESA PWA | Environmental Hydrology
FEMA	Federal Emergency Management Agency
GPS	global positioning system
IRT Advisory Agency	Interagency Review Team Advisory Agencies are potential signatories to the BEI
Landowner	Wildlands SLR Holdings I, LLC (Wildlands)
LOMR	Letter of Map Revision
msl	mean sea level
MHCP	Multiple Habitat Conservation Plan
NCCP	Natural Communities Conservation Plan
NFWF	National Fish and Wildlife Foundation
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
OHP	State Office of Historic Preservation
PAR	Property Analysis Record
PCEs	primary constituent elements
PJD	Preliminary Jurisdictional Determination

REC	recognized environmental condition
Regional Board	San Diego Regional Water Quality Control Board
RWQCB	Regional Water Quality Control Board
SDAPCD	San Diego Air Pollution Control District
SUSMP	standard urban storm water mitigation plan
SWPPP	storm water pollution prevention plan
SWRCB	State Water Resources Control Board
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WHF	Wildlife Heritage Foundation
Wildlands	Wildlands SLR Holdings I, LLC

B. Summary

Wildlands SLR Holdings I, LLC (Wildlands) is proposing to entitle the San Luis Rey Mitigation Bank (Bank) through the Bank Enabling Instrument (BEI) process as identified by the U.S. Army Corps of Engineers (Corps). Other potential signatories to the BEI include the U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (DFG), and the San Diego Regional Water Quality Control Board (RWQCB). These agencies are referred to as IRT Advisory Agencies.

The project will restore and permanently protect 53.84 acres of land located in the San Luis Rey River floodplain in the city of Oceanside in San Diego County, California.

The Bank will provide compensatory mitigation that may be required by federal, state, and local agencies as compensation for unavoidable impacts to wetlands. Entitlement of the Bank will help agencies achieve their "no-net-loss" wetlands goals.

Wildlands purchased 56.54 acres of property from the Singh Property Management Company (the property is commonly referred to as the "Singh Property") located along San Luis Rey River in northwestern San Diego County. The property has historically been used for agricultural purposes with the most recent crop type being vine-ripened tomatoes.

The property is located on the north side of Highway 76/ Mission Avenue, south of North River Road and northeast of Mission Vista High School in the eastern portion of the City of Oceanside, California. The site is situated between Interstate 5 and Interstate 15 and west of the community of Bonsall. Due to its location along the San Luis Rey River and its high potential for successful restoration, the property has been identified by several state and federal agencies as a high priority restoration site.

The Bank site is primarily characterized as active cultivated agricultural lands located both north and south of an approximately 1,800-foot reach of the San Luis Rey River. The entire reach of the San Luis Rey River bisecting the site has been channelized. The river bottom is freshwater marsh habitat, which is dominated by bulrush (*Scirpus* sp.) and cattail (*Typha* sp.). Surface water is present in places. The banks of the armored channel are dominated by the invasive giant reed.

Wildlands is the Bank Sponsor and is responsible for Bank design, entitlement, construction and long-term operations and management. Wildlands is a habitat development and land management company dedicated to the restoration and preservation of wetlands and special-status species habitat. Wildlands has been developing and entitling mitigation and conservation banks and permittee-responsible mitigation and conservation projects for approximately 20 years and is very well qualified to successfully entitle, design, construct and manage the Bank until all of the constructed wetlands meet the Performance Standards, all the credits are sold and the endowment is fully funded.

The target habitat is a riparian wetland mosaic that meets the jurisdictional requirements as identified by the Corps and DFG. Although the site is designated Critical Habitat for the federally endangered arroyo toad (*Anaxyrus californicus*), federally endangered southwestern willow flycatcher (*Empidonax traillii extimus*), and state and federally endangered least Bell's vireo (*Vireo bellii pusillus*), habitat assessments conducted in 2011 indicates that the active agricultural operation does not allow the establishment of suitable habitat for these species. Restoration of the site would improve the wildlife corridor along the river and likely result in the restoration of breeding habitat for these species; however, no species credits are being requested for the Bank at this time.

The site will be permanently protected through the wetlands mitigation banking process. A Conservation Easement will be recorded over the Bank site. This Conservation Easement will restrict land uses to activities compatible with a wetlands mitigation bank. The Conservation Easement will be held by an entity that is approved to hold an interest in mitigation lands as defined by Section 65965 of the California Government Code. The Conservation Easement holder must be approved by the Corps. Wildlife Heritage Foundation (WHF) has been identified to hold the conservation easement on the Bank site.

Perpetual stewardship of the Bank will be financed by an Endowment Fund established to ensure that the monitoring and management expenses of the site will be funded in perpetuity. Deposits to the Endowment Fund will be made concurrent with the transfer of credits.

This document describes the methods to restore and monitor the Bank through the 5-year success period. Long-term management and monitoring of the site in perpetuity is described in detail in the Long-term Management Plan (see *Exhibit D-5 of the BEI)*; however, the monitoring methods described in this document are consistent with the monitoring methods described in the Long-term Management Plan.

C. Responsible Parties

C.1 BANK SPONSOR

The Bank Sponsor is:

Wildlands SLR Holdings I, LLC (Wildlands)
3855 Atherton Road
Rocklin, CA 95765
Contact: Cindy Tambini or ctambini@wildlandsinc.com
Telephone: (916) 435-3555

C.2 PROPERTY OWNER

The property is owned by:

Wildlands SLR Holdings I, LLC (Wildlands)
3855 Atherton Road
Rocklin, CA 95765
Contact: General Counsel
Telephone: (916) 435-3555

C.3 CONSERVATION EASEMENT HOLDER

The Conservation Easement will be held by:

Wildlife Heritage Foundation
563 2nd Street, Suite 120
Lincoln, CA 95648
Contact: Executive Director or http://www.wildlifeheritage.org/
Telephone: (916) 434-2759

C.4 ENDOWMENT HOLDER

The Endowment will be held by:

Wildlife Heritage Foundation
563 2nd Street, Suite 120
Lincoln, CA 95648
Contact: Executive Director or http://www.wildlifeheritage.org/
Telephone: (916) 434-2759

D. Property Description

D.1 LOCATION

The Bank site is located on the northern side of State Route 76/Mission Avenue, south of North River Road and northeast of Mission Vista High School in the eastern portion of the City of Oceanside, California (Figure 1; all figures are located at the end of the Development Plan). The Bank site is situated between Interstate 5 and Interstate 15 and west of the community of Bonsall.

The northern portion of the property is located in Section 36 of Township 10 South, Range 4 West on the Morro Hill 7.5-minute U.S. Geological Survey quadrangle and the southern portion of the property is located in Section 1, Township 11 South, Range 4 West of the same quadrangle map (Figure 2).

For the purpose of this Development Plan, the "Overall Property" is defined as 56.54 acres designated as all or portions of San Diego County Assessor Parcel Numbers (APNs) 122-130-33; 122-130-35; 122-130-37; 122-130-39; and 122-130-41 (Figure 3). The Overall Property was created by a City of Oceanside lot line adjustment process and has not yet been issued a new APN. The address of the Overall Property is 5780 Mission Avenue, Oceanside, CA 92057; however, there is no known address associated with the Bank site.

The "Bank Property" is a subset of the Overall Property and excludes various access, road and/or utility easements. The Bank Property is 53.84 acres.

D.2 OWNERSHIP STATUS

The Overall Property is private property previously owned by the Singh Property Management Company. Wildlands purchased the property in December 2011.

D.3 CURRENT AND HISTORIC LAND USES

The current land use is agriculture (tomato fields) on both the north and south sides of the river. Though fallow in 2011, it is anticipated that the property will likely be farmed in the interim period prior to Bank construction.

The tomato fields are irrigated by a network of water wells, underground water pipes and powered pumps that are located near the center of the Bank site. Fill was placed in the floodplain and an informal farm levee was constructed along the river banks. A privately-owned culverted crossing constructed in 1960s is located immediately downstream of the Bank site and provides north-south access across the river for farming activities.

Unimproved dirt roads provide access to the Bank site from State Route 76 and North River Road. An equipment storage yard is located outside the southwestern corner of the Bank site. Four groundwater wells used for agricultural purposes are located on the site and will be decommissioned with the project. Power is supplied by overhead San Diego Gas & Electric Company lines.

Several completed restoration projects are located along San Luis Rey River floodplain immediately upstream and downstream of the site and another restoration project is located southeast of the site (Figure 4). The site immediately upstream to the east involved restoration and enhancement of 21± acres of riparian habitat that was graded and filled without authorization from the Corps and DFG and the removal of 11± acres of giant reed along with other invasive, non-native plant species and revegetation with native riparian species. The work was authorized in 2000 and met the final success criteria in 2007. A second upstream restoration area is associated with the Caltrans widening of State Route 76.

There are two downstream restoration areas that involved restoration and enhancement; however, the details of one of the restoration activities (Granite Construction) are not known. The second downstream restoration area is a 19±-acre Preserve established by the Vista Unified School District in 2010 to mitigate for impacts to critical habitat for least Bell's vireo and southwestern willow flycatcher.

The Bank site has not been used as mitigation for a previous project, nor is it designated or dedicated for passive park or open space uses.

The Bank site is located in a predominantly agricultural and open space/conservation area; however, the site is located within the city limits and residential, institutional and commercial properties are located within a mile of the site.

Nearby land uses include:

- South: Singh Property Management Company agricultural processing plant, parking lots and State Route 76 San Luis Rey Mission Expressway
- North: North River Road and tomato fields
- East: Existing restoration site and San Luis Rey River
- West: Mission Vista High School, existing restoration site, and San Luis Rey River

The Bank is compatible with existing and proposed adjacent land uses. Future land uses are indicated by the City of Oceanside General Plan land uses designations as shown in Figure 5. The General Plan designations for the property are Agriculture (A) on the northern portion of the site and Residential – Estate B (EB-R) on the remainder of the site. Nearby publicly-owned lands and/or restoration/habitat lands are shown in Figure 6.

D.4 CLIMATE

The San Luis Rey River basin is representative of a Mediterranean climate with dry, warm to hot summers and relatively cool, moist winters. Climatic variations within the watershed are the result of coastal influence and elevation. The dry season along the coast, May through October, is usually defined by morning fog and cloudiness. On average, about 266 days out of the year are clear, with the remaining 99 days being either cloudy or partly cloudy. The average winter minimum temperature near the coast is 46°F with cooler inland temperatures that range from 30°F in the Palomar Mountains with an occasional snowfall. The average summer temperature along the coast is about 69°F, with temperatures inland that frequently exceed 90°F. A majority of the precipitation falls during the months of November through April with snow occurring in the higher elevations of the mountains (California Department of Fish and Game 2009). The mean annual rainfall for the watershed is approximate 20 inches (10 inches at Oceanside).

D.5 TOPOGRAPHY

The San Luis Rey River crosses the property from east to west and divides the property into two unequal portions with most of the property located south of the river. Topographically, the two divided areas are relatively flat with a slight slope toward the river alignment, which in turn slopes from east to west within the vicinity of the site. Elevations range from a high of approximately 130 feet mean sea level (msl) in the southern portion of the site to approximately 120 feet in the north, with a low elevation of 98 feet msl in the river channel. Surface drainage flows north and south to the river and then east to west to the Pacific Ocean.

D.6 GEOLOGY

The property is located in the Peninsular Range geomorphic province of Southern California, which is a northwest-southeast trending of igneous and metamorphic rocks that includes the Southern California batholith. This geomorphic province encompasses an area that extends 125 miles from the Transverse Ranges and the Los Angeles Basin south to the Mexican Border and beyond for another 775 miles to the tip of Baja, California. In general, the province consists of rugged mountains underlain by Mesozoic igneous and metamorphic rocks to the east, and a

dissected coastal plain underlain by Cenozoic sediments to the west. The province varies in width from approximately 30 to 100 miles.

The property is underlain by surficial deposits consisting of artificial fill, Quaternary alluvium/ colluvium, and Cretaceous-age granitic rock (*Bonsall Tonalite*). The artificial fill thickness is estimated to be 1 to 10 feet. The alluvium/colluvium consists of an unconsolidated sandy, silty, or clay-bearing unit. Underlying the alluvium/colluvium is the *Bonsall Tonalite*, which consists of mostly massive, coarse-grained, light-gray hornblende-biotite tonalite.

D.7 SOILS

The Soil Survey of San Diego Area, California (Soil Conservation Service and Forest Service) was accessed via http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm to determine the soils on the property. As shown in Figure 7, there are six soil series and eight soil types found in the property; however, the site soil is predominantly characterized by three soil units: Bonsall sandy loam, 2 to 9 percent slopes; Riverwash; and Tujunga sand, 0 to 5 percent slopes.

The Bonsall series consists of moderately well drained, shallow to moderately deep sandy loams that have a heavy clay loam subsoil. Slopes are concave and range from 2 to 15 percent. The native vegetation is mainly filaree, mustard, wild oats, and annual grasses and forbs. A few scattered oaks grow along the drainages.

In a representative profile, the surface layer is brown, slightly acid sandy loam about 10 inches thick. The subsoil is brown, yellowish-brown, and light yellowish-brown, slightly acid to moderately alkaline clay loam and sandy loam about 50 inches thick. The substratum is light-brown, mildly alkaline sandy clay loam. At a depth of about 89 inches is deeply weathered granitic rock.

Riverwash occurs in intermittent stream channels. The material is typically sandy, gravelly, or cobbly. It is excessively drained and rapidly permeable. Many areas are barren. Scattered sycamores and coast live oaks grow along the banks. Sparse shrubs and forbs occur in patches.

The Tujunga series consists of very deep, excessively drained sands derived from granitic alluvium. These soils are on alluvial fans and flood plains and have slopes of 0 to 5 percent. The vegetation in uncultivated areas is chiefly annual grasses and forbs and a few scattered oaks.

In a representative profile the surface layer is brown, neutral sand about 14 inches thick. The next layers are pale-brown, neutral sand and coarse sand. This material extends to a depth of more than 60 inches. Tujunga soils are used mainly for range and golf courses. A few small areas are used for avocados, flowers, and truck crops.

D.8 HYDROLOGY

The following information is summarized from the Hydraulic Report and Conceptual Restoration Plan for the Bank (see *Exhibit K-7 in the BEI*).

The Bank site is located on the San Luis Rey River approximately 10 miles upstream of the Pacific Ocean. The watershed is 515 square miles at the site and has a mean annual rainfall of 20 inches (10 inches at the city of Oceanside). Land use within the watershed is varied – 54% of the watershed is undeveloped (public and tribal lands), 15% is residential, and 14% is agricultural. More than 10% of the watershed draining to the site is urban. The upper watershed (205 square miles) is controlled by Lake Henshaw Dam, which stores and diverts drinking water for the cities of Escondido and Vista.

The U.S. Geological Survey (USGS) has operated a flow gage on the San Luis Rey River in Oceanside (USGS 11042000) since 1916, but there were numerous gaps in the record up to 1965 that make the use of the early period questionable for flood frequency analyses. For the initial hydrologic assessment (ESA PWA 2011), a Bulletin 17B flood frequency analysis was conducted using gage records after 1965, and the results were compared to values predicted by the USGS regional regression models for southern California (Waananen and Crippen 1977) and flood flows estimated in the most recent Flood Insurance Study for San Diego County (Federal Emergency Management Agency 2006). The results suggested that the 100-year flow ranged from 51,000 to 115,000 cubic feet per second (cfs) depending on the method of analysis used.

Since the initial hydrologic assessment, ESA PWA had several discussions with the Los Angeles District of the Corps regarding site hydrology. As a result, the flow frequency analysis has been updated to include the discharge data provided in the "Updated San Luis Rey Discharge-frequency Analysis" (U.S. Army Corps of Engineers 2008). The updated peak flows were officially adopted by the Corps, and were used in conjunction with the FEMA 100-year flow in the hydraulic models. The Corps adjusted flow records from the Oceanside gage to account for zero peak flow years, urbanization, and flow attenuation from Lake Henshaw Dam. The Corps also supplied ESA PWA with flood hydrographs for the 2, 5, 10, and 100-year return interval discharge events. The 100-year floodplain is shown in Figure 8.

Wildlands has monitored water surface elevations at nine groundwater wells and the river channel since December 2009. For the period of record when both groundwater and river stage were collected, it is apparent that the two are closely linked. The relationship is even closer when the river stage is adjusted for river surface slope across the site, with most groundwater wells having water surface elevations within 1-2 feet of the river stage. This is consistent with permeable sandy soil in which hydrostatic differences between the river and floodplain can quickly adjust.

Wildlands groundwater data was reviewed in context of the climate during the time of collection. Rainfall in the 2009-2010 water year (Oct. 1 – Sept. 30) was 10.8 inches at Oceanside compared with a mean of 9.8 inches from 1909 to 2010, which suggests that this water year was slightly wetter than average for the site. Rainfall during the 2010-2011 water year was even greater at 14.0 inches, and should be considered significantly wetter than the average year. Groundwater data from the more typical 2009-2010 water year was used as part of the basis of design for floodplain grading.

D.9 JURISDICTIONAL AREAS

A Preliminary Jurisdictional Determination (PJD)/Wetland Delineation Report was prepared and submitted to the Corps (see *Exhibit I in the BEI*). The PJD was completed prior to determining the Bank boundary and covers an area of approximately 69 acres (Figure 9).

The PJD identifies the presence of approximately 6.314 acres of potential waters of the U.S. which consists of 5.37 acres of freshwater marsh and 0.94 acres of riparian forest. The PJD also identifies 0.247 acres of agricultural drainage ditch; however, the agricultural drainage ditch fails to meet the mandatory technical criteria and field indicators for wetlands.

On November 23, 2011, the Corps sent Wildlands a PJD (File #2011-00694-SAS) confirming that there may be may be waters of the U.S. on the property (see *Exhibit I in the BEI*).

D.10 WETLAND FUNCTIONS AND VALUES

A typical wetland similar to the San Luis Rey River has various functions, including:

- Energy dissipation (slowing down the flood waters);
- Surface and subsurface water storage and exchange (making water available to animals and underground aquifers);
- Particulate detention (holding sand, silt, and clay in the floodplain);
- Sediment mobilization, storage, transport, and deposition (moving and storing sediments);
- Removal of imported elements and compounds (moving sediment and leaves and such downstream) and transport of organic matter;
- Cycling of elements and compounds (recycling of nutrients from leaves and such);
- Plant and wildlife communities (providing habitat for plants and animals that like or tolerate periodic or permanent flooding and providing a means of connecting different types of habitats including providing wildlife corridors).

Wetland values are properties of a wetland that are considered beneficial to humans such as wildlife habitat, recreation, aesthetics, education and timber and fiber production.

The wetland functions and values on the site are currently degraded. Although the site does provide some wetland functions, most of the functions are reduced as a result of the ongoing landscape modification and manipulation to maximize the amount of farmland. Review of historic aerial photographs and topographic maps (Figure 10; Figure 11, and Figure 12) document a wider historic floodplain. Previous landowners were actively manipulating the landscape, including channelizing the river, to expand the amount of farmland.

Agricultural activities have reduced the extent of the floodplain and associated riparian habitat thereby reducing shade, large woody debris, insect production, and habitat for state and federally listed species including arroyo toad, southwestern willow flycatcher and least Bell's vireo.

The project design would rehabilitate and re-establish wetland functions and drastically increase wetland values (Table 1). The proposed design would re-establish the historic floodplain and increase riparian vegetation, shade, and large woody debris, and the amount of potential breeding habitat for listed species.

Table 1. San Luis Rey Mitigation Bank: Existing and Projected Wetland Functions

Wetland Function	Existing Condition	Restored Condition
Subsurface water storage	**Low**. The straight channel configuration and elevation difference between the channel bottom and adjacent agricultural fields severely limits subsurface water storage.	**High**. A reconfigured, meandering river channel with a broad floodplain and secondary channels will slow water movement across the property allowing for increased storage.
Moderation of groundwater flow or discharge	**Low**. The straight, ditch-like channel configuration is intended to convey water across the site as quickly as possible. Groundwater flow and discharge is relatively rapid.	**High**. The reconfigured channel will significantly modify rate of groundwater flow and discharge.
Dissipation of floodflow energy	**Low**. There is currently very little dissipation of floodflow energy due to the straight channel and lack of a functioning floodplain. Flood flows are largely confined to a 5-acre channel	**High**. A meandering channel and broad floodplain will allow flood flows to dissipate over the floodplain.
Nutrient cycling	**Low**. Nutrient cycling is limited due to high energy, rapid water movement across the site during periods of high river flows.	**High**. The dissipation of flow energy with allow for nutrient retention and cycling within the floodplain.
Sediment retention	**Low**. Current channel configuration is designed to minimize sediment retention.	**High**. Lower velocity flows should allow for sediment retention and moderate sediment transport.
Maintenance of plant and animal communities	**Low**. The site currently provides habitat to relatively low numbers of common wildlife species and has significantly covered by invasive plant species. Woody vegetation is continually removed from the channel to maintain floodflow conveyance capacity. The site also provides a low-quality wildlife corridor along the San Luis Rey River.	**High**. After rehabilitation, the site will provide suitable habitat for several special-status wildlife species and will be dominated by native riparian vegetation. After rehabilitation, the wildlife corridor values will substantially increase with a much wider and more diverse habitat that is protected.

D.11 BIOLOGICAL RESOURCES

The following information is summarized from the Biological Resources Report prepared for the Bank (see *Exhibit H in the BEI*).

Due to the extensive land management activities associated with a large scale commercial agricultural operation, there are very limited biological resources associated with the majority of the site. Most of the Bank site, with the exception of the channelized San Luis Rey River, has historically been utilized for growing tomatoes or wheat. It is estimated that the project site has been in almost continuous agricultural use for over 40 years. The property was recently operated by the Singh Property Management Company as a commercial agricultural operation producing vine-ripened tomatoes.

The Bank site supports five habitat types; however, well over half the site is comprised of agricultural fields (Figure 13).

The Bank site is characterized as active cultivated agricultural lands located both north and south of an approximately 1,800-foot reach of the San Luis Rey River. On the Bank site, the San Luis Rey River has been channelized and is characterized as freshwater marsh habitat. The banks of the incised channel are dominated by the invasive giant reed. The freshwater marsh habitat is dominated by bulrush and cattail with areas of surface water expression.

A review of the California Natural Diversity Database indicates there are no known special status plants documented onsite (Figure 14), and no known special status animals documented onsite (Figure 15); however, least Bell's vireo, yellow-breasted chat, and southwestern willow flycatcher are documented upstream and downstream of the project site (Figure 16).

The site is located outside the San Diego County Multiple Species Conservation Program (MSCP) North County Plan Area (Figure 17).

Due to timing and the overall lack of suitable on site habitat, no focused surveys for special-status wildlife were conducted; however, habitat assessments for arroyo toad and least Bell's vireo and southwestern willow flycatcher were conducted for the project as described below.

Cadre Environmental conducted a breeding and upland habitat assessment for the federally endangered arroyo toad (*Anaxyrus californicus*) on June 27, 2011, to qualitatively assess potential breeding and aestivation habitat for the arroyo toad (see *Exhibit H in the BEI*). The survey included an assessment of all habitats (potential movement routes) present within and adjacent to the Bank site. No suitable arroyo toad breeding habitat is present on the Bank site. The existing freshwater marsh habitat located along the San Luis Rey River does not represent suitable breeding conditions for the species. The extensive emergent vegetation, deep pools (>1ft) and unsuitable substrates are not characteristic of where arroyo toads breed. Suitable arroyo toad breeding habitat was documented immediately up and downstream of the Bank site where the San Luis Rey River is not channelized.

The Bank site also does not represent suitable arroyo toad aestivation habitat. Although suitable soils are present within the upland habitats (sand/loam), the complete lack of vegetation and detritus often associated with aestivating arroyo toad sites (willow and mulefat scrub) is not present. However, high quality arroyo toad upland habitat was documented immediately up and downstream of the Bank site within the San Luis Rey River floodprone area. Although the species is generally not expected to occur within these lower reaches of the San Luis Rey River, isolated populations may persist and occasional movements through the Bank site within the existing matrix of dirt roads including burrowing (during breeding season – non aestivation behavior) could occur.

A habitat assessment for least Bell's vireo and southwestern willow flycatcher was conducted (see *Exhibit H in the BEI*). No primary constituent elements (PCEs) for the least Bell's vireo or the southwestern willow flycatcher occur within the Bank site (see *Exhibit H in the BEI*). The lack of tree and shrub elements would preclude the use of the use of the site for nesting by either species. The existing freshwater marsh habitat located along the San Luis Rey River does not represent suitable breeding conditions for either species especially in the absence of key structural elements like trees and shrubs adjacent to the river. Potentially suitable breeding habitat was observed immediately up and downstream of the Bank site where riparian vegetation with the necessary structural and compositional elements occurs.

D.12 CULTURAL RESOURCES

The following information is summarized from the Cultural Resources Report (see *Exhibit J in the BEI*).

Affinis completed a cultural resources review of the property in June 2011 including contact with the Native American Heritage Commission, discussions with Native Americans within the project area, and a pedestrian survey of the Bank site. The survey was conducted by a professional archaeologist and a Native American monitor from Saving Sacred Sites and the San Luis Rey Band of Luiseño Mission Indians. No archaeological or historic resources of significance were found.

D.13 PHASE I ENVIRONMENTAL SITE ASSESSMENT

The following information is summarized from the Phase 1 Environmental Site Assessment (see *Exhibit G in the BEI*).

A Phase 1 Environmental Site Assessment was prepared in 2011 to provide information regarding the potential for existing hazardous substances or petroleum product issues associated with the site. No evidence of recognized environmental conditions (REC) was revealed.

E. Site Selection and Project Goals

E.1 SITE SELECTION

The Bank site is an ideal restoration site for the following reasons:

1. Bisected by the San Luis Rey River
2. Identified by multiple agencies as a high value restoration site
3. Removal of historic fill within the floodplain
4. Restoration would remove fill and recreate the channel hydraulics and natural function within the floodplain
5. Minimal potential for conflicts with adjacent land uses
6. Located adjacent to other preserved properties along the river
7. Expansion of the wildlife corridor along the river

Permanent protection and restoration of the Bank site is consistent with the federal, state and local plans for this vital resource.

E.2 PROJECT GOALS

The goal of the project is the restoration of the historic floodplain and entitlement of the wetlands mitigation bank in order to provide regional compensation for unavoidable impacts to wetlands and waters.

Approval of the project would result in the following activities:

- Restoring self-sustaining fluvial processes onsite.
- Improving the existing riparian habitat and restoring a riparian floodplain thereby improving habitat values. Restoration of the floodplain could potentially provide habitat for state and federally listed species including arroyo toad, least Bell's vireo, and southwestern willow flycatcher.
- Improving the channel design to accommodate current and future flood flows.

- Realigning the San Luis Rey River through the site.
- Grading of the site to remove the berms along both sides of the river and remove approximately 730,000 cubic yards of fill from the floodplain.
- Abandoning four agricultural wells located within the floodplain that would not be needed in the future. The associated utility corridors to these wells and any other unnecessary utility corridors also would be abandoned.
- Permanent protection of the Bank site through recordation of a conservation easement on the property.
- Permanent management of the site as funded by a non-wasting endowment fund.

F. Restoration Design

F.1 CONCEPTUAL REHABILITATION AND RE-ESTABLISHMENT DESIGN

The San Luis Rey River within the Bank site is highly degraded. The river has been channelized and portions of the floodplain have been filled to maximize farmland. Woody vegetation has been continually removed from the channel to maintain its conveyance capacity. The banks of the channel are dominated by the invasive giant reed. In contrast, both upstream and downstream from the project site, the river is characterized by a wide floodplain with established trees and reduced presence of invasive species.

From a biological perspective, the Bank site is primarily characterized as active cultivated agricultural lands. The agricultural lands are located both north and south of the 1,800 foot channelized reach of the San Luis Rey River. The channelized portion of river functions as degraded freshwater marsh habitat and is dominated by bulrush (*Scirpus* sp.) and cattail (*Typha* sp.)

The Conceptual Restoration Plan, Figure 18 and Figure 19, proposes the rehabilitation[1] of the San Luis Rey River and the re-establishment[2] of the floodplain via the removal of fill material from the agricultural fields. Revegetation of the site will result in a broad riparian corridor and improved wildlife habitat.

F.1.a River Corridor Rehabilitation Activities

The Bank design will take a river that has been channelized, straightened, confined and disconnected from its historic floodplain and restore it to a wider, shallower, sinuous and braided form that is much more connected to its floodplain. The existing channel has a trapezoidal form

[1] Rehabilitation means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

[2] Re-establishment means the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

with an artificially low width:depth ratio. The channel will be relocated with a width:depth ratio that is appropriate to its setting and location in the watershed.

Engineered large woody debris structures or boulders may be considered for placement in the river if the hydrologic analysis indicates the structures would direct flows to off-channel locations and help prevent re-establishment of the river in its current location.

The channel will be allowed to migrate and avulse within the restored floodplain area, as is typical for sand bed braided channels in this area. This will support a wide range of aquatic and riparian processes that do not occur under existing conditions. For example, channel shifts between the main channel and the side channels will periodically deposit fresh sediment on channel bars and floodplain areas, creating patches for mulefat, willows and other riparian species to colonize. At the same time floods and localized scour will disturb and remove older patches of riparian vegetation. The combined effect of these processes will be a riparian corridor with a more diverse complex of different ages and types of vegetation, with more ecological niches.

Rehabilitation of the river requires the removal of the non-engineered private farm levees found on the north and south sides of the river and the removal of giant reed. Giant reed is a tall perennial grass (family Poaceae) that typically forms dense stands on disturbed sites, sand dunes, riparian areas, and wetlands. It is one of the fastest growing land plants in the world. It can grow up to 4 inches per day and reach a height of up to 30 feet. It has invaded numerous counties including San Diego County. Giant reed is considered an invasive species that is threatening California's riparian ecosystems by outcompeting native species, such as willows, for water. It typically displaces native species by shading immature plants.

Rehabilitation of the river will improve various wetland functions including:

1. Create initial hydrologic conditions to support re-establishment of the river corridor and expansion of the riparian habitat.

2. Improve water quality through the removal of sediments in the river and decreased erosion through the establishment of a healthy herbaceous cover.

3. Improve habitats including foraging, nesting and rearing for mammals, amphibians, reptiles and birds.

4. Increase the quality and diversity of aquatic and riverine habitat and general habitat suitability by providing the hydrology and improving the native plant richness and wildlife habitat.

5. Expand and improve the wildlife corridor connection between protected and restored sites upstream and downstream of the Bank site through the creation of an unbroken vegetation corridor.

The rehabilitation activities will substantially increase wetland functions and provide for a greater number of services including improved water quality, decreased sedimentation and erosion, improved biological diversity and aesthetics.

F.1.b River Corridor Re-establishment Activities

The restoration design will re-establish the historic floodplain through the removal of artificial fill from the agricultural fields. The removal of this material will allow for the reintroduction of self-sustaining fluvial processes and will result in the re-establishment of the wetland riparian river corridor. The restoration design may include connections to existing drainages adjacent to the Bank site.

Re-establishment of the river corridor will result in the establishment of a wide riparian corridor in the floodplain. In order to maintain a healthy riparian corridor, the depth of excavation will be to inundate or saturate near the ground surface for sufficient duration during the growing season. This will allow the vegetation to tie into the water table and assure successful establishment.

Re-establishment of the river will result in an increase of aquatic resource area and will improve various wetland functions including:

1. Improve water quality through the removal of ongoing agricultural activities that annually result in the discharge of nutrients and sediments into the river.

2. Slow the rising and falling storm water movements through the floodplain, i.e., slow the peak timing and flows and increase the detention time of storm water in the Bank site. This will reduce flooding and increase infiltration into the groundwater.

3. Improve habitats for special-status species including arroyo toad, least Bell's vireo and southwestern willow flycatcher.

F.2 CONSTRUCTION INFORMATION

F.2.a Implementation Schedule

It is anticipated that construction of the project would occur in one phase beginning in either late 2012 or early 2013. Initial activities would begin no later than mid-February and would include grading, planting and seeding. Modification of the river corridor including removal of the levees and removal of the giant reed would occur during the dry season. Planting and seeding would begin at the end of construction and would likely occur between November 15 and March 15 to take advantage of the winter rains.

F.2.b Earthmoving Activities

Fill material will be removed from the agricultural fields to re-establish a functioning floodplain through the project site. The removal of approximately 730,000 yards of fill will allow for the reintroduction of self-sustaining fluvial processes and will result in the re-establishment of wetland riparian habitat within the river corridor. Surface hydrology and groundwater data has been studied to determine the configuration and elevations of the restored floodplain. In addition to restoration of the San Luis Rey River though the project site, the restoration design may include connections to existing drainages located in the both the southern and northern portions of the project site.

Wetland construction activities will be conducted using heavy equipment which may include tractors, scrapers, bulldozers, skiploaders, backhoes, excavators, and water trucks.

Analysis of historical aerial photos indicates that the portion of the San Luis Rey River that runs through the Bank site has been converted from a braided river to a single-thread trapezoidal flood control channel. Since the 1940's, the channel has been straightened and the adjacent floodplain has been filled to accommodate agricultural fields. The project proposes to reconfigure the existing straight, incised channel and to restore a braided river with a broad, reconnected floodplain. The morphology of the restored river will be appropriate for its hydrologic setting within the watershed and will support a mosaic of wetland and riparian habitat, similar to the area immediately upstream of the Bank site.

The design of the restoration area includes a primary channel and a secondary channel. The restored channels will be located south of the existing river alignment. The dimensions of the primary channel are anticipated to be 26 feet wide with a depth of 3 feet and a slope of 0.004 while the dimensions of the secondary channel are anticipated to be 23 feet wide with a depth of 3 feet. The restoration of the river would extend from the east upstream end of the Bank site to immediately upstream of the culvert crossing located at the west downstream end of the Bank site.

The construction sequence for work in the river follows:

1. Excavate the new floodplain south of the existing channel while retaining a buffer between the existing channel and the new floodplain.
2. Excavate the new primary channel within the new floodplain.
3. Remove buffer between the downstream end of the existing channel and the new channel.
4. Connect the downstream ends of both channels.
5. Remove buffer between the upstream end of the existing channel and the new channel.
6. Connect the upstream end of both channels.
7. Plug the upstream end of the old channel so that flow is directed into the new channel.

8. Salvage emergent marsh vegetation from the existing channel and place the vegetation adjacent to the new channel.

9. Fill the old channel from upstream to downstream with clean soil so that the river cannot re-occupy the old alignment.

10. Remove the buffer that was left between the old channel and the new channel.

11. Excavate floodplain areas north of the old channel.

12. Finish grade the Bank site.

13. Plant and seed the Bank site.

It is estimated that once the floodplain is constructed to final grade, the construction of the new channels would require a maximum of two weeks. Diverting the water to the new channels would require approximately 1 day. The salvage of vegetation and diversion of the river would occur during the dry season (June 1 to October 1).

The project may include a structure such as a large woody bank revetment across the existing channelized river course to prevent the river from reoccupying the old alignment during high flows in the first few years after construction; however, the need for such a structure has not yet been confirmed.

Dewatering of the construction area may be required depending on groundwater levels during construction.

In-water work is considered minimal as construction of the new channels will occur while the existing river is in place. Likewise, flow will be diverted to the new channels prior to removal of the vegetation in the existing channel and placing fill in the existing channel.

Excavation of the floodplain would occur both north and south of the river. Most of the larger soil placement sites are located north and northeast of the restoration area; therefore, the project may include construction of a temporary culvert crossing of the river at the upstream end of the Bank site.

F.2.c Planting Plan

The site may be planted with a combination of cuttings, nursery grown plants and seed. Irrigation may be required during the plant establishment period; however, irrigation is not anticipated to be required beyond the third year following plant installation. However, Bank Sponsor may elect to irrigate longer recognizing that the associated 5 year release would be delayed until irrigation is removed for two years. The following plant species are being evaluated for the various habitat zones at the site:

Rehabilitated / Re-established Wetland Riparian Corridor (350 plants per acre):

- Fremont cottonwood (*Populus fremontii*)
- Black willow (*Salix gooddingii*)
- Arroyo willow (*Salix lasiolepis*)
- Sandbar willow (*Salix hindiana*)
- Mule fat (*Baccharis salicifolia*)

Floodplain Buffer Restoration (350 plants per acre):

- Fremont cottonwood (*Populus fremontii*)
- Mule fat (*Baccharis salicifolia*)
- Live oak (*Quercus agrifolia*)
- Sycamore (*Platanus racemosa*)

Upland Buffer Restoration:

- Native and naturalized grasses
- Coastal sage scrub species (*Eriogonum spp, Salvia spp, Artemisia spp, Isocoma spp*, etc.)
- Live oak (*Quercus agrifolia*)

The planting schedule for the various habitats is shown in Table 2. The seed mixes for the various habitats is shown in Table 3.

Table 2. Planting Schedule			
Emergent Marsh **3.2 acres**			
Botanical Name	**Common Name**	**Notes**	
Scirpus americanus	three-square bulrush	Salvage emergent marsh vegetation from locations where the existing channel will be relocated. Replace vegetation adjacent to the relocated channel	
Scirpus californicus	California bulrush		
Scirpus fluviatilis	river bulrush		
Typha latifolia	broadleaf cattail		
Riparian Forest **35.5 acres**			
Botanical Name	**Common Name**	**Number per acre**	**Total**
Baccharis salicifolia	mulefat	18	639
Populus fremontii	Fremont cottonwood	105	3,728
Salix exigua	sandbar willow	18	639
Salix gooddingii	black willow	174	6,177
Salix lasiolepis	arroyo willow	35	1,243
Total		**350**	**12,426**
Floodplain Buffer **9.2 acres**			
Botanical Name	**Common Name**	**Number per acre**	**Total**
Baccharis salicfolia	mulefat	175	1,610
Platanus racemosa	California sycamore	35	322
Populus fremontii	Fremont cottonwood	105	966
Quercus agrifolia	coast live oak	35	322
Total		**350**	**3,220**
Upland Buffer **3.3 acres**			
Artemisia californica	California sagebrush	100	920
Eriogonum fasciculatum	California buckwheat	100	920
Total		**200**	**1,840**

Table 3. Seed Mixes			
Riparian Forest / Marsh	**38.7 acres**		
Botanical Name	**Common Name**	**Pounds per acre**	**Total**
Anemopsis californica	yerba mansa	2	77
Leymus triticoides	creeping wildrye	5	194
Artemisia douglasiana	California mugwort	3	116
Oenothera elata	Great marsh evening primrose	2	77
Total		**12**	**464**
Floodplain Buffer	**9.2 acres**		
Botanical Name	**Common Name**	**Pounds per acre**	**Total**
Artemisia douglasiana	California mugwort	3	28
Leymus triticoides	creeping wildrye	3	28
Oenothera elata	Great marsh evening primrose	2	18
Ambrosia psilostachya	western ragweed	3	28
Total		**11**	**102**
Upland Buffer	**3.3 acres**		
Botanical Name	**Common Name**	**Pounds per acre**	**Total**
Artemisia californica	California sagebrush	2	7
Eriogonum fasciculatum	California buckwheat	2	7
Isocoma menziesii	coast goldenbush	2	7
Vulpia microstachys	annual fescue	2	7
Lupines tricolor	tricolored lupine	2	7
Nassella pulchra	purple needlegrass	2	7
Total		**12**	**42**

F.2.d Giant Reed Removal

Along with the removal of fill from the floodplain and revegetation of the site, another component of the restoration is the removal of giant reed. Giant reed is a tall perennial grass (family Poaceae) that typically forms dense stands on disturbed sites, sand dunes, riparian areas, and wetlands. It is one of the fastest growing land plants in the world. It can grow up to 4 inches per day and reach a height of up to 30 feet. It has invaded numerous counties including San Diego County. Giant reed is considered an invasive species that is threatening California's riparian ecosystems by outcompeting native species, such as willows, for water. It typically displaces native species by shading immature plants.

Various techniques can be used to remove giant reed including but not limited to hand removal, mechanical removal of the plant and rhizomes which can be up to 10 feet below the soil surface, chemical control, and machine gathering and grinding of the plants, etc. The most effective eradication of giant reed begins at the top of the watershed and includes removal of all the plants downstream of the infestations.

F.3 ANTICIPATED PERMITS

A list of anticipated permits, agreement and consultations is provided in Table 4. The Corps has the authority to approve the Bank; however, other agencies may choose to participate in the process and become Signatory Agency(s) or Party(s) to the BEI, if deemed appropriate.

Table 4. Anticipated Permits, Agreements and Consultations

Agency	Approval, Permit, Agreement or Consultation	Approval or Permit Status
U.S. Army Corps of Engineers (Corps)	Approval of the wetlands mitigation bank. Clean Water Act (CWA) Section 404 nationwide permit.	Wetland delineation has been submitted and verified Section 404 nationwide permit to be submitted.
U.S. Environmental Protection Agency (EPA)	Review of the wetlands mitigation bank; possible Signatory Agency	BEI has been submitted
State Office of Historic Preservation (OHP)	Section 106 consultation with the Corps	Corps is responsible for section 106 consultation

Table 4. Anticipated Permits, Agreements and Consultations		
Agency	**Approval, Permit, Agreement or Consultation**	**Approval or Permit Status**
U.S. Fish and Wildlife Service (USFWS)	Review of the wetlands mitigation bank; possible Signatory Agency. Possible section 7 consultation with the Corps	BEI has been submitted Corps is responsible for section 7 compliance
National Marine Fisheries Service (NMFS)	Possible review of the wetlands mitigation bank; possible Signatory Agency Possible section 7 consultation with the Corps	BEI has been submitted Corps is responsible for section 7 compliance
California Department of Fish and Game (DFG)	Possible review of the wetlands mitigation bank; possible Signatory Agency A Section 1602 streambed alteration agreement is required because the project requires construction in the San Luis Rey River which is subject to DFG jurisdiction	BEI has been submitted Streambed alteration agreement will be submitted
Federal Emergency Management Agency (FEMA)	Approval of a Conditional Letter of Map Revision (CLOMR) (conditional modification of the 100-year floodplain before construction) Approval of a Letter of Map Revision (LOMR) (modification of the 100-year floodplain after construction)	CLOMR will be submitted (No effect on approval of Bank)
San Diego Regional Water Quality Control Board (Regional Board)	All Section 404 permits require a Clean Water Act Section 401 water quality certification from the Regional Board; possible Signatory Agency	Permit will be submitted
State Water Resources Control Board	Clean Water Act Section 402 National Pollutant Discharge Elimination System (NPDES) requires enrollment into the Statewide Construction General Permit	Permit will be submitted
City of Oceanside	Development Plan review and approval (includes grading plan and landscape/restoration plan) Approval of the CEQA document	Permits are being prepared and will be submitted

F.4 CONSTRUCTION AVOIDANCE AND MINIMIZATION MEASURES

The following measures will be used to avoid and minimize impacts during construction. These measures will be reviewed prior to construction. If construction begins prior to the beginning of the nesting and breeding season, some of the following measures may be modified or eliminated with concurrence of the relevant agencies.

F.4.a Biological Resources

1. Designate a Biological Monitor. At least two weeks prior to project initiation, the name(s), permit numbers, resumes, and at least three references for all biologists that might need to handle, move, or monitor federally listed species will be submitted to USFWS Carlsbad Fish & Wildlife Field Office (CFWO). Biological monitors must be familiar with federally endangered species and habitats potentially occurring within the region of the project. Project-related activities will not be initiated prior to receiving CFWO approval. The approved designated biological monitor will be responsible for ensuring compliance with the project description (including all conservation measures) to minimize and avoid impacts (incidental take) to federally endangered species. The monitoring biologist will have authorization to halt/suspend all activities until appropriate corrective measures have been completed and will also be required to report violations immediately to the CFWO. Designated biological monitoring responsibilities will include but not be limited to:

    a. Advise all project-related staff (contractors) on the appropriate implementation of the conservation measures.

    b. Be available to supervise and monitor biological resource compliance efforts in areas requiring avoidance or containing suitable habitat for federally endangered species.

    c. Be available to monitor installation of all best management practices (BMPs) and environmentally sensitive habitat (ESH) fencing.

    d. Halt any and all activities in any area when a potential unauthorized incidental "take" of an endangered species may or has occurred.

    e. Inspect work in active areas of the project site where federally endangered species habitat is present or adjacent to the work area to ensure compliance with all conservation measures for the duration of the proposed action. Monitor the work area as appropriate but not less than once a week for compliance with all conservation measures.

    f. Notify CFWO of any noncompliance with any conservation measure.

g. Conduct initial Environmental Awareness Program for all project-related staff.

2. Conduct Environmental Awareness Program. The designated biological monitor will develop and implement an environmental awareness program for all project-related staff (contractors). All employees, contractors, and subcontractors who will work on the project will participate in the program. The environmental awareness program will include but not be limited to a description of all federally endangered species and their habitats potentially occurring within the region of the project, the general provisions of the ESA, the need to adhere to the provisions of the ESA, the penalties associated with violating the ESA, and the general measures that are being implemented to conserve the listed species as they relate to the project. A handout will be provided to all staff illustrating all focal species and listing contact information and procedural instructions, if detected. A training acknowledgement form will be signed by all staff participating in the project indicating that they have received training and will abide by the guidelines and conservation measures.

3. The following general avoidance measures will be implemented during all project-related activities.

    a. At least thirty days prior to initiation of construction related activities, grading plans shall be submitted to the Corps for review. The plans shall include preconstruction photographs of the project area.

    b. Employees will strictly limit their activities, vehicles, equipment, and materials to the designated temporary impact areas and designated staging areas. No personnel or equipment will be allowed to enter areas designated as ESH areas.

    c. To avoid attracting predators, work areas will be kept as clean of debris as possible. All food-related trash items will be enclosed in sealed containers and regularly removed from the project site.

    d. No pets will be allowed in the project site.

    e. All equipment maintenance, staging, and dispensing of fuel, oil, or coolant, will occur within a predetermined staging area. Fueling and maintenance of trucks and other vehicles will occur within a predetermined staging area. Equipment will be checked for leaks prior to operation and repaired as necessary.

    f. The wetland mitigation bank will be planted as early as possible following completion of excavation activities adjacent to ESH areas. Specifically, BMP's to address erosion and excess sedimentation will be incorporated into the project plans. Measures that will be implemented during excavation, hauling, spreading and restoration efforts include (but will not be limited to) the use of silt fencing, gravel bags, hay bales, fiber rolls, and protective velocity dissipaters at drainage outlet points.

4. The following avoidance and conservation measures will implemented in a collective effort to minimize and avoid impacts to the federally endangered arroyo toad. No suitable arroyo toad habitat is present within the Bank site.

    a. To preclude arroyo toads from work sites, arroyo toad exclusionary fencing will be installed around each segment of the project, where suitable arroyo toad upland and/or breeding habitat occurs, prior to initiation of mitigation bank implementation activities. The fence will consist of fabric or plastic at least two feet (0.61 m) high, staked firmly to the ground with the lower one foot of material stretching outward along the ground and secured with a continuous line of gravel bags. No digging or vegetation removal will be associated with the installation of this fence and all materials will be removed when the project is complete. Ingress and egress of equipment and personnel will use a single access point to the site. This access point will be as narrow as possible and will be closed off by exclusionary fencing when personnel are not on the project site.

    b. Prior to mitigation bank implementation activities, but after exclusionary fencing has been installed, at least three surveys for arroyo toads will be conducted within the fenced area by a Service-approved biologist. A Service-approved biologist will be able to identify arroyo toads visually and vocally and will have a minimum of 20 hours of survey experience for this species. To receive approval, the biologist will submit his/her resume and references to the Service for review and approval at least 30 days prior to initiation of project-related activities. Surveys will be conducted during the appropriate climatic conditions during the appropriate time of day or night to maximize the likelihood of encountering arroyo toads. If arroyo toads are found within the project site during the surveys, all work will cease and the Service will be notified.

    c. The date, time of observation, specific location (Global Positioning Satellite [GPS] coordinates), approximate size, age, and health of all individuals observed shall be recorded and provided to the DFWO within 30 days of the observation in both hard copy and digital format.

5. The following avoidance and conservation measures will implemented in a collective effort to minimize and avoid indirect impacts to the federally threatened coastal California gnatcatcher. No suitable habitat for the coastal California gnatcatcher is present within the Bank site.

    a. Exclusionary fencing as described for arroyo toad will serve as a protective measure to prevent encroachment into ESH's located adjacent to the Bank site. Coastal California gnatcatchers have been documented immediately adjacent to the southwest of the Bank site. The exclusionary/ESH fencing will provide a protective buffer to prevent impacts to coastal sage scrub habitat and reduce the potential for indirect impacts associated with project-related activities.

    b. If the event excavation or hauling activities (excavation and/or restoration efforts) must occur within the breeding season timeframe adjacent to coastal California gnatcatcher habitat, then a pre-construction survey shall be conducted

at least three days prior to project initiation to ensure that no impacts to gnatcatchers occur. Should bird nests or breeding activity be documented adjacent to the project site, then appropriate measures shall be implemented, but not be limited to, monitoring during clearing, excavation or plantings to ensure that no impacts to the breeding sites occur, temporary designation of the breeding site as an ESH, and/or delaying/restricting project related activities within a buffer zone (determined by monitoring biologist based on location and topography) until nesting and fledging is complete.

c. The date, time of observation, specific location (GPS coordinates), approximate size, age, and health of all individuals observed will be recorded and provided to the CFWO within thirty days of the documentation in both hard copy and digital format.

6. The following avoidance and conservation measures will implemented in a collective effort to minimize and avoid impacts to the least Bell's vireo (federally and state endangered), southwestern willow flycatcher (federally and sate endangered) and yellow-billed cuckoo (federal species of concern).

   a. All vegetation clearing, as warranted, will be conducted between September 15th and February 15th to avoid potential direct and/or indirect impacts to the least Bell's vireo, southwestern willow flycatcher and yellow-billed cuckoo and to remain in compliance with the federal Migratory Bird Treaty Act (MBTA). In the event vegetation removal and/or construction activities (excavation and/or restoration efforts) must occur within the breeding season timeframe, pre-construction surveys shall be conducted no more than three days prior to project initiation to ensure that no impacts to nesting birds occur. Should bird nests or breeding activity be documented within (if vegetation has not been removed) or adjacent to the project site, then appropriate measures shall be implemented, but not be limited to, monitoring during clearing, excavation or plantings to insure that no impacts to the breeding sites occur, temporary designation of the breeding site as an ESH, and/or delaying/restricting project related activities within a buffer zone (determined by monitoring biologist based on location and topography) until nesting and fledging is complete.

   b. The date, time of observation, specific location (GPS coordinates), approximate size, age, and health of all individuals observed will be recorded and provided to the CFWO within thirty days of the documentation in both hard copy and digital format.

7. The following avoidance and conservation measures will implemented in a collective effort to minimize and avoid impacts to the federally endangered southern California steelhead.

   a. Water diversion construction (including filtering system) within the project site will be initiated after May 1st and removed by November 30th. This construction season is when the southern California steelhead is not expected to occur within the project site. Following completion of project-related activities, all water

diversion materials will be removed and flows will be restored to natural conditions.

b. A preconstruction survey will be conducted immediately prior to initiation of project-related activities within the San Luis Rey River to determine presence/absence of the southern California steelhead. Project-related activities conducted within or adjacent to the San Luis Rey River will not be initiated until the species has been documented absent from the Study Area.

c. Avoid working in actively flowing water, where feasible.

d. Any shallow or deep aquatic habitat including existing pools, riffles and plunge pools will be retained and/or restored within the project site, where feasible.

e. The exclusionary/ESH fencing proposed to traverse the up and downstream segments of the San Luis Rey River would be breached to allow for migration no later than November 30th.

f. The date, time of observation, specific location (GPS coordinates), approximate size, age, and health of all individuals observed will be recorded and provided to the CFWO within thirty days of the documentation in both hard copy and digital format.

8. Impacts to nesting bird species are prohibited under the MBTA. The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 C.F.R. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. 21). Suitable nesting bird habitat has been documented within and immediately adjacent to the project site. Therefore, to remain in compliance with the MBTA, nesting bird surveys will be conducted within and adjacent to the action area prior to and during all proposed actions conducted between February 15th and September 15th.

   a. Prior to conducting any proposed actions during the breeding season (February 15th to September 15th), the monitoring biologist will conduct a pre-construction survey/surveys to identify any active nesting locations in and near the project area no more than three days prior to project initiation. If the biologist does not find any active nests that would be potentially impacted, the proposed action may proceed. If the biologist finds an active nest within or adjacent to the project site and determines that the nest may be impacted, the biologist will delineate an appropriate buffer zone around the nest. Any active nests observed during the survey will be mapped on a recent aerial photograph including documentation of GPS coordinates. Only specified activities (if any), as approved by the qualified biologist, will take place within the buffer zone until the nest is vacated.

   b. The project site is located adjacent to a vegetation (Southern Cottonwood Willow Riparian Forest) favored by several resident and migratory raptor species. Surveys for active raptor nests will be performed in all adjacent habitats and trees no more than three days prior to commencement of any activities during the

raptor nesting season generally extending from February 1st to June 30th. Active raptor nests observed during the survey will be mapped on a recent aerial photograph including documentation of GPS coordinates. Restrictions on activities will be required in the vicinity of the nest until the nest is no longer active as determined by the qualified biologist.

c. Typically, a 300- to 500-foot buffer zone will be designated around a nest to allow activities to proceed while minimizing disturbance to the active nest. Once the nest is no longer active, the proposed action may proceed within the buffer zone. Impacts on active raptor nests will be avoided.

9. The biological monitor will submit monthly updates and a final report to the CFWO within 60 days of project completion documenting that authorized temporary impacts were not exceeded and general compliance with all conservation measures. The final report will summarize the results of the monitoring efforts and include recommendations to further reduce potential impacts to sensitive species, if applicable. As previously stated, the CFWO will also be notified if any federally listed species are documented within or adjacent to the project site. The date, time of observation, specific location (GPS coordinates), approximate size, age, and health of the individual will be recorded and provided in both hard copy and digital format to the CFWO within thirty days of the observation.

   The CFWO will be notified if any endangered species are found injured or dead. A written notification would also be prepared after verbal notification to the CFWO. The report would include the date, time and location of the discovered animal/carcass, cause of injury or death, and any other pertinent information. All dead and preserved specimens will be submitted to educational/research institutions with the appropriate federal permits.

10. All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities shall occur in designated areas outside of Waters of the U.S. within the project limits. These designated areas shall be located in previously compacted and disturbed areas to the maximum extent practicable in such a manner as to prevent any runoff from entering Waters of the U.S. and shall be shown on the grading plans. Fueling of equipment shall take place within existing disturbed areas greater than 100 feet from Waters of the U.S. Contractor equipment shall be checked for leaks prior to operation and repair as necessary.

11. "No fueling zones" shall be established within a minimum of 50 feet from the San Luis Rey River.

12. Any project related spills of hazardous materials shall be reported to appropriate entities including but not limited to the City of Oceanside, Corps, USFWS, DFG, and Regional Water Quality Control Board (RWQCB) and shall be cleaned up immediately and contaminated soils removed to approved disposal areas.

13. Any planting stock to be brought onto the project site for restoration shall be first inspected by a qualified pest inspector to ensure it is free of pest species that could invade natural areas, including, but not limited to, Argentine ants, fire ants, and other insect pests. Any planting stock found to be infested with such pests shall not be allowed on the project site or within 300 feet of natural habitats. The stock shall be quarantined, treated or disposed of according to best management principles by qualified experts in a manner that precludes invasions into natural habitats.

14. Any temporary irrigation installed for the restoration area shall be used for the shortest duration possible.

15. Public access to the project site shall be prohibited. Fencing may be required to keep unauthorized personnel from trespassing.

F.4.b Hydrology and Water Quality

1. Prior to the start of construction, the contractor shall obtain permit coverage from the State Water Resources Control Board (SWRCB) under the National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity.

2. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared to comply with the permit and include site-specific detail on erosion and sediment control measures that will be implemented to minimize erosion during construction and prevent sediment transport from the site. Site-specific measures include best management practices (BMPs) to detain runoff from the project site and prevent sedimentation to the San Luis Rey River.

3. The contractor shall designate a qualified person to inspect and document compliance with the SWPPP. The designated person shall ensure that sedimentation is limited to within the construction area.

F.4.c Cultural Resources

1. Prior to implementation of the monitoring program and prior to beginning any grading, a pre-excavation agreement shall be developed between the appropriate Native American group (assumed to be the San Luis Rey Band of Luiseño Mission Indians) and the project applicant.

2. The qualified archaeologist and the Native American representative shall attend the pre-grading meeting with the contractors to explain the requirements of the monitoring program.

3. An archaeologist and a Native American monitor shall be on-site during grading and other ground-disturbing activities; given the extremely disturbed nature of the project site, it is not anticipated that full-time monitoring would be necessary; a monitoring schedule will be developed between the archaeological Principal Investigator, Native American representative, and the project applicant.

4. If cultural resources are encountered, the monitors shall have the authority to temporarily halt or redirect grading while the cultural resources are documented and assessed. If significant resources are encountered, appropriate mitigation measures must be developed and implemented

5. If any human remains are discovered, the County Coroner shall be contacted. In the event that the remains are determined to be of Native American origin, the Most Likely Descendant, as identified by the Native American Heritage Commission, shall be contacted in order to determine proper treatment and disposition of the remains.

6. If cultural resources are encountered, recovered artifactual materials shall be cataloged and analyzed and a report shall be completed describing the methods and results of the monitoring and data recovery program.

7. Artifacts collected (if any) shall be curated with accompanying catalog to current professional repository standards or the collection will be repatriated to the San Luis Rey Band, as specified in the pre-excavation agreement.

F.4.d Air Quality

1. Prior to grading, the following measures shall be included in the notes on the grading plan and implemented during construction, to the satisfaction of the City Engineer.

    a. Adhere to best management practices, which shall include the application of water on disturbed soils and replanting disturbed areas as soon as practical.

    b. During construction activities, construction equipment shall be properly maintained to ensure proper timing and tuning of engines.

    c. The contractor shall adhere to all San Diego Air Pollution Control District (SDAPCD) Rules and Regulations.

    d. If feasible, the contractor shall ensure use of low-sulfur diesel fuel in construction equipment as required by the California Air Resources Board.

2. Construction vehicles shall drive 20 mph or less on unpaved roadways within the project site.

3. Wheels and undercarriages of haul trucks shall be cleaned prior to entering public roadways. If necessary, access to all public streets from which site access is taken shall be swept on a daily basis to prevent dirt from being carried from the site. The goal is to keep vehicles from pulverizing dirt into fine particles.

4. Dirt trackout control devices shall be installed and maintained where paved and unpaved travel routes intersect at public streets.

5. Signage shall be placed in visible areas on the project site with a name and telephone number to call for complaints related to fugitive dust. The calls shall be responded to in a timely manner.

6. A dust control plan shall be prepared for the project and submitted to the City of Oceanside prior to earthwork activity.

7. Construction equipment shall meet California Air Resources Board—certified off road vehicle requirements.

F.4.e Noise

1. Due to the isolated location of the construction site and lack of nearby noise-sensitive receptors, construction activity will be allowed during the daylight hours, Monday through Saturday.

F.4.f Hazardous Materials

1. The project is required to comply with all federal, state, and local regulations for the storage and handling of hazardous materials that may be utilized during construction.

2. If unknown contamination or other buried hazards are encountered during construction, all work within 100 feet of the find shall stop and remediation must be carried out to the satisfaction of the City of Oceanside.

G. Monitoring and Success Criteria

The habitat will be monitored regularly in order to document progression of the habitat toward achieving project goals. Performance standards are benchmarks to be used as indicators of the relative progress towards achieving habitat establishment goals. Performance standards have been developed for the various habitats. A summary of the monitoring activities and the performance standards for each habitat type are listed in Tables 5 and 6 respectively. It is anticipated that the habitat will meet the performance standards within five years; therefore, it is anticipated that the performance monitoring will occur for five years with long-term monitoring occurring after that. Continued success of the restored habitat, without supplemental irrigation, must be demonstrated for two consecutive years. If an extension of monitoring is required because of remediation, only those features not meeting performance standards would need to be monitored.

An inherent challenge in setting up success criteria for a wetland in the arid southwest to be measured within the first five years is the infrequent and episodic nature of surface flows. For example, in the USACE field guide to OHWM delineation in the arid southwest Lichvar and McColley (2008) refer to the variability in floodplain inundation in arid regions compared with humid regions. Active floodplain in the arid southwest is considered to be floodplain that is inundated by flows with an average recurrence interval of between 2 and 10 years. Within the first two years after construction of the project there is a 50% probability that a 2-year flow will not have occurred, and an 80% probability that a 10-year flow event will not have occurred. It is therefore important to assess site performance in the context of the hydrologic events that have occurred within the life of the project each time monitoring is performed.

G.1 MONITORING DURING THE INTERIM HABITAT ESTABLISHMENT PERIOD

The Interim Management Period is defined in the BEI as the period from the Bank Establishment Date until the first anniversary of the full funding of the Endowment Fund has occurred and all the Performance Standards in the Development Plan have been met. Management, monitoring, adaptive management, reporting and other activities related to the interim management period are presented below. An overall monitoring schedule is presented in Table 5.

Vegetation, hydrology and habitat establishment will be monitored for 5 years after construction to ensure the restored habitats are functioning as designed. It is anticipated that the habitat will meet Performance Standards at the end of five years. Vegetation will be monitored in all of the habitat zones using permanently established plots, and vegetation monitoring will occur at the end of the growing season. "Year 1" will be considered to be the first growing season following construction.

A portion of an upstream restoration project has been selected as the "Reference Site" (Figure 20). Groundwater monitoring wells and permanent plots will be established within the Reference Site from which hydrology and vegetation data will be collected during the Bank establishment period. The Reference Site data will be compared with data from the Bank in order help gage the success of the Bank habitats. Assessments using the California Rapid Assessment Method (CRAM) have also been conducted at two locations or "Assessment Areas" one within the upstream Reference Site and one within the Bank site (Figure 21).

Photo documentation of the Bank site will occur in all monitoring years. Photos will be taken at each permanent plot. Photo locations within the plots will be recorded with global positioning system (GPS) equipment and subsequent photos will be taken from the same location each year.

All wildlife incidentally observed or detected will be documented in all monitoring years. Increasing use of the restoration area would be a positive indicator that wildlife functions and services have been restored at the Bank site.

G.1.a Rehabilitated / Re-established Wetland River Corridor Monitoring

Monitoring of woody vegetation will be performed by systematically surveying the site to gather information about vegetative and hydrologic success. Twenty evenly distributed, permanently marked plots will be used to garner information about the vegetative success of the habitat. The constructed riparian areas will also be sampled to determine the hydrologic development of the habitat including characteristics such as flooding/ponding depth, duration and acreage.

The hydrology of the Bank site is groundwater driven with influences from direct precipitation and high flows during storm events. Hydrology will be measured through the use of shallow groundwater monitoring wells/staff gauges.

The use of permanently established plots rather than transects will ensure that tree counts and cover estimates are repeatable from year to year. The corners of the plot remain visible within the plot thereby minimizing inconsistencies in tree counts. Transect counts are sometimes more difficult to accurately repeat, particularly as the vegetation matures and obscures the transect path.

HYDROLOGY

- **Shallow Groundwater/Hydric Soils:** Four shallow groundwater monitoring wells will be permanently installed within the reestablished wetland riparian corridor (Figure 22). Water elevations will be electronically recorded during the wet season using water level data loggers. In the event of data logger failure, wells may be manually measured every two weeks during the wet season.

- **Surface Flows – Active floodplain/secondary channels**: Evidence of overbank flows from the San Luis Rey River and surface flows into secondary channels across the active floodplain shall be recorded via the permanent data loggers. If data logger data is unavailable, direct observation of overbank flows or physical evidence of OHWM may be used. Evidence of OHWM must be in accordance with *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (ERDC/CRREL TR-08-12) or in Group B of the primary wetland hydrology indicators as described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ERDC/EL TR-08-28) and would be gathered by conducting transects across the site.

- **Reference Site Data**: Hydrology will be measured through the use of shallow groundwater monitoring wells/staff gauges. Two wells will be permanently installed, within the Reference Site (Figure 22). Water elevations will be electronically recorded during the wet season using water level data loggers. In the event of data logger failure, wells may be manually measured every two weeks during the wet season for groundwater data and OHWM indicators will be used for surface water flows as described above for the Bank site.

VEGETATION

- **Riparian Plantings - Survival/Cover**: Riparian vegetation monitoring will occur on an annual basis during the establishment period. Surveys will be conducted by surveying twenty permanently marked 40-foot by 40-foot plots within the habitat. Plant density by species relative species cover, absolute canopy cover, and tree height will be recorded within each plot.

- **Invasive Exotic Species:** An initial survey for invasive exotic species shall be conducted during or after the first growing season. All occurrences of invasive exotics will be mapped using GPS. The map will be used in subsequent quarterly site inspections to check the status of previously mapped occurrences and will be updated with new occurrences.

- **Reference Site Data** –Ten 40-foot by 40-foot reference plots within the Reference Site will be permanently established and marked. Parameters such as plant density by species, relative species cover, absolute canopy cover, and tree height will be recorded within each of these plots.

JURISDICTIONAL VERIFICATION

In years 3 & 5, a wetland delineation shall be completed to document the extent of jurisdictional wetlands in accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ERDC/EL TR-08-28). Recognizing that pursuant to ERDC/EL TR-08-28 "recently developed wetlands may lack hydric soil indicators because insufficient time has passed for their development". If typical hydric soil indicators such as the soil chroma and value, redox or mottling are not present, the determination of hydric soils shall be made based on performance standard for shallow groundwater/hydric soils.

CALIFORNIA RAPID ASSESSMENT METHOD (CRAM)

CRAM is an assessment methodology designed specifically for wetland types in California. Currently CRAM modules exist for six wetland types including: riverine, depressional, estuarine, playas, slope wetlands, and lacustrine wetlands. According to the California Wetlands Monitoring Workgroup (CWMW), *for the purposes of a CRAM assessment a riverine ecosystem consists of the riverine channel and its active floodplain plus any portions of the adjacent riparian areas that are likely to be strongly linked to the channel or floodplain through bank stabilization and allochthanous inputs* (CWMW, 2009). The Bank habitats include a riverine channel, secondary channels, and active floodplain as well as riparian floodplain buffers. Each of these habitats will be included in the on site Assessment Areas. While the upstream Reference Site does include a depressional wetland, this area was not included as one of the Reference Site Assessment Areas because it is not anticipated that the Bank site will contain depressional wetlands. The Bank has been designed, and will be graded such that as the river recedes the water on the Bank site will flow back into the channels.

- **CRAM** – Two Assessment Areas have been selected within the Bank (Figure 22). Both Assessment Areas transect the Bank habitats in a north/south orientation and will include the riverine channel, the active floodplain, and adjacent riparian floodplain buffer areas. CRAM assessments will be conducted during Year 1 immediately following the construction and 120-day plant establishment period (post-construction baseline), and in years 3, 5 and 20 to compare with Reference Site data projections and baseline data.

- **Baseline and Reference Site Data** – CRAM assessments have been conducted at two selected Assessment Areas within the upstream Reference Site (Figure 20). Performance standards have been developed by projecting anticipated CRAM scores for the Bank site based on the CRAM Reference Site data (Table 7). A baseline assessment using CRAM was also conducted on the Bank site along the main channel of the San Luis Rey River (Figure 21) for comparison to future CRAM assessment scores.

G.1.b Floodplain Buffer Monitoring (within OHWM)

HYDROLOGY

- **Surface Flows**: Evidence of overbank flows from the San Luis Rey River and surface flows into secondary channels across the active floodplain shall be recorded via the permanent data loggers. If data logger data is unavailable, direct observation of overbank flows or physical evidence of OHWM may be used. Evidence of OHWM must be in accordance with *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (ERDC/CRREL TR-08-12) or in Group B of the primary wetland hydrology indicators as described in the *Regional Supplement to the Corps of Engineers*

Wetland Delineation Manual: Arid West Region (ERDC/EL TR-08-28) and would be gathered by conducting 30m transects across the site.

VEGETATION

- **Riparian Plantings - Survival/Cover** - Floodplain buffer vegetation monitoring will be conducted by surveying six permanently marked 40-foot by 40-foot plots distributed within both the non-jurisdictional floodplain buffer and the floodplain buffer within the OHWM. Plant density by species, relative species cover, absolute canopy cover, and tree height will be recorded within each plot.

G.1.c Floodplain Buffer Monitoring (non-jurisdictional)

VEGETATION

As specified above, vegetation monitoring for the non-jurisdictional floodplain buffer will be done in conjunction with the floodplain buffer within the OHWM.

G.1.d Upland Buffer Monitoring

VEGETATION

- Vegetative Cover - Six 10-foot by 10-foot sample plots will be permanently established. Absolute vegetative cover and relative species cover will be visually estimated within each plot. Evidence of soil erosion will be noted, including photographs and measurements of rills/gullies, as necessary.

G.1.e Quarterly Site Inspections

At least four site visits will be conducted annually to qualitatively monitor the general condition of the Bank. During each site visit, baseline or the most recent aerial photo, vegetation, and invasive species maps will be used in the field as a reference to note any substantial changes in general topographic conditions, hydrology, vegetation cover and composition, invasive species, erosion, and fire hazard. Incidental wildlife sightings will also be noted.

Table 5. Establishment Period Monitoring Schedule

Description	Monitoring Years/Season																							
	1				2				3				4				5				20			
	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F
Photo Documentation –Photos will be taken annually at established photo points.		X				X				X				X				X						
Hydrology –Water elevations will be electronically recorded during the wet season using water level loggers. In the event of a data logger failure, wells may be manually measured every two weeks during the wet season for groundwater levels and OHWM indicators may be used to estimate surface flows.	X				X				X				X				X							
Vegetation –Plant density by species, relative species cover, absolute canopy or vegetative cover, & tree height will be recorded for each plot as applicable by habitat.						X				X				X				X						
Invasive/Exotic Vegetation – During or after the Year 1 growing season, a survey will be conducted for invasive exotic plant establishment and all occurrences mapped and treated. Occurrences will be treated at the appropriate time of year for the species. These maps will be used and updated as necessary to document any new occurrences or successful		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				

Table 5. Establishment Period Monitoring Schedule

Description	Monitoring Years/Season																							
	1				2				3				4				5				20			
	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F
removal of previous occurrences during subsequent quarterly inspections.																								
Quarterly Site Inspections – Qualitative monitoring to note substantial changes in general topographic conditions, hydrology, vegetation cover and composition, invasive species, erosion, and fire hazard. Incidental wildlife sightings will also be noted.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Wetland Delineation – A wetland delineation will be conducted and submitted to the Corps.									X								X							
CRAM – CRAM assessments will be done at two locations on the Bank.		X								X								X				X	
Aerial Photo – An aerial photo will be taken.		X								X								X					
Topography – A topographic survey will be conducted in Year 5																		X						

G.2 PERFORMANCE STANDARDS

G.2.a Rehabilitated and Re-established River Corridor and Floodplain: Wetland Waters of the U.S. Performance Standards

HYDROLOGY

- **Performance Standard for Shallow Groundwater/Hydric Soils:** The riparian wetland areas will be flooded or ponded for 14 or more consecutive days during the growing season; **or** saturated as evidenced by groundwater levels recorded as within 12 in. (30 cm) or less from the surface for 14 or more consecutive days during the growing season in 3 out of 5 years to support hydric soil development; **and/or** annual groundwater depths are similar to that of the wetland Reference Site (within 95% confidence).

- **Performance Standard for Surface Flows – Active floodplain/secondary channels**: Evidence of overbank flows from the San Luis Rey River and surface flows into secondary channels across the active floodplain shall be recorded via permanent data loggers at least one time in five years during an average flow event (2 to 10-year). If data logger data is unavailable, direct observation of overbank flows or physical evidence of OHWM may be used. Evidence of OHWM must be in accordance with *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (ERDC/CRREL TR-08-12) or in Group B of the primary wetland hydrology indicators as described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ERDC/EL TR-08-28). If an average flow event does not occur during the first five years of Bank establishment and monitoring, the timeframe for attainment of this standard shall be extended.

VEGETATION

- **Performance Standards for Riparian Plantings - Survival/Cover**:
  - Year 2: Survival of at least 230 trees per acre of the riparian woody plantings listed in Section F.2.c.
  - Year 3: Survival of at least 200 trees per acre of the riparian woody plantings listed in Section F.2.c.

- Year 4: Riparian woody vegetation canopy cover will show a 10% increase from the canopy cover figures recorded in year 3.

- Year 5: Absolute vegetative cover shall meet or exceed 60% as demonstrated by plot data or aerial photo.

- Year 5: Site exhibits evidence of natural recruitment of common wetland plant species and native riparian trees or shrubs.

- Year 5: Site exhibits continued survival of planted riparian woody species following removal of irrigation. The site must function without an artificial water source for a minimum of two years.

- **Performance Standards for Invasive Exotic Species**

  - Years 1-3: Absolute cover of woody invasive exotics and large perennial grasses such as pampas grass and giant reed (rated as high on the Cal-IPC list) shall be minimal (less than 2%).

  - Years 4-5: Absolute cover of woody invasive exotics and large perennial grasses such as pampas grass and giant reed (rated as high on the Cal-IPC list) shall be minimal (less than 2%) with 0% untreated.

  - Years 1-5: Absolute cover of other herbaceous invasive exotics (rated as high on the Cal-IPC list) shall be less than 10%.

JURISDICTIONAL VERIFICATION

In years 3 and 5 the verified wetland waters of the U.S. acreage, based on the required wetland delineation as specified above, shall meet or exceed those proposed in development plan.

- Year 3 – If the verified wetland acreage is significantly less than the proposed rehabilitated/reestablished wetlands Bank Sponsor and Corps shall discuss whether remediation or an adjustment in Credits is appropriate.

- Year 5 - The number/type of Credits released shall be adjusted either up or down based on the final acreage of wetlands verified.

CAIFORNIA RAPID ASSESSMENT METHOD (CRAM)

- **CRAM Performance Standards**: In Years 3, 5, and 20 CRAM assessments will be conducted at two Assessment Areas within the Bank and compared with projections developed based on the CRAM Reference Site Assessment Area data (Table 7). CRAM scores shall be similar to the projected scores (within 95% confidence). CRAM is still being refined and is a fairly new methodology for assessing the performance of newly established wetlands. Therefore, if the Bank fails to meet the projected CRAM performance standards, but meets all other performance standards Credit releases shall not be withheld. However, Bank Sponsor and Corps shall meet to try and determine why the Bank did not meet

the projections and discuss whether the projected standards need to be revised or whether the habitat is not becoming established as anticipated.

G.2.b Floodplain Buffer Performance Standards (non-wetland)

VEGETATION

- **Performance Standards for Riparian Plantings - Survival/Cover:**
  - Year 2: Survival of at least 230 trees per acre of the riparian woody plantings listed in Section F.2.c.
  - Year 3: Survival of at least 200 trees per acre of the riparian woody plantings listed in Section F.2.c.
  - Year 4: Riparian woody vegetation canopy cover will show a 10% increase from the canopy cover figures recorded in year 3.
  -
  - Year 5: Absolute vegetative cover shall exceed 60% as demonstrated by plot data or aerial photo.
  - Year 5: Site exhibits evidence of natural recruitment of common wetland plant species and native riparian trees or shrubs.
  - Year 5: Site exhibits continued survival of planted riparian woody species following removal of irrigation. The site must function without an artificial water source for a minimum of two years.
- **Performance Standards for Invasive Exotic Species**
  - Years 1-3: Absolute cover of woody invasive exotics and large perennial grasses such as pampas grass (rated as high on the Cal-IPC list) shall be minimal (less than 2%).
  - Years 4-5: Absolute cover of woody invasive exotics and perennial grasses such as pampas grass (rated as high on the Cal-IPC list) shall be minimal (less than 2%) with 0% untreated.
  - Years 1-5: Absolute cover of other herbaceous invasive exotics (rated as high on the Cal-IPC list) shall be less than 10%.

G.2.c Upland Buffer Performance Standards

The upland buffer shall be planted with native and naturalized grasses and coastal sage scrub plants. Herbaceous and shrub cover will be assessed to ensure that cover is sufficient in all years to provide appropriate soil stabilization and buffer functions.

VEGETATION

- Year 2 Performance Standards
  - Greater than 10% absolute cover (excluding invasive exotic species)
  - Minimal active soil erosion
- Year 3 Performance Standards
  - Greater than 20% absolute cover (excluding invasive exotic species)
- Year 4 Performance Standards
  - Greater than 40% absolute cover (excluding invasive exotic species)
- Year 5 Performance Standards
  - Greater than 60% absolute cover (excluding invasive exotic species)

Table 6. Summary Table of Performance Standards

Habitat and Habitat Characteristics	Year 2 Following Construction	Year 3 Following Construction	Year 4 Following Construction	Year 5 Following Construction
Wetland River Corridor				
Shallow Groundwater/Hydric Soils	The riparian wetland areas will be flooded or ponded for 14 or more consecutive days during the growing season; or saturated as evidenced by groundwater levels recorded as within 12 in. (30 cm) or less from the surface for 14 or more consecutive days during the growing season in 3 out of 5 years to support hydric soil development; and/or annual groundwater depths are similar to that of the wetland reference site (within 95% confidence).			
Surface Flows	At least once in the first 5 years: Evidence of overbank flows from the San Luis Rey River and surface flows into secondary channels across the active floodplain shall be recorded.			
Survival of Riparian Woody Plantings	230 trees per acre	200 trees per acre	Continued survival of riparian woody species 10% increase in canopy coverage from year 3	Continued survival of riparian woody species following removal of irrigation for minimum 2 years.
Tree / Shrub Canopy	--	--	10% increase from the canopy cover estimates from year 3	10% increase from the canopy cover estimates from year 4
Natural Recruitment	--	--	--	Site exhibits evidence of natural recruitment of common wetland plant species and native riparian trees or shrubs.
Absolute Cover of Woody Invasive Exotics, and large perennial grasses such as pampas grass, and giant reed.	Minimal; less than 2%	Minimal; less than 2%	Minimal; less than 2%, 0% untreated	Minimal; less than 2%, 0% untreated
Absolute Cover of Other Herbaceous Invasive Exotics	Less than 10%	Less than 10%	Less than 10%	Less than 10%

Table 6. Summary Table of Performance Standards				
Habitat and Habitat Characteristics	**Year 2 Following Construction**	**Year 3 Following Construction**	**Year 4 Following Construction**	**Year 5 Following Construction**
Jurisdictional Verification	--	Verified wetland acres shall meet or exceed those proposed in development plan.	--	Verified wetland acres shall meet or exceed those proposed in development plan.
CRAM	--	CRAM scores shall meet or exceed projected CRAM scores.	--	CRAM scores shall meet or exceed projected CRAM scores.
Floodplain Buffer (non-wetland)				
Survival of Plantings	230 tree/shrub plantings per acre	200 tree/shrub plantings per acre	Continued survival	Continued survival following removal of irrigation for minimum 2 years
Tree / Shrub Canopy	--	--	10% increase from the canopy cover estimates from year 3	10% increase from the canopy cover estimates from year 4
Absolute cover of woody invasive exotics woody and large grass species such as pampas grass	Minimal; less than 2%	Minimal; less than 2%	Minimal; less than 2%, 0% untreated	Minimal; less than 2%, 0% untreated
Absolute cover of other herbaceous invasive exotics	Less than 10%	Less than 10%	Less than 10%	Less than 10%
Upland Buffer				
Soil Erosion	Minimal active soil erosion	--	--	--

Table 6. Summary Table of Performance Standards

Habitat and Habitat Characteristics	Year 2 Following Construction	Year 3 Following Construction	Year 4 Following Construction	Year 5 Following Construction
Absolute Cover	Greater than 10% (excluding invasive exotics)	Greater than 20% (excluding invasive exotics)	Greater than 40% (excluding invasive exotics)	Greater than 60% (excluding invasive exotics) following removal of irrigation for minimum 2 years.

Table 7. Anticipated CRAM Scores for Restoration Site

CRAM Attributes	CRAM Metric and Submetrics	Assessment Area (AA)					
		AA1 Existing Upstream Restoration Area 2011	AA3 Existing Channel to be Restored 2011	Restoration Site Anticipated Score Year 1	Restoration Site Anticipated Score Year 3	Restoration Site Anticipated Score Year 5	Restoration Site Anticipated Score Year 20
Buffer and Landscape Connectivity	Landscape Connectivity	12	12	12	12	12	12
	Buffer Submetrics: % of AA with Buffer	9	3	12	12	12	12
	Buffer Submetrics: Average Buffer Width	9	3	3	3	3	3
	Buffer Submetrics: Buffer Condition	9	3	3	6	9	9
	Buffer Submetric Score	9	3	4.2	6	7.3	7.3
	Raw Score	21	15	16.2	18	19.3	19.3
	Attribute Score	**87.5**	**62.5**	**67.5**	**75**	**80.4**	**80.4**
Hydrology	Water Source	6	6	6	6	6	6
	Hydroperiod	9	6	3	6	9	9
	Hydrologic Connectivity	12	3	12	12	12	12
	Raw Score	27	15	21	24	27	27
	Attribute Score	**75**	**41.7**	**58.3**	**66.7**	**75**	**75**
Physical Structure	Structural Patch Richness	9	3	3	3	6	9
	Topographic Complexity	9	6	3	6	9	9
	Raw Score	18	9	6	9	15	18
	Attribute Score	**75**	**37.5**	**25**	**37.5**	**62.5**	**75**

Biotic Structure	**Plant Community Submetrics**	No. of plant layers	6	6	3	3	6	6
		No. of co-dominants	3	3	3	3	3	3
		Percent Invasion	3	6	6	6	6	6
	Plant Community Submetric Score		4	5	4	4	5	5
	Horizontal Interspersion		6	6	3	3	6	6
	Vertical Biotic Structure		3	3	3	3	3	3
		Raw Score	13	14	10	10	14	14
		Attribute Score	**36.1**	**38.9**	**27.8**	**27.8**	**38.9**	**38.9**

Overall Score		**68**	**45**	**45**	**52**	**64**	**67**

MANAGEMENT DURING THE INTERIM HABITAT ESTABLISHMENT PERIOD

Actions taken during the interim habitat establishment period to ensure the successful achievement of performance standards are described as short-term management actions. Generally, all short-term management actions are categorized as either water management, vegetation management, or operations management as described below.

G.2.d Water Management

Hydrologic investigations of the Bank site have shown that groundwater will be dependably present within 3 feet below the ground surface along the riparian corridor. Therefore, the hydrologic regime for the riparian corridor will be groundwater driven. Irrigation will be provided during the initial years of plant establishment; however, irrigation will be removed once the plants have become established.

G.2.e Vegetation Management

Vegetation establishment within the Bank site will be monitored to determine if restoration efforts are successful. Monitoring will also be used to determine if invasive exotic vegetation (rated as high on the Cal-IPC list) is colonizing the site and requires eradication.

Although not expected, if invasive exotic vegetation should become a problem during the interim management period; hand removal, herbicides, and mowing are all possible management strategies. Hand removal and herbicide use are considered the most feasible management strategies for this interim period.

Hand removal or use of small hand powered or handheld equipment (such as a weed wrench or a chainsaw) should always be the preferred method of removing exotic pest plant species from the Bank. If hand removal methods are tried and found to be ineffective, or the problem is too widespread for hand removal to be practical, then mechanical methods (use of larger equipment such as motors or mowers) or herbicides may be used. Chemicals will be applied by qualified individuals consistent with the label directions.

G.2.f Operations Management

Routine operational maintenance of the Bank will include periodic inspections of access points into the property and signage to determine if replacement is necessary. Additionally, trash and debris removal will occur on an as-needed basis.

G.3 REMEDIATION ACTIVITIES

During the habitat establishment period, if the Bank Sponsor fails to achieve the Performance Standards and determines remediation is required to achieve the Performance Standards, the Bank Sponsor shall determine if a Remedial Action Plan is required. Minor corrective measures (e.g., prevention of unexpected runoff, prevention of unauthorized access to the Bank site, etc.) do not require notification or approval of the Corps; however, major remediation requires notice to the Corps. Minor corrective measures not requiring notification or approval will be carried out within sixty days of identification of the problem, unless site conditions warrant delay (i.e., if soil is saturated and equipment would damage the habitat in the Bank or if construction should be delayed until after completion of the nesting season). All other corrective actions will take place when conditions are best suited for restoration to occur, and after the Corps has been notified and the Bank Sponsor has received approval. A list of potential remediation guidelines is described in Table 8.

Table 8. Remediation Guidelines

Type of Disturbance	Mitigation Guideline
Wetland areas fail to show hydrology indicators	If wetland areas are not showing hydrology indicators during the growing season, the potential causes of hydrology deficiency will be evaluated. If natural causes, such as low river levels or drought are not the cause of the deficiency, then re-excavation of the failed wetland areas will be considered.
Wetland and/or riparian vegetation fails to establish	If the observable vegetation failure is not due to problems with hydrology, then replanting will occur until performance standards are met. Mortality of the wetland plantings will result in replanting until performance standards are met.

G.4 MONITORING REPORTS

G.4.a As-Builts and Post-Construction Report

The Bank Sponsor shall submit as-built drawings and a post-construction report to the Corps no later than 90 calendar days following completion of construction planting. Data points will be collected throughout the Bank site using sub-meter accurate GPS equipment. As-built drawings will be prepared by overlaying the GPS data points onto the original construction plans. The as-built drawings will identify any deviation from the Development Plan.

The as-built drawings and a post-construction report shall include at a minimum:

- pre- and post-groundbreaking photographs of the site;
- a discussion of compliance with the terms and conditions of the construction permits;
- written documentation of all construction personnel to receive the Worker Environmental Awareness Training Program; and
- any construction observations and any problems that arose during construction.

G.4.b Habitat Monitoring Reports

During the habitat establishment period, the Bank Sponsor shall submit habitat monitoring reports to the Corps and any other BEI Signatory Agency during years 1, 2, 3, 4 and 5. After the habitat is established, habitat monitoring reports will be submitted every 10 years.

The original habitat monitoring period may be extended upon a determination that performance standards have not been met. The monitoring requirements may also be revised in cases where adaptive management or remediation is required.

The habitat monitoring reports will provide the Corps with sufficient information to assess whether it is meeting performance standards, and to determine whether a compliance visit is warranted.

Habitat monitoring reports may be submitted electronically or in hard copy.

Habitat monitoring reports will include a Monitoring Report Narrative that provides an overview of site conditions and functions. This Monitoring Report Narrative should be concise and generally less than 10 pages.

Habitat monitoring reports will also include appropriate supporting data to assist the Corps in determining how the restoration project is progressing towards meeting performance standards. Such supporting data may include plans, maps, and photographs to illustrate site conditions, as well as the results of functional, condition, or other assessments used to provide quantitative or qualitative measures of the functions provided by the restored wetlands.

The habitat monitoring report narrative will include the following:

1. Project Overview

    a. Mitigation Bank Name

    b. Name of part(ies) responsible for conducting the monitoring and the date(s) the inspection was conducted. All persons who prepared the report, did the monitoring, and/or wrote or edited the text will be listed.

    c. A brief paragraph describing the purpose of the project, acreage and type of aquatic resources impacted, and acreage and type of aquatic resources being restored.

    d. Written description of the location, any identifiable landmarks of the Mitigation Bank site including information to locate the site perimeter(s), and coordinates of the Bank site (expressed as latitude, longitudes, UTMs, state plane coordinate system, etc.).

    e. Dates the construction project commenced and/or was completed.

    f. Short statement on whether the performance standards are being met.

    g. Dates of any recent corrective or maintenance activities conducted since the previous report submission.

    h. Specific recommendations for any additional corrective or remedial actions.

2. Requirements. List the monitoring requirements and performance standards, as specified in the BEI and evaluate whether the project is successfully achieving the approved performance standards or trending towards success. A table is a recommended option for comparing the performance standards to the conditions and status of the Bank site.

3. Summary Data. Summary data should be provided to substantiate the success and/or potential challenges associated with the restoration project. Photo documentation may be provided to support the findings and recommendations referenced in the monitoring report and to assist the Corps in assessing whether the project is meeting applicable performance standards for that monitoring period.

4. Maps and Plans. Maps should be provided to show the location of the Bank site relative to other landscape features, habitat types, locations of photographic reference points, transects, sampling data points, and/or other features pertinent to the

mitigation plan. In addition, the submitted maps and plans should clearly delineate the Bank site perimeter.

5. Conclusion. A general statement should be included that describes the conditions of the Bank site. If performance standards are not being met, a brief explanation of the difficulties and potential remedial actions proposed by the Bank Sponsor, including a timetable, will be provided.

6. Additional Information. The habitat monitoring reports shall provide the following additional information.

    a. Interim Management – The report shall contain an itemized account of the management tasks conducted during the reporting period in accordance with the Interim Management Plan, including the following:

        - A description of each management task conducted, the dollar amount expended and time required; and

        - The total dollar amount expended for management tasks conducted during the reporting period.

    b. Financial Operation – the report shall include information on financial operations including an itemized account of any and all activity regarding the Construction Security, Performance/Contingency Security, and the Endowment Fund.

    c. Transfer of Credits – the annual report shall include an updated Credit Transfer Ledger showing all credits transferred since the Bank Establishment Date and an accounting of remaining credits.

    d. Distribution list – the report shall include the names, titles, and companies/ agencies of all persons receiving a copy of the report.

G.4.c Annual Reports

The Bank Sponsor shall submit an annual report to the Corps and any other BEI Signatory Agency, in hard copy and in editable electronic format, on or before December 31st of each year following the Bank Establishment Date. Each annual report shall cover the period from July 1 of the preceding year (or if earlier, the Bank Establishment Date for the first annual report) through June 30th of the current year (the "Reporting Period"). The Bank Sponsor shall be responsible for the reporting tasks described below until Bank closure. After Bank closure, the Property Owner shall be responsible for such reporting, annually, as per the Long-Term Management Plan (see *Exhibit D-5 of the BEI*).

The annual report shall address the following:

1. Bank Development

   The annual report shall document the degree to which the Bank is meeting the Performance Standards. The annual report shall describe any deficiencies in attaining and maintaining Performance Standards and any Remedial Action proposed, approved, or performed. If Remedial Action has been completed, the annual report shall also evaluate the effectiveness of that action.

2. Interim Management and Long-term Management

   The annual report shall contain an itemized account of the management tasks conducted during the reporting period in accordance with the Interim Management or Long-term Management Plan, including the following:

   a. The time period covered, i.e. the dates "from" and "to";

   b. A description of each management task conducted, the dollar amount expended and time required; and

   c. The total dollar amount expended for management tasks conducted during the reporting period.

3. Transfer of Credits

   The annual report shall include an updated Credit Transfer Ledger (Exhibit F-3) showing all Credits transferred since the Bank Establishment Date and an accounting of remaining Credits.

4. Financial Operation

   The annual report shall set forth an itemized account of any and all activity of Bank Sponsor/Property Owner regarding the Construction Security, Performance Security, Interim Management Security, and the Endowment Fund.

H. Maintenance during Habitat Establishment Monitoring Period

H.1 OVERALL MAINTENANCE ACTIVITIES

The Bank site will be maintained on a regular basis throughout the year. The site will be kept free of trash and necessary repairs to the facilities will be conducted on an as-needed basis. The annual management report will describe maintenance activities conducted during the year, as detailed in the Management Plan.

H.2 FENCING AND SIGNS

Due to its location in the San Luis Rey River floodplain, no fencing of the site is needed or proposed. Fencing, if deemed necessary in the future, will be installed in locations agreed to by the Corps.

A minimum of six locations on the perimeter of the Bank site will be posted with "No Trespassing" signs indicating private ownership of the site. These signs may also indicate the fact that a conservation easement has been recorded on the property and the easement is being monitored.

H.3 INVASIVE PLANT SPECIES CONTROL

An initial survey for invasive exotic species shall be conducted during or after the first growing season. All occurrences of invasive exotics will be mapped using GPS. The map will be used in subsequent quarterly site inspections to check the status of previously mapped occurrences and will be updated with new occurrences. Control will be conducted on an as-needed basis utilizing appropriate control methods.

H.4 MAINTENANCE SCHEDULE

During the habitat establishment period, site inspections will be conducted quarterly (at a minimum) to assess site maintenance needs. Site inspections will include assessment of general site conditions. Incidental observations of wildlife will be recorded.

I. Potential Contingency Measures

I.1 INITIATING PROCEDURES

Prior to Bank closure, if the Bank Sponsor or the Corps discovers any failure to achieve the Performance Standards or any injury or adverse impact to the Bank site, the Corps may require the Bank Sponsor, to develop and implement a Remedial Action Plan to correct such condition. It should be noted, however, that variations in conditions can affect the rate at which habitats establish. Mitigation habitats that do not meet one of the performance standards in the early phase of monitoring may still have functional value and may achieve the performance standard at a later point in the monitoring period. In scenarios where performance standards are not met, yet progressive improvement in habitat conditions is evident, an appropriate alternative to remediation could include an extension of the Habitat Establishment Period.

In the event that remedial action becomes necessary, the Bank Sponsor will develop a Remedial Action Plan and submit it to the Corps within 60 days of the date of written notice from the Corps. The Remedial Action Plan shall identify and describe proposed actions to achieve performance standards or repair adverse impacts to the Bank site, and set forth a schedule within which the actions shall be implemented. The Bank Sponsor will, at the Bank Sponsor's cost, implement the necessary and appropriate remedial actions in accordance with the Remedial Action Plan approved by the Corps.

If remedial actions become necessary, the proposed location for these would be within the boundaries of the Bank site. No alternative locations are proposed.

Should disputes occur between the Bank Sponsor and the Corps about application of the Development Plan or proposed remedial actions, adjustments shall only occur once the two parties have reached agreement on the actions to be taken.

I.2 CONTINGENCY FUNDING MECHANISMS

The Bank Sponsor is responsible for providing financial assurances for the performance and completion of Bank construction, management, monitoring, and Remedial Action in accordance with this BEI. To ensure these measures are fulfilled, the Bank Sponsor will furnish the following securities (see *Exhibit C in the BEI)* and shall notify the Corps upon furnishing each of the following financial assurances.

I.2.a Construction Security

Prior to the first Credit Release, the Bank Sponsor shall furnish to the Corps Construction Security in the amount of 100% of a reasonable third party estimate or contract to restore the habitat on the Bank site in accordance with the Development Plan (see *Exhibit C-2 in the BEI*). The Construction Security shall be in the form of a performance bond, an irrevocable standby letter of credit or cashier's check. The Bank Sponsor shall ensure that the full amount of the Construction Security shall remain in effect throughout the performance of construction.

I.2.b Performance Security

Concurrent with the Transfer of the first Credit, Bank Sponsor shall furnish to the Corps Performance Security in the amount of 20% of the Construction Security (see *Exhibit C-3 in the BEI*). The Performance Security shall be in the form of a performance bond, an irrevocable standby letter of credit or cashier's check. The Bank Sponsor shall ensure that the full amount of the Performance Security shall remain in effect until the Corps determines that all of the hydrologic and vegetation Performance Standards have been met and any required Remedial Actions have been completed.

Should the Bank Sponsor default on the monitoring, maintenance or management of the Bank site during the habitat establishment period, the Corps may authorize a withdrawal of a portion or all of Performance Security to remedy the defaulted action. All funds removed from the Performance Security account shall be replaced, plus interest, by the Bank Sponsor.

I.2.c Interim Management Security

Concurrent with the Transfer of the first Credit, Bank Sponsor shall furnish to the Corps Interim Management Security in the amount equal to the estimated cost to implement the Interim Management Plan during the first year of the Interim Management Period (see *Exhibit D-1 in the BEI*). The Interim Management Security shall be in the form of an irrevocable standby letter of credit. The Bank Sponsor shall ensure that the full amount of the Interim Management Security shall remain in effect until the end of the Interim Management Period.

J. Completion of Habitat Establishment Responsibilities

J.1 NOTIFICATION

If the restoration activities meet all the performance standards at the end of the 5-year monitoring period or sooner, and all irrigation has been discontinued for at least two years, then the restoration will be considered a success; if not, the maintenance and monitoring program will be extended 1 year at a time. Monitoring extensions will be done only for areas that fail to meet performance standards.

When the habitat establishment monitoring period is complete and the Bank Sponsor believes that the final success criteria have been met, the Bank Sponsor shall notify the Corps. The cover letter accompanying the final Habitat Establishment Monitoring Report will summarize why the Bank Sponsor believes the project has met all required success criteria and the final monitoring report will detail how each criteria has been met.

J.2 CORPS CONFIRMATION

Following receipt of the final Habitat Establishment Monitoring Report, the Corps will either confirm successful completion or require additional monitoring. If the Corps requests a site visit to confirm the completion of the Habitat Establishment Monitoring Period, the Bank Sponsor will arrange a site visit.

K. Site Protection

K.1 CONSERVATION EASEMENT

As a condition of Bank establishment, a Conservation Easement will be recorded on the Bank site (see *Exhibit E-4 in the BEI*). The conservation easement identifies permitted uses as well as prohibited uses.

K.1.a Permitted Improvements

The following improvements are specifically permitted on the Bank site with the prior written approval of the Corps and the Conservation Easement Monitor, not to be unreasonably withheld, provided these improvements do not conflict with the terms of the Conservation Easement or the Management Plan.

1. Exterior fencing in locations agreed upon by the parties.

2. Signs describing the property and its protected status, and describing access restrictions.

K.1.b Prohibited Uses

The following uses are specifically prohibited on the Bank site.

Any activity on or use of the Bank Property that is inconsistent with the purposes of the Conservation Easement is prohibited. Without limiting the generality of the foregoing, the following uses and activities by Grantor, Grantor's agents, and third parties are expressly prohibited:

1. Unseasonable watering; use of fertilizers, pesticides, biocides, herbicides or other agricultural chemicals; weed abatement activities; incompatible fire protection activities; and any and all other activities and uses which may impair or interfere with the purposes of this Conservation Easement, except for watering, use of fertilizers, pesticides, biocides, herbicides, and other chemicals, weed abatement activities, and invasive species management activities as specifically provided in the Development Plan and Management Plan.

2. Use of off-road vehicles and use of any other motorized vehicles except on existing roadways, except for maintenance, monitoring and management activities as specifically provided in the Development Plan and Management Plan.

3. Agricultural activity of any kind.

4. Recreational activities, including, but not limited to, horseback riding, biking, hunting or fishing except for personal, non-commercial, recreational activities of the Grantor, so long as such activities are consistent with the purposes of this Conservation Easement and specifically provided for in the Management Plan.

5. Commercial, industrial, residential, or institutional uses.

6. Any legal or de facto division, subdivision or partitioning of the Bank Property.

7. Construction, reconstruction, erecting or placement of any building, billboard or sign, or any other structure or improvement of any kind, except for boundary signs as specifically provided in the Development Plan and Management Plan.

8. Depositing or accumulation of soil, trash, ashes, refuse, waste, bio-solids or any other materials.

9. Planting, introduction or dispersal of non-native or exotic plant or animal species.

10. Filling, dumping, excavating, draining, dredging, mining, drilling, removing or exploring for or extracting minerals, loam, soil, sand, gravel, rock or other material on or below the surface of the Bank Property, or granting or authorizing surface entry for any of these purposes.

11. Altering the surface or general topography of the Bank Property, including but not limited to any alterations to habitat, building roads or trails, paving or otherwise covering the Bank Property with concrete, asphalt or any other impervious material except for those habitat management activities specified in the Development Plan or Management Plan.

12. Removing, destroying, or cutting of trees, shrubs or other vegetation, except as required by law for (i) fire breaks, (ii) maintenance of existing foot trails or roads, or (iii) prevention or treatment of disease; and except for invasive species management and those habitat management activities as specifically provided in the Development Plan and Management Plan.

13. Manipulating, impounding or altering any natural water course, body of water or water circulation on the Bank Property, and any activities or uses detrimental to water quality, including but not limited to degradation or pollution of any surface or sub-surface waters, except for those habitat management activities as specifically provided in the Development Plan and Management Plan.

14. Without the prior written consent of Grantee, which Grantee may withhold, transferring, encumbering, selling, leasing, or otherwise separating the mineral, air or water rights for the Bank Property; changing the place or purpose of use of the water rights; abandoning or allowing the abandonment of, by action or inaction, any water or water rights, ditch or ditch rights, spring rights, reservoir or storage rights, wells, ground water rights, or other rights in and to the use of water historically used on or otherwise appurtenant to the Bank Property, including but not limited to: (i) riparian water rights; (ii) appropriative water rights; (iii) rights to waters which are secured under contract with any irrigation or water district, to the extent such waters are customarily applied to the Bank Property; and (iv) any water from wells that are in existence or may be constructed in the future on the Bank Property.

15. Engaging in any use or activity that may violate, or may fail to comply with, relevant federal, state, or local laws, regulations, or policies applicable to Grantor, the Bank Property, or the use or activity in question.

K.2 LONG-TERM MANAGEMENT PLAN

A detailed Long-Term Management Plan has been prepared and submitted for review and approval (see *Exhibit D-5 in the BEI*).

K.2.a Recreation

Compatible uses of the Bank site include activities such as bird watching, botanizing, nature study, and photography. Docent-led field trips or other educational opportunities may be arranged to provide educational opportunities and promote environmental awareness. Docent-led groups and individuals desiring to visit the Bank site will require supervision or written prior authorization by the Bank Manager and the Conservation Easement Monitor for each visit.

K.2.b Fencing and Signage

Due to its location in the San Luis Rey River floodplain, no fencing of the site is proposed. Fencing, if deemed necessary in the future, will be installed in locations agreed to by the Corps.

A minimum of six locations on the perimeter of the Bank site will be posted with "No Trespassing" signs indicating private ownership of the site. These signs may also indicate the fact that a conservation easement has been recorded on the property and the easement is being monitored.

K.3 SITE PROTECTION

During the Interim Management Period, the cost to conduct the monitoring and carry out the management activities will be fully funded by the Bank Sponsor. Following successful habitat establishment and full funding of the endowment account for one year, the annual cost of monitoring and management described in this Development Plan will be funded through the interest generated on an endowment account (Endowment Fund).

The Bank Sponsor is responsible for depositing money into the Endowment Fund which will be held and managed by a non-profit entity approved by the Corps. Deposits shall be made into the Endowment Fund concurrent with the transfer of Credits (see *Exhibits D and F in the BEI*).

The value of the Endowment Fund is based upon the costs necessary to manage the Bank in perpetuity calculated using the Center for Natural Lands Management's Property Analysis Record (PAR) software (see *Exhibit D in the BEI*). The accrued interest and earnings from the Endowment Fund shall be used exclusively to fund the permanent management and long-term maintenance of the Bank.

The Endowment Fund shall remain as a permanent capital endowment to manage the Bank consistent with this Development Plan, the Long-term Management Plan, and the Conservation Easement. Interest and earnings from the Endowment Account may be used to pay any costs and expenses reasonably incurred through the monitoring, maintenance, or long-term management, including, without limitation, property taxes, contracts, equipment or materials, and signage related to the management of the Bank and consistent with the Conservation Easement.

Annual disbursements shall commence one year subsequent to full funding of the Endowment Fund. Disbursements shall be made pursuant to the Endowment Trust Agreement(s) (see *Exhibit D-3 in the BEI*).

The Endowment Fund obligations, the management obligations described in this Plan and the obligations under the Conservation Easement shall continue in perpetuity as a covenant running with the land.

****

L. Contributor Page

The following individuals contributed towards preparation of this report.

L.1 WILDLANDS

- Jeff Novak, Director of Design/Build – Senior Landscape Architect
- Bill Roper, Director of Biological Services – Senior Biologist
- Cindy Tambini, Director of Planning & Compliance
- Paul Sherman, Director of Land Acquisition
- Dan Kominek, Vice President of Land Management
- Becky Amos, Land Acquisition Coordinator
- Kim Erickson, Senior Project Manager
- Steve Russell, Associate Landscape Architect
- Neil Dhawan, GIS Manager
- Galib Ahmad, Associate GIS

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- James Gregory, MS, Engineer in Training, Hydrologist
- Philip Luecking, P.E. Associate Engineer
- Brian Hanes, Engineer in Training, Certified Associate Ecologist

M. Distribution Page

The following people received a copy of this report.

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N. References

California Department of Fish and Game. 2009. Coastal Watershed Planning and Assessment Program. San Luis Rey River Assessment Report – Draft. May

California Wetlands Monitoring Workgroup (CWMW). 2009. Using CRAM (California Rapid Assessment Method) to Assess Wetland Projects as an Element of Regulatory and Management Programs.

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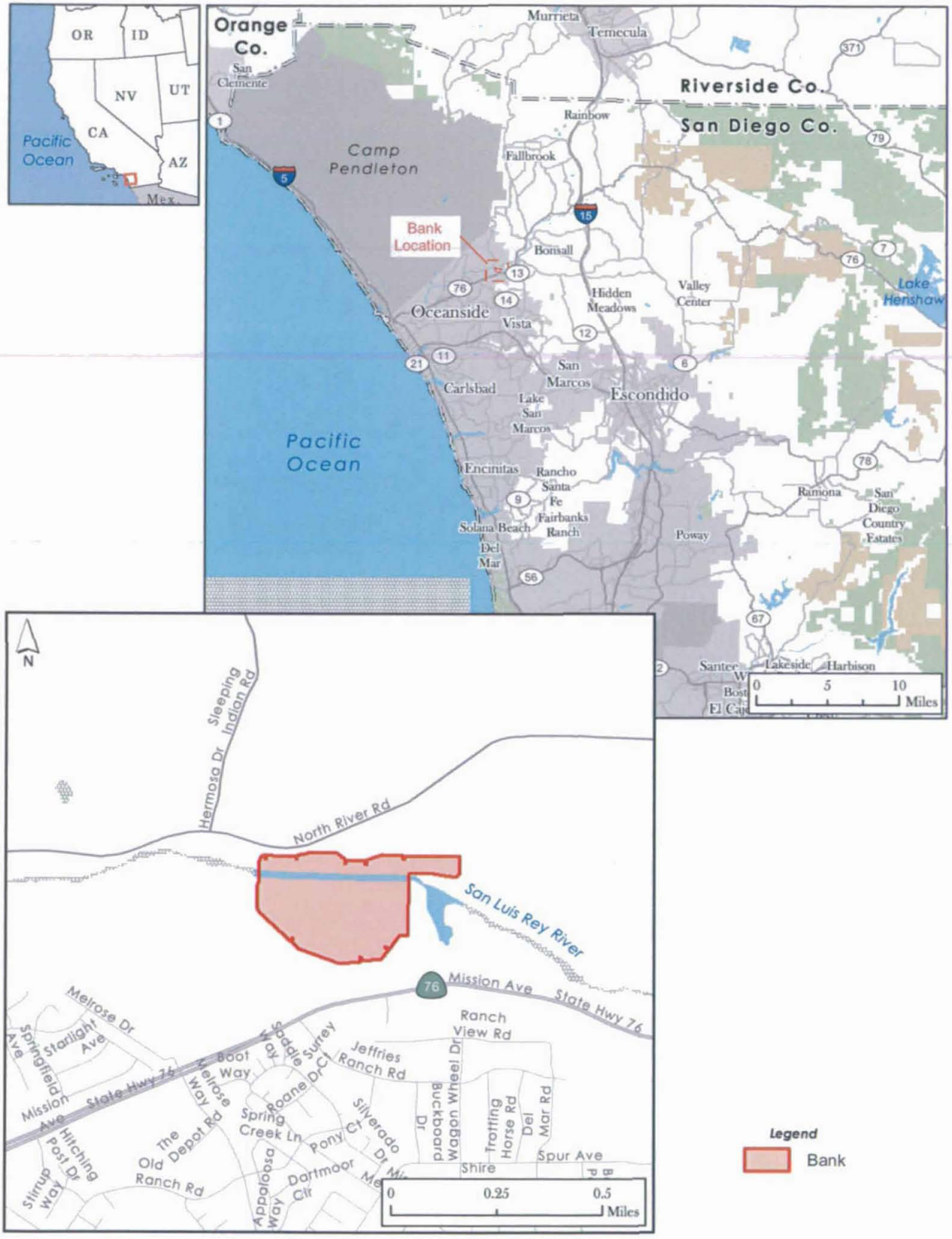
Waananen, A.O., Crippen, J.R., 1977, Magnitude and frequency of floods in California: U.S. Geological Survey Water-Resources Investigations Report 77-21, 96 p.

FIGURES



WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

Figure 1
Regional Vicinity Map

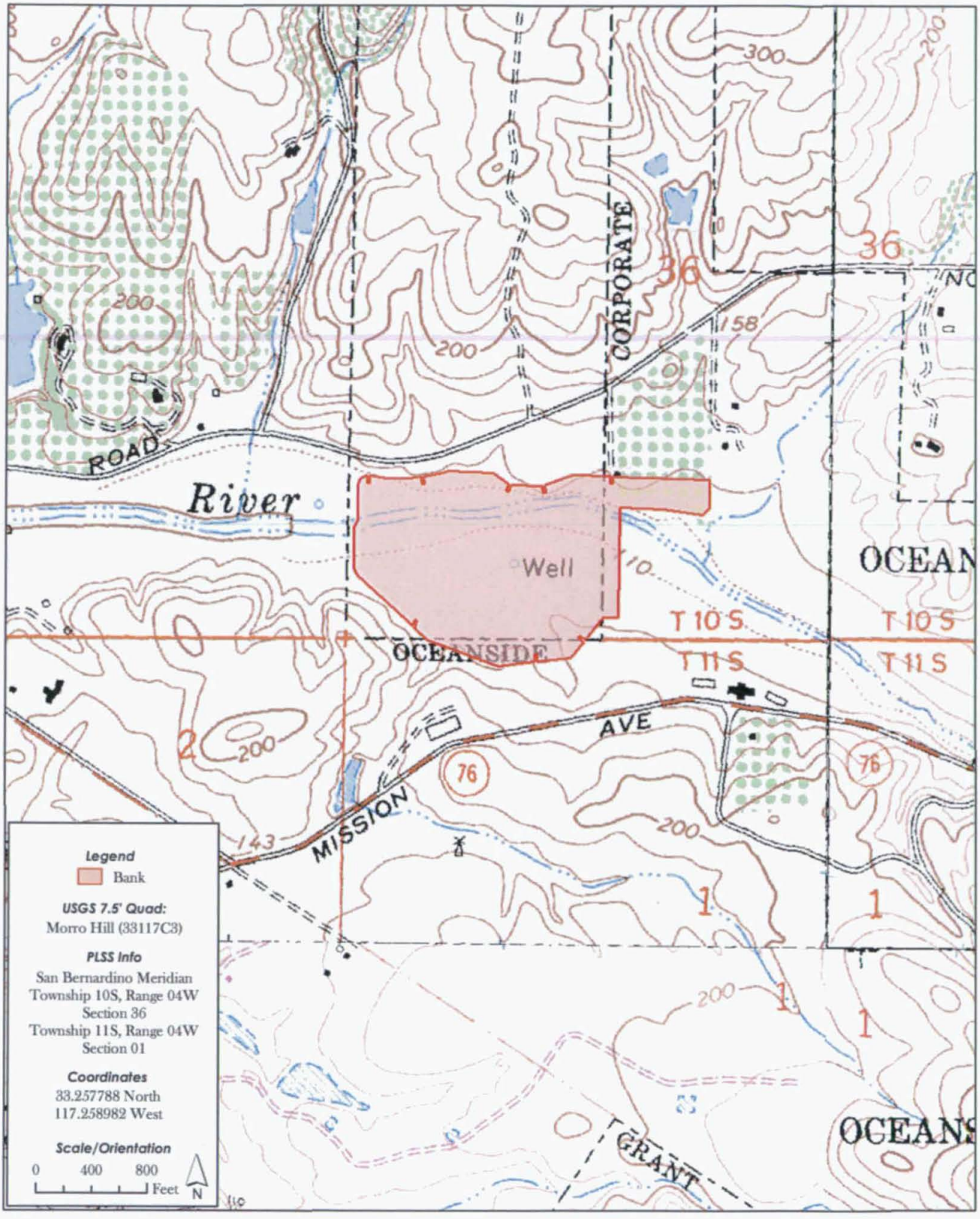


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Figure 2
USGS Topographic Map

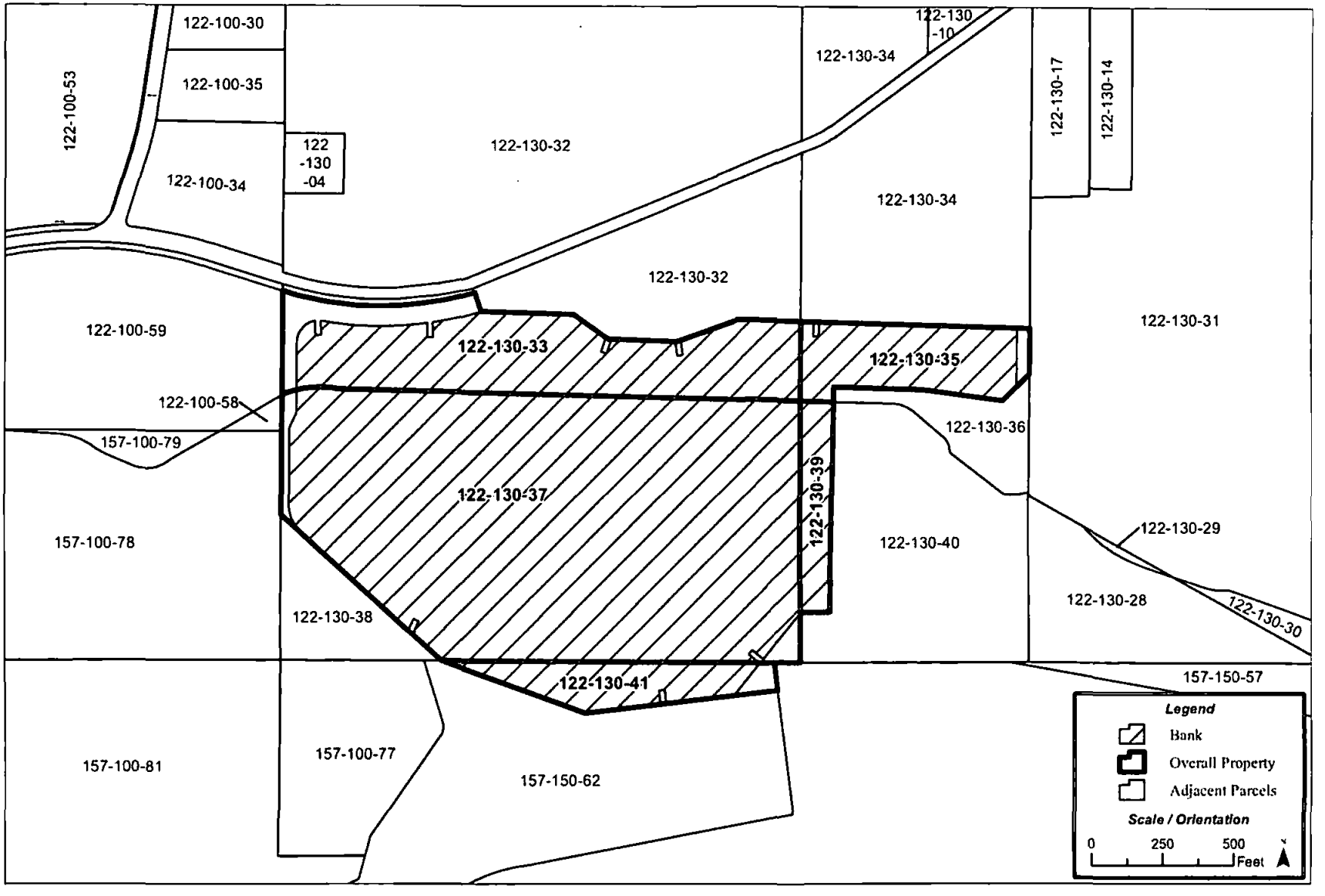

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Figure 3
Assessor Parcel Map

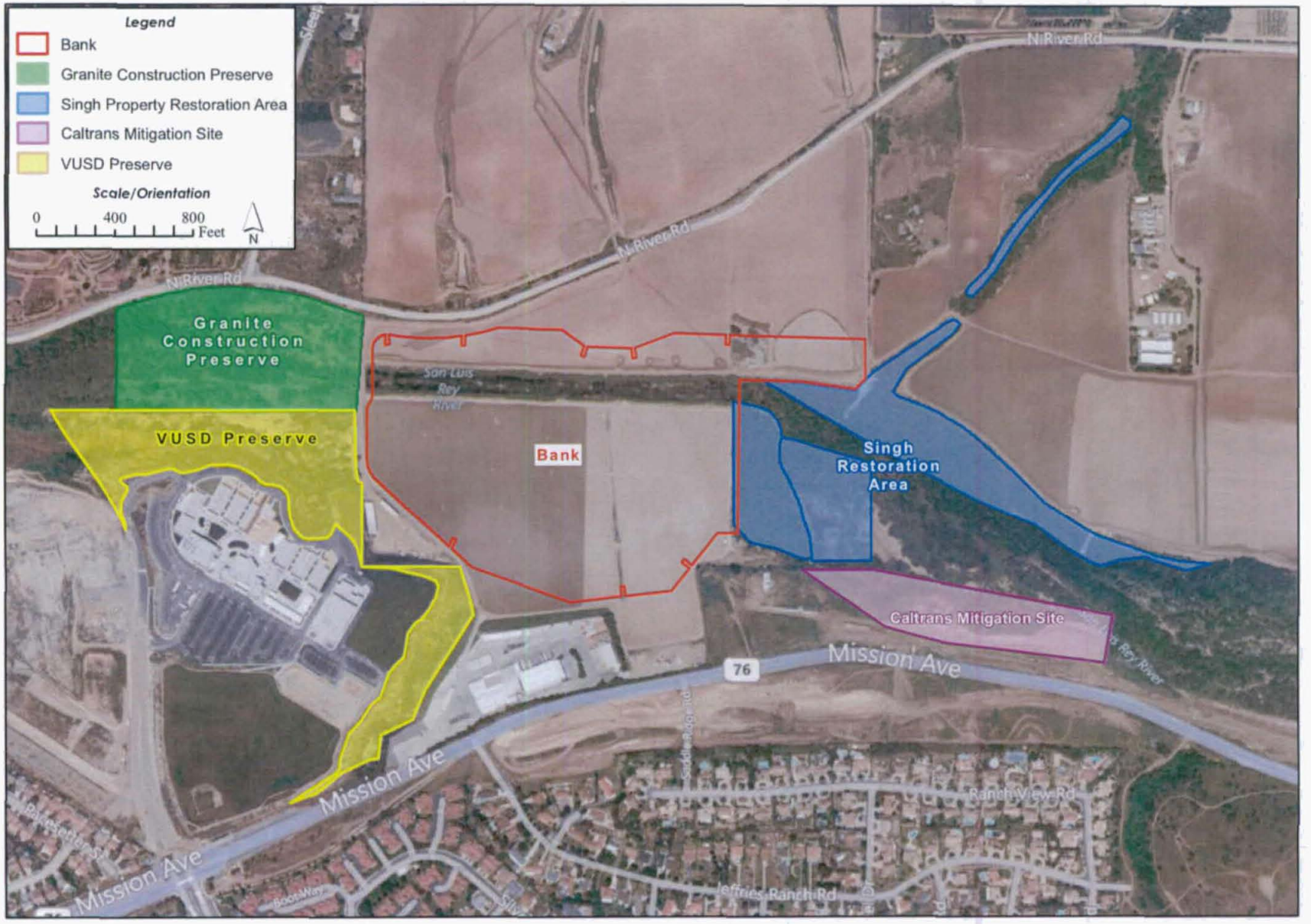

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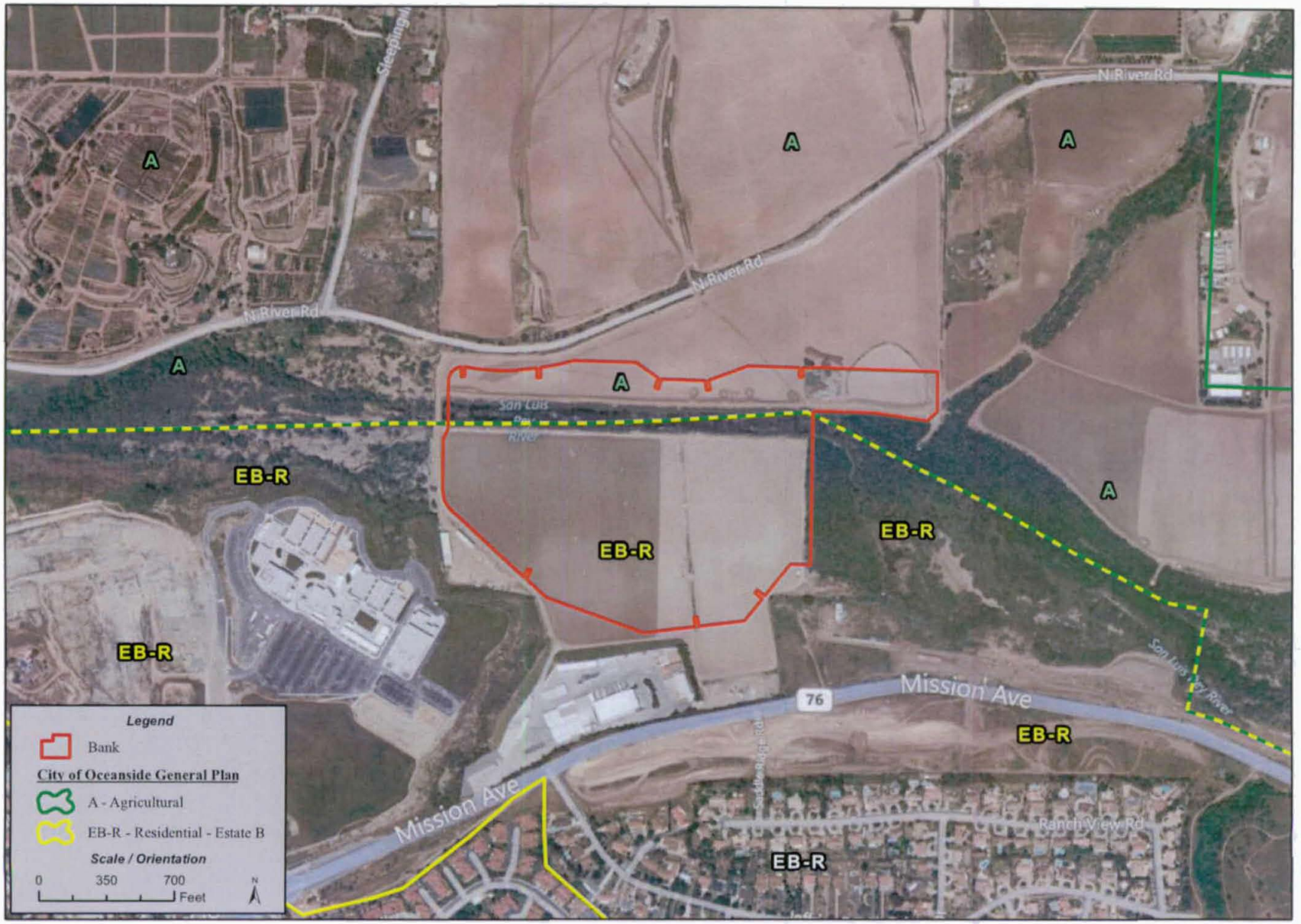
Figure 4
Nearby Restoration Projects



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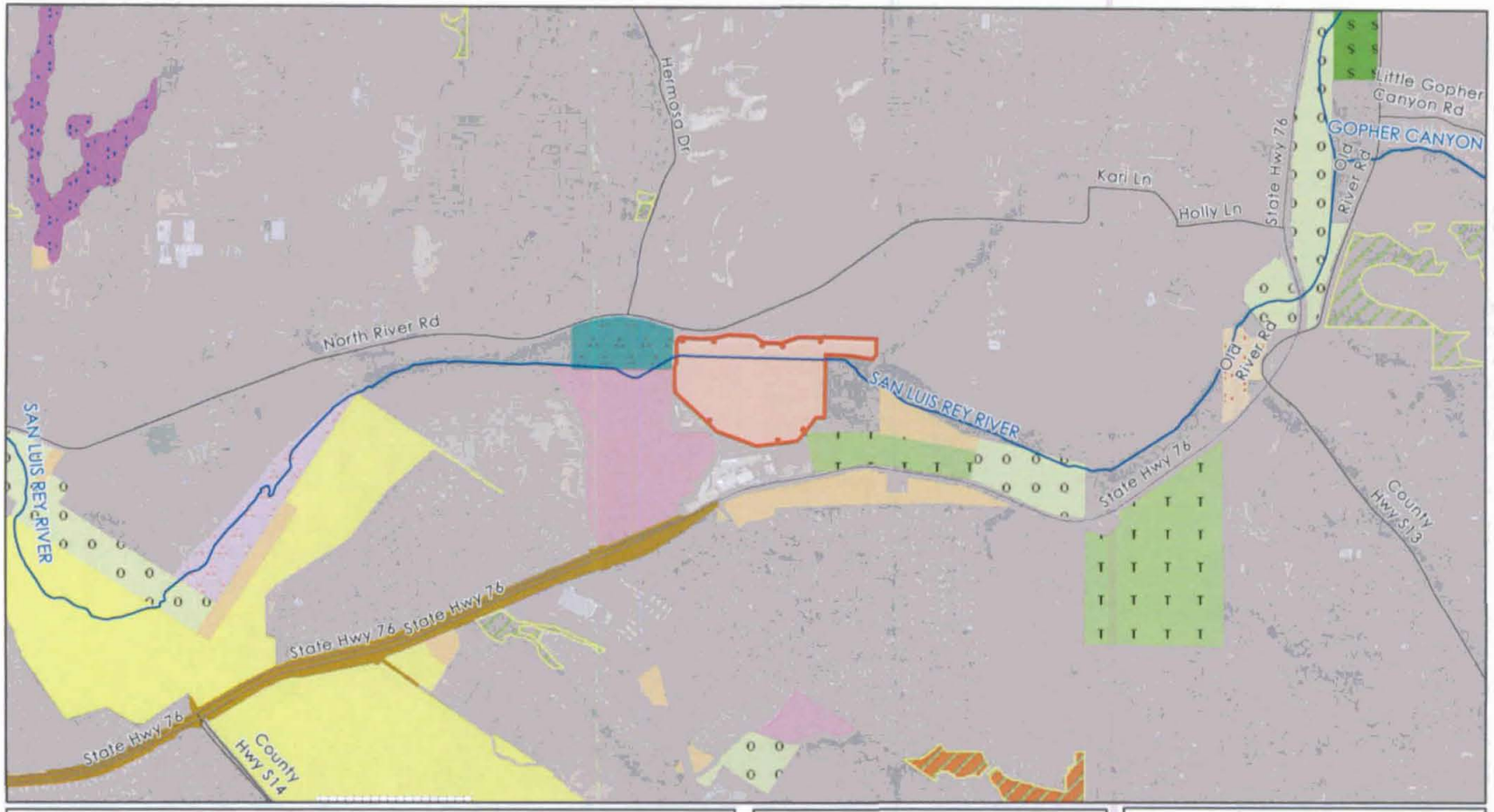
San Luis Rey Mitigation Bank
Development Plan

Figure 5
City of Oceanside General Plan Land Use Designations



Legend

- Bank
- Open Space Easement*

Other Conserved Lands**

- City of Oceanside
- County of San Diego
- Caltrans
- State of California
- The Center for Natural Lands Management
- Granite Construction
- Lennar Homes HOA
- Private

Other Public Lands***

- City of Oceanside
- County of San Diego
- School Districts
- State of California

Data Sources

*Taken from SanGIS' *Open Space Easements* GIS dataset. Jan. 2010.

**Taken from SANDAG's *Conserved Lands* GIS dataset July 2010.

***Taken from SANDAG's *2009 Public Land Ownership* GIS dataset. 2009.

Scale

0 0.25 0.5 Miles

Aerial Image

2009 National Agriculture Imagery Program

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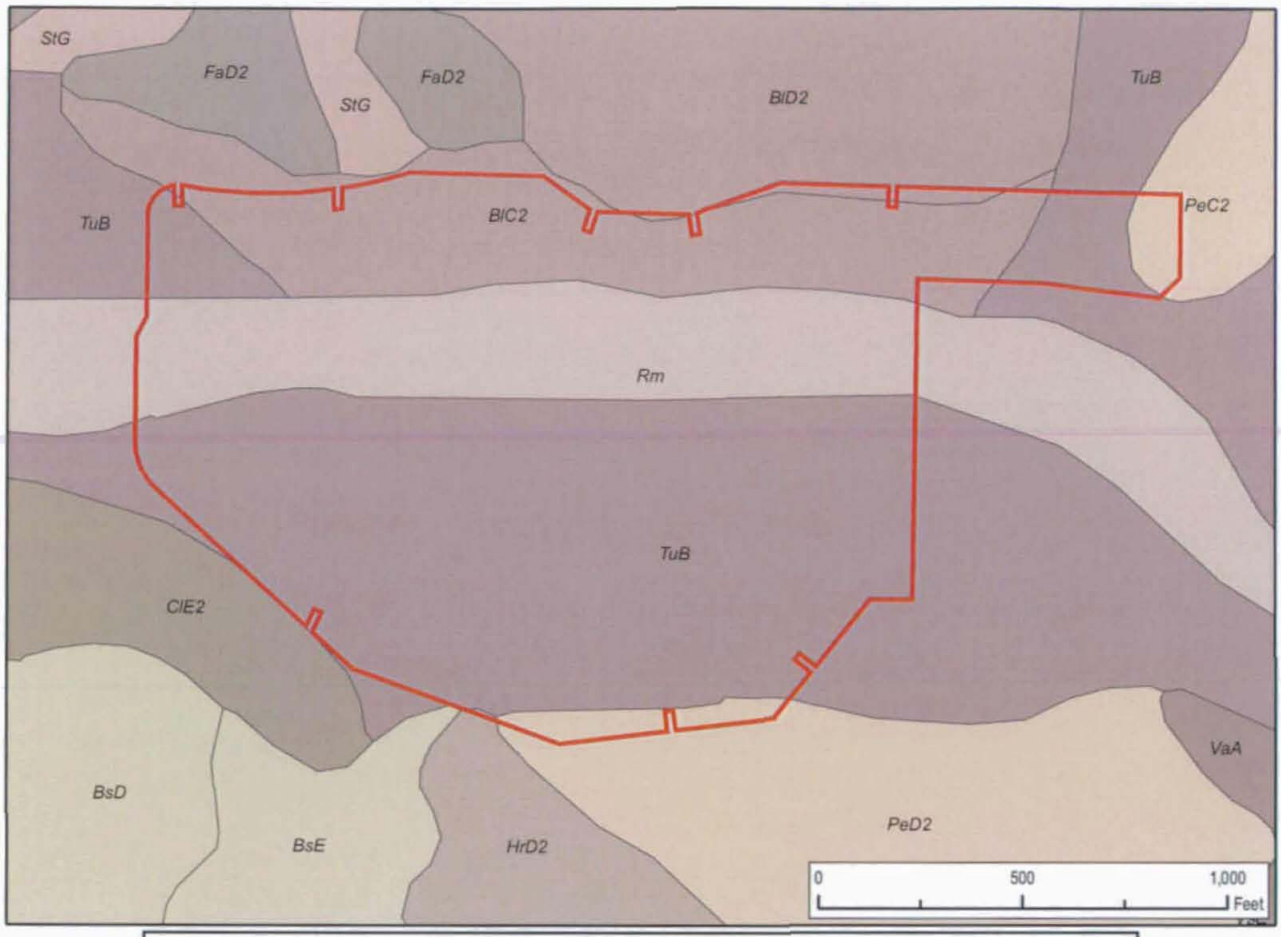
San Luis Rey Mitigation Bank
Development Plan

Figure 6
Conserved and Public Properties



Legend

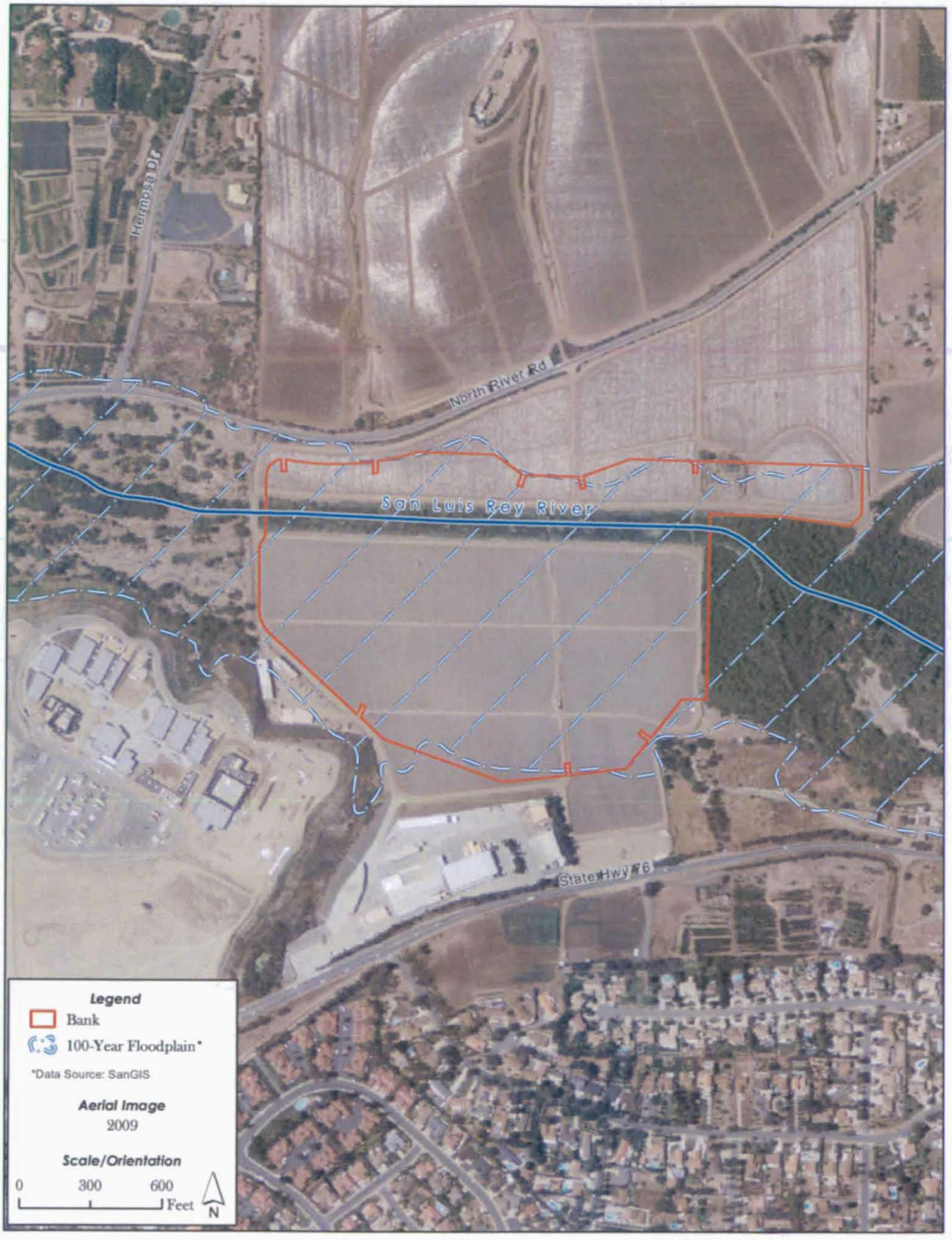
Bank Boundary

Soils within Bank

- TuB - Tujunga sand, 0-5% slopes
- Rm - Riverwash
- HrD2 - Huerhuero loam, 9-15% slopes, eroded
- ClE2 - Cieneba coarse sandy loam, 15-30% slopes, eroded
- PeC2 - Placentia sandy loam, 5-9% slopes, eroded
  PeD2 - Placentia sandy loam, 9-15% slopes, eroded
- BlC2 - Bonsall sandy loam, 2-9% slopes, eroded
  BlD2 - Bonsall sandy loam, 9-15% slopes, eroded

Other Soils

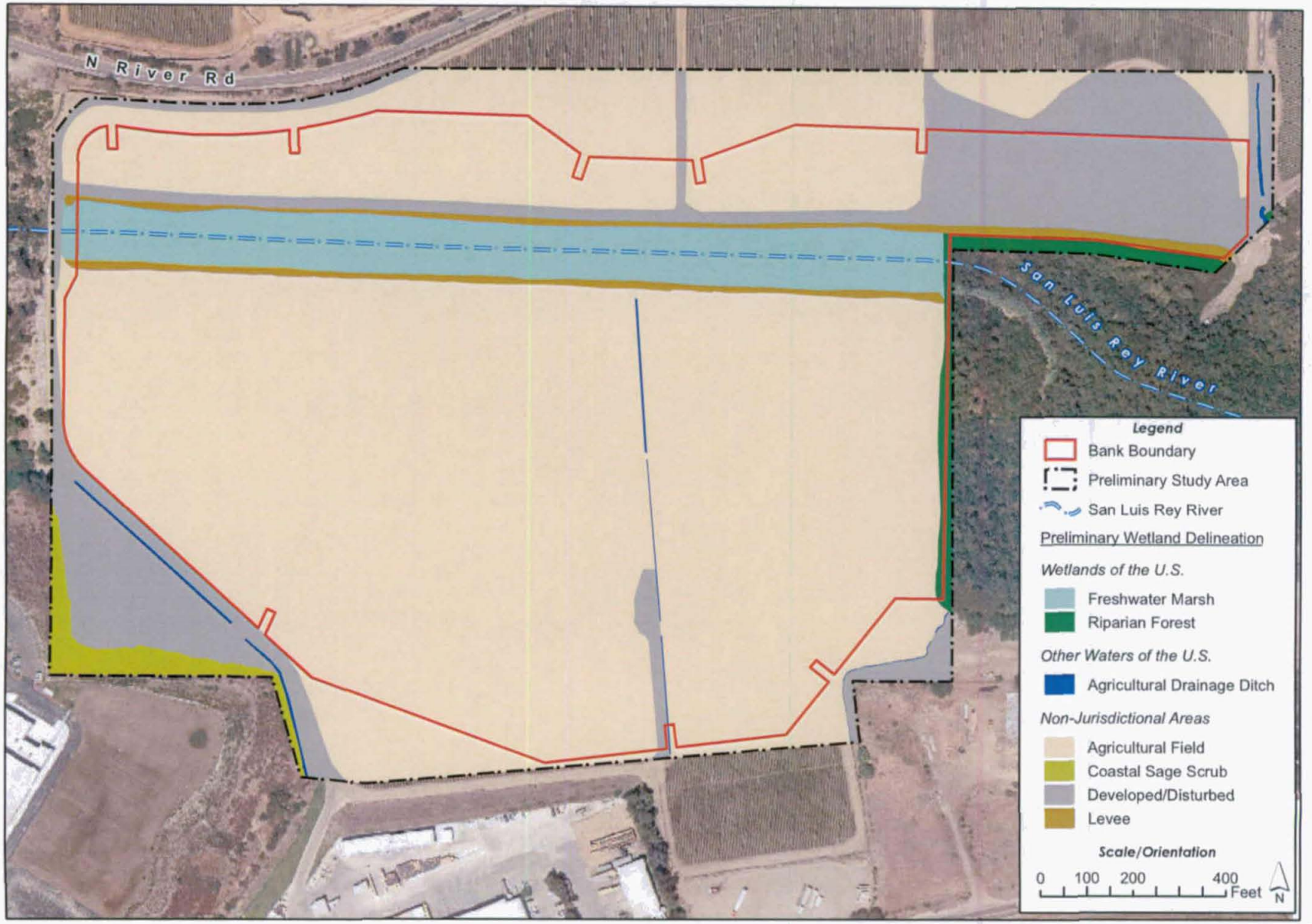
- VaA - Visalia sandy loam, 0-2% percent slopes
- StG - Steep gullied land
- FaD2 - Fallbrook sandy loam, 9-15% slopes, eroded
- BsD - Bosanko clay, 9-15% slopes
  BsE - Bosanko clay, 15-30% slopes



WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

Figure 8
100-year Floodplain



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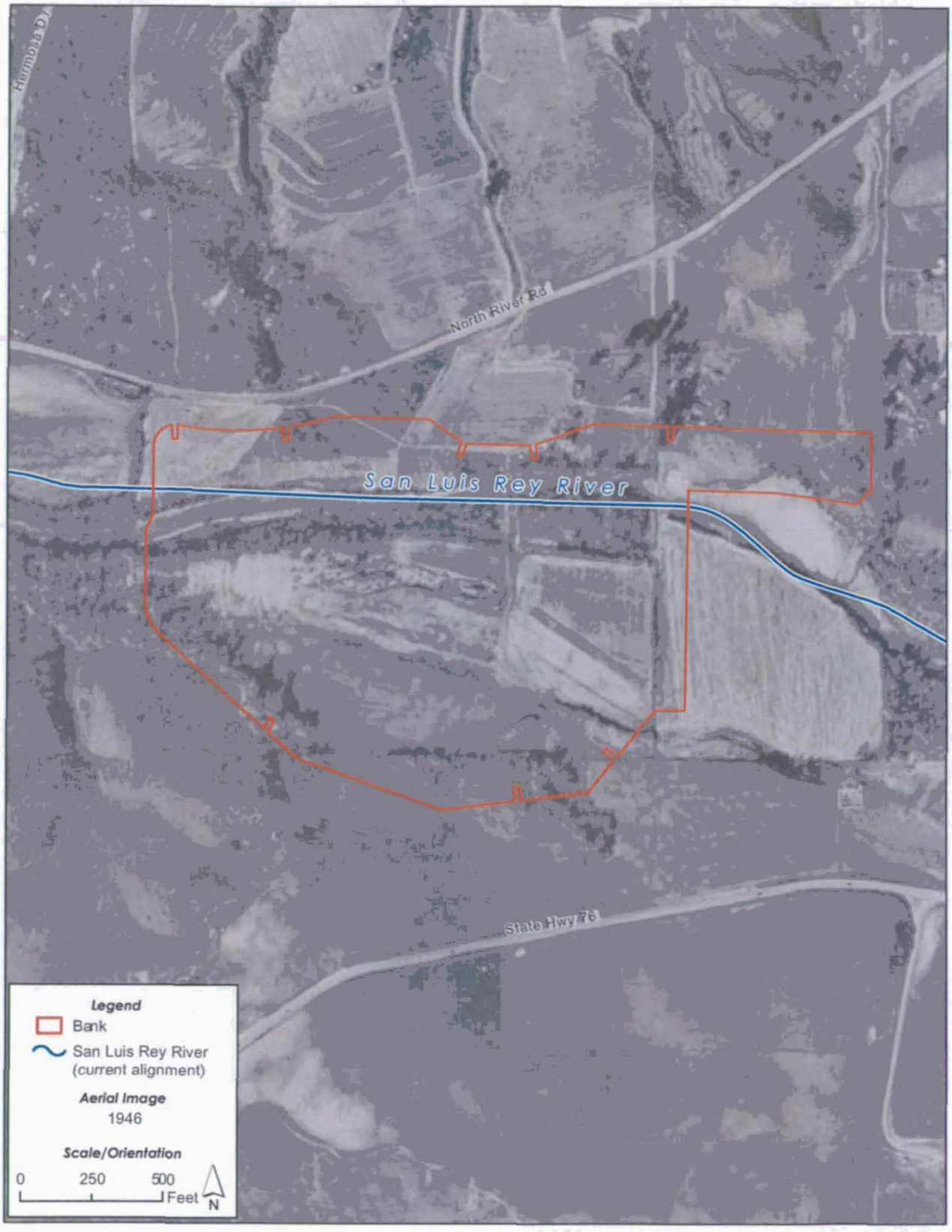
San Luis Rey Mitigation Bank
Development Plan

Figure 9
Preliminary Wetland Delineation



WILDLANDS

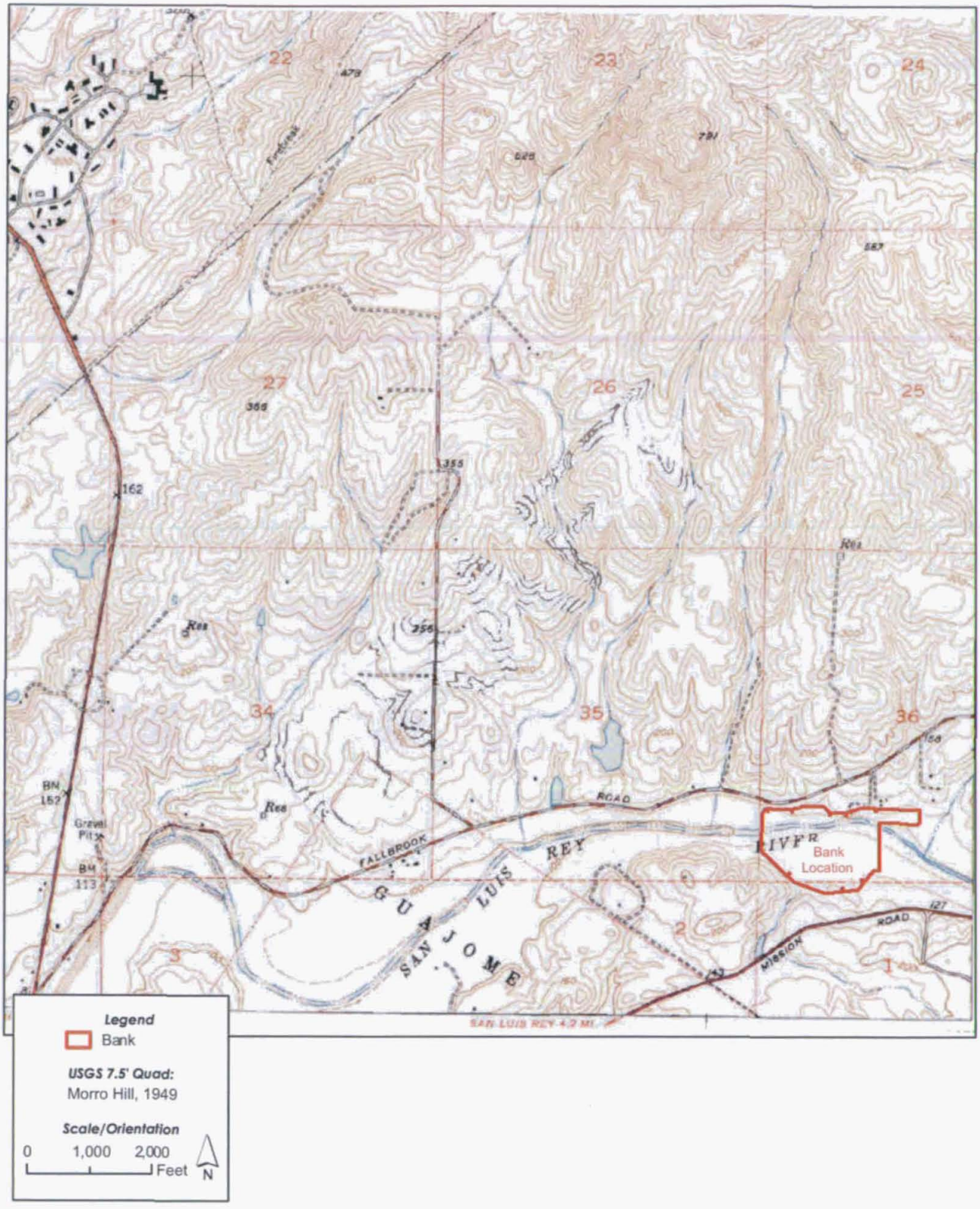
San Luis Rey Mitigation Bank
Development Plan

Figure 10
1946 Historic Aerial

WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

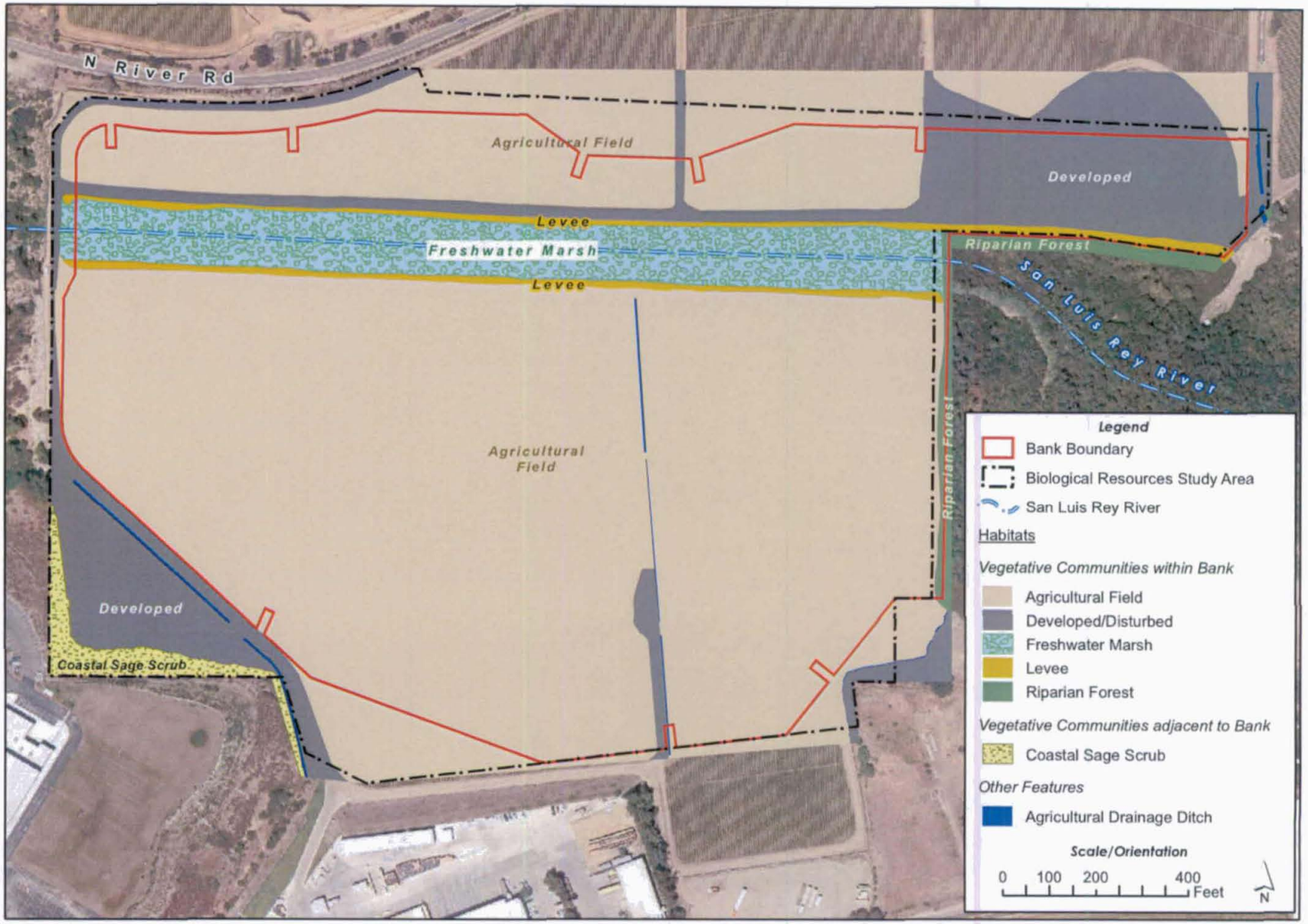
Figure 11
1953 Historic Aerial



WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

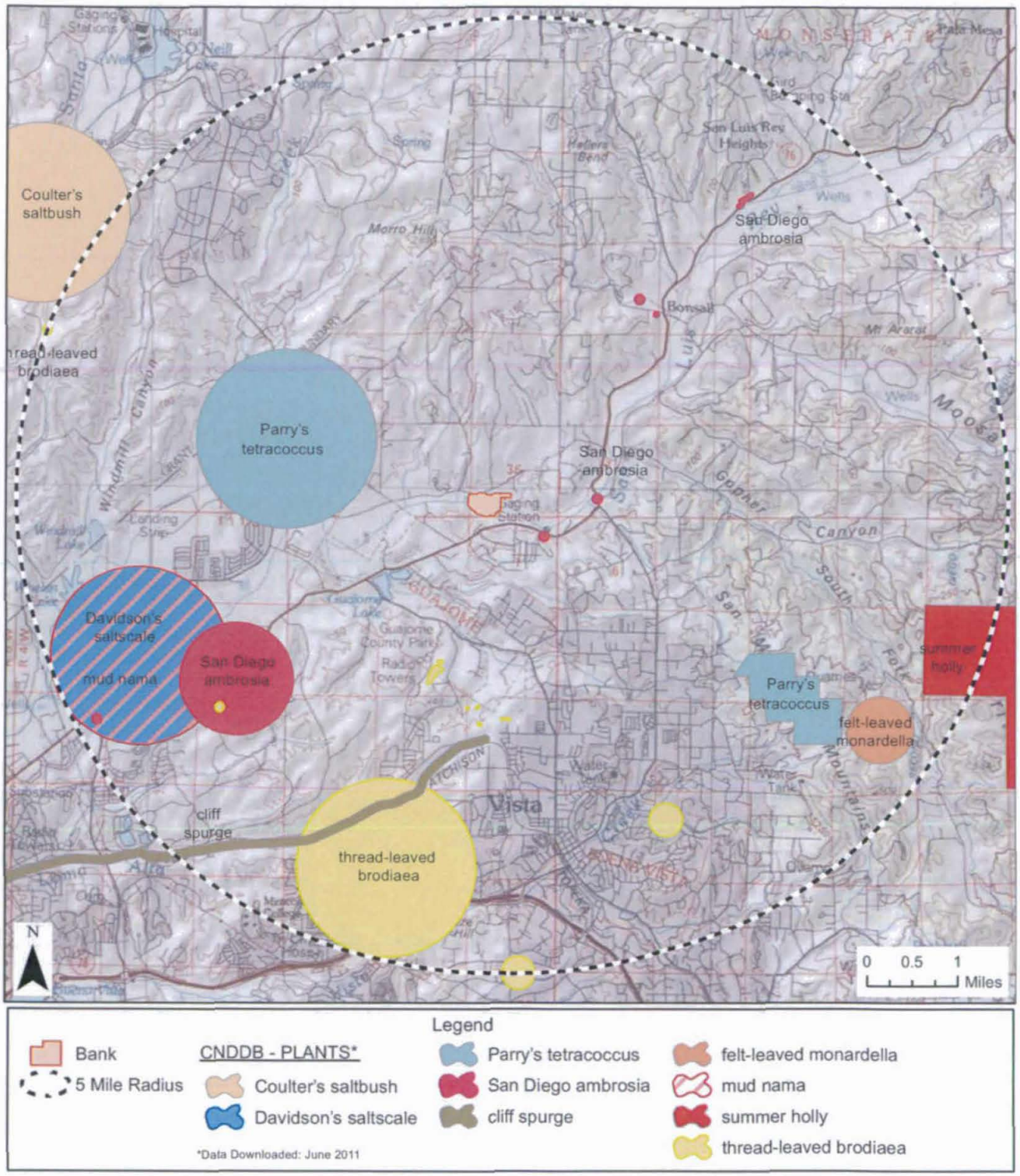
Figure 12
1953 Historic Quadrangle

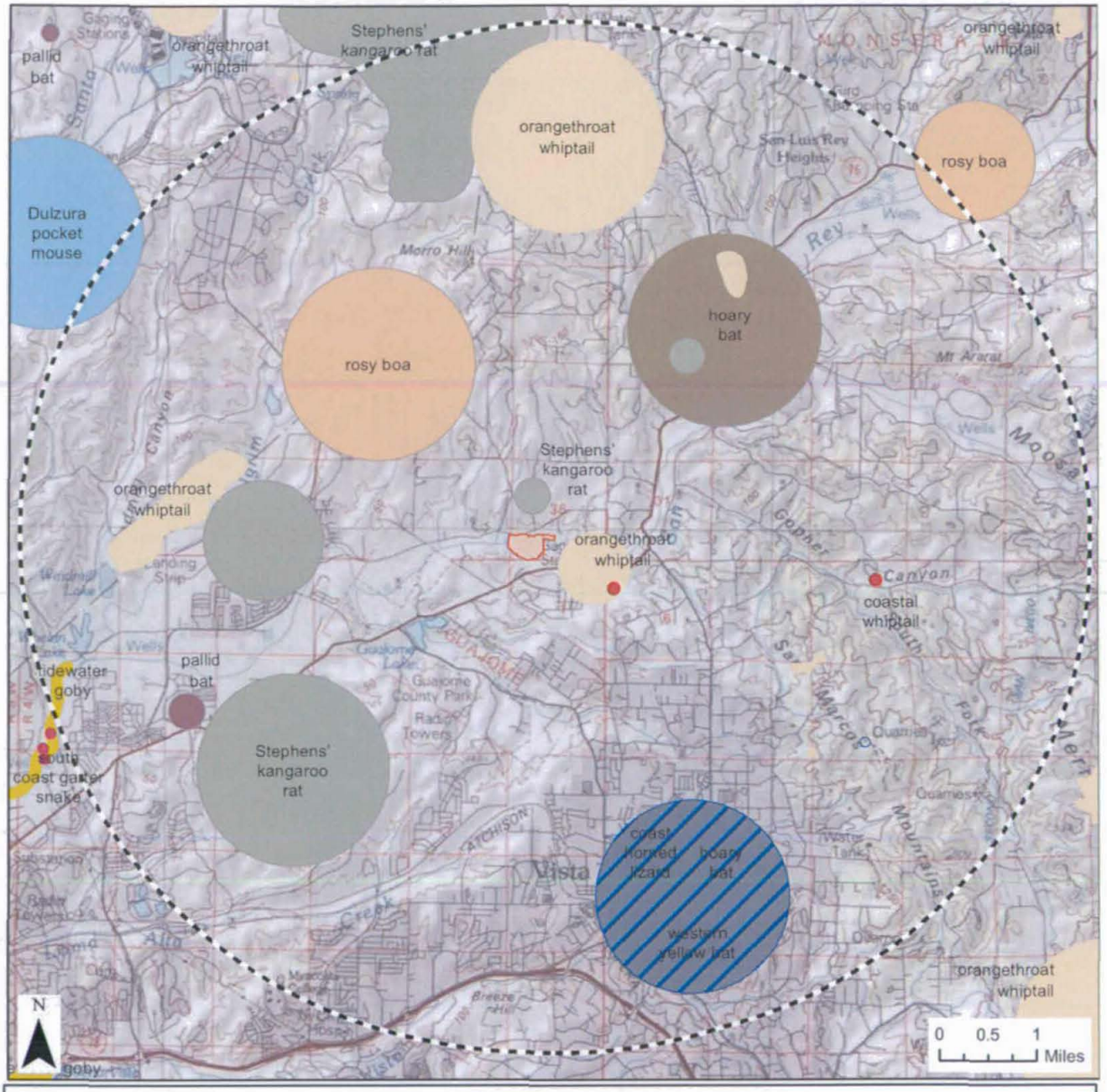


WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

Figure 13
Habitats

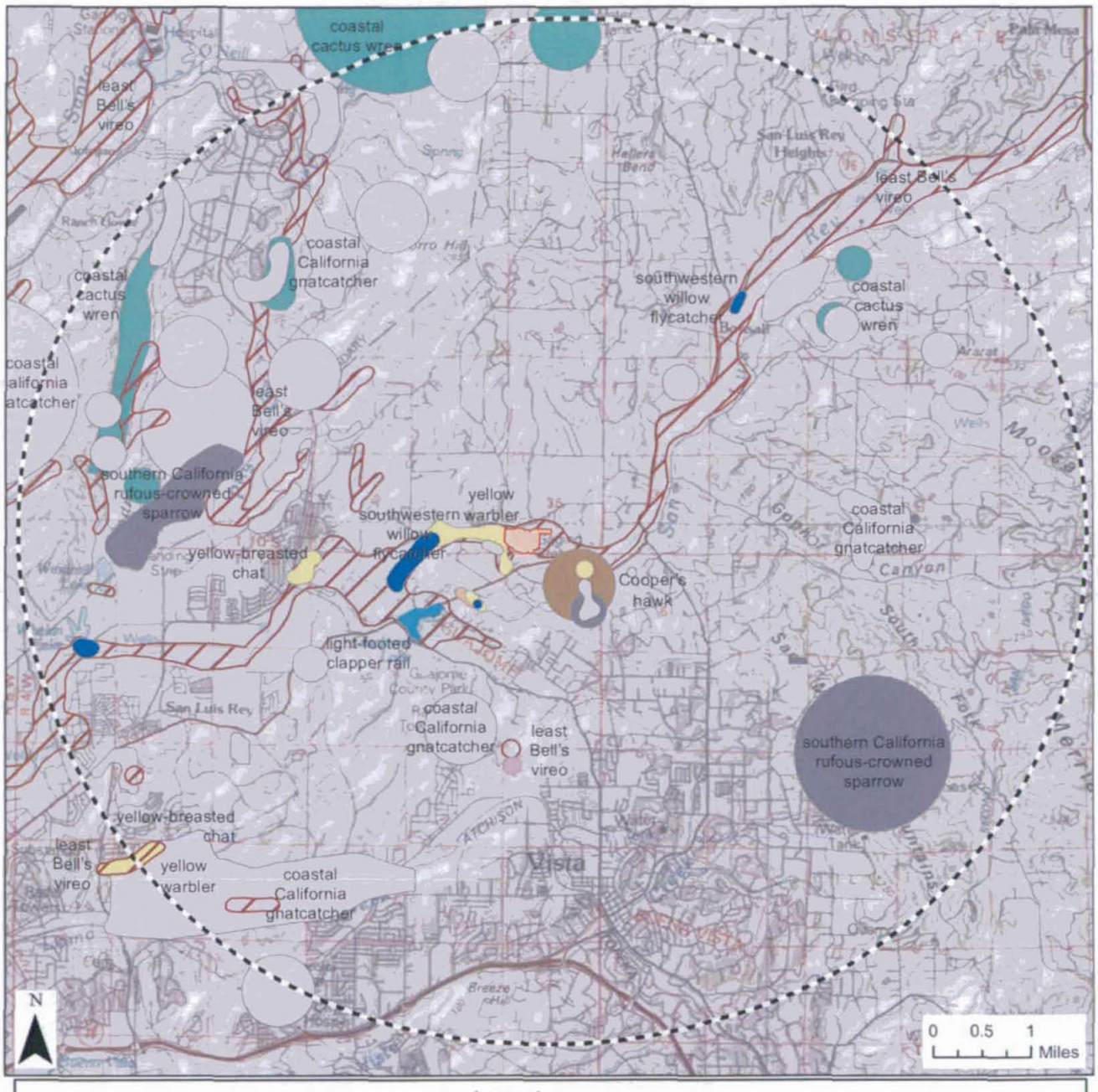

Coulter's saltbush
thread-leaved brodiaea
Parry's tetracoccus
Davidson's saltscale
mud nama
San Diego ambrosia
cliff spurge
thread-leaved brodiaea
San Diego ambrosia
Bonsall
San Diego ambrosia
Parry's tetracoccus
summer holly
felt-leaved monardella
Vista
N
0 0.5 1 Miles
Legend
Bank
5 Mile Radius
CNDDB - PLANTS*
Coulter's saltbush
Davidson's saltscale
Parry's tetracoccus
San Diego ambrosia
cliff spurge
felt-leaved monardella
mud nama
summer holly
thread-leaved brodiaea
*Data Downloaded: June 2011



WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

Figure 15
Special Status Animals Documented within 5 Miles of the Bank Site



Legend

Bank
5 Mile Radius

CNDDB - BIRDS*

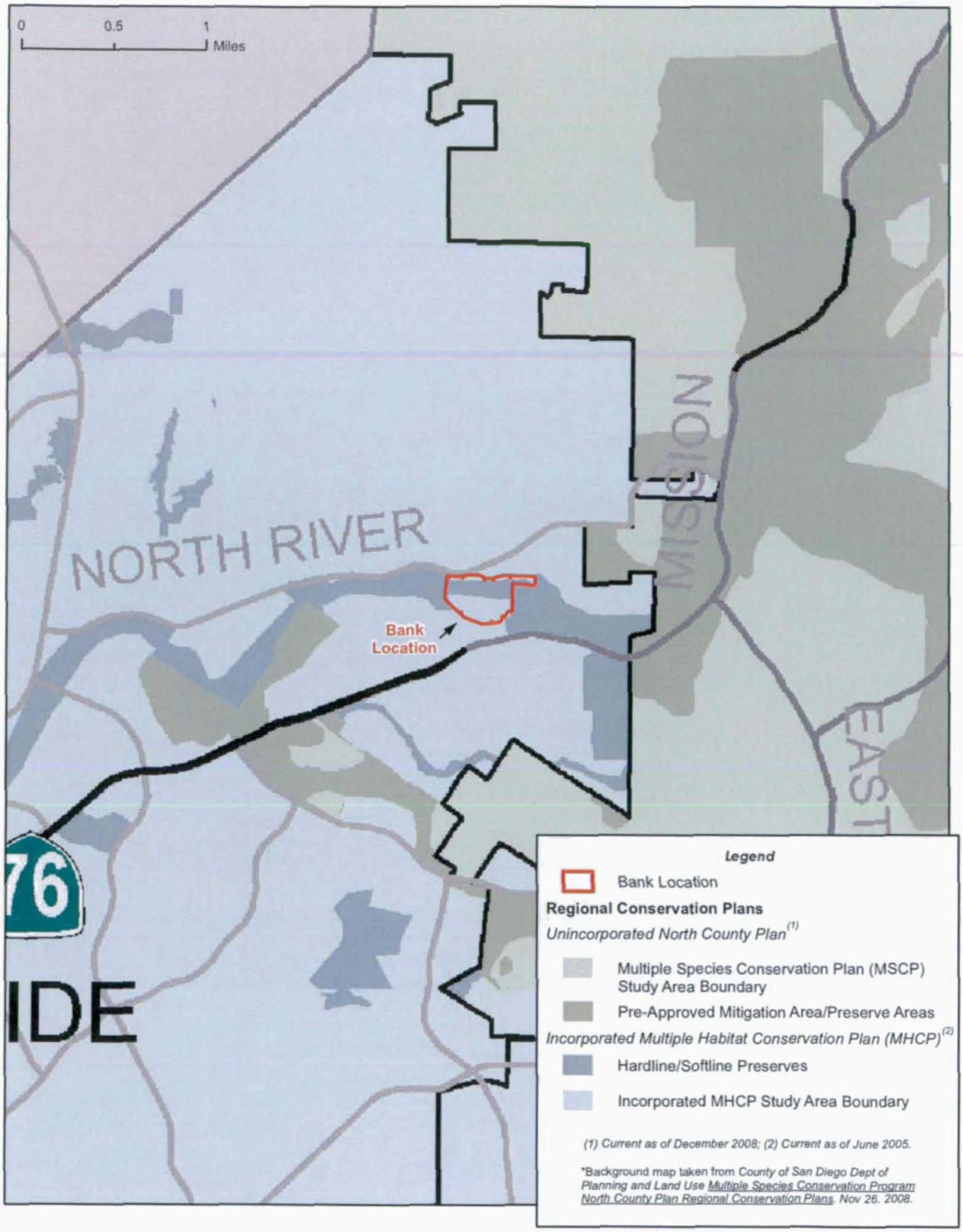
- California least tern
- Cooper's hawk
- coastal California gnatcatcher
- coastal cactus wren
- least Bell's vireo
- light-footed clapper rail
- southern California rufous-crowned sparrow
- southwestern willow flycatcher
- white-tailed kite
- yellow warbler
- yellow-breasted chat

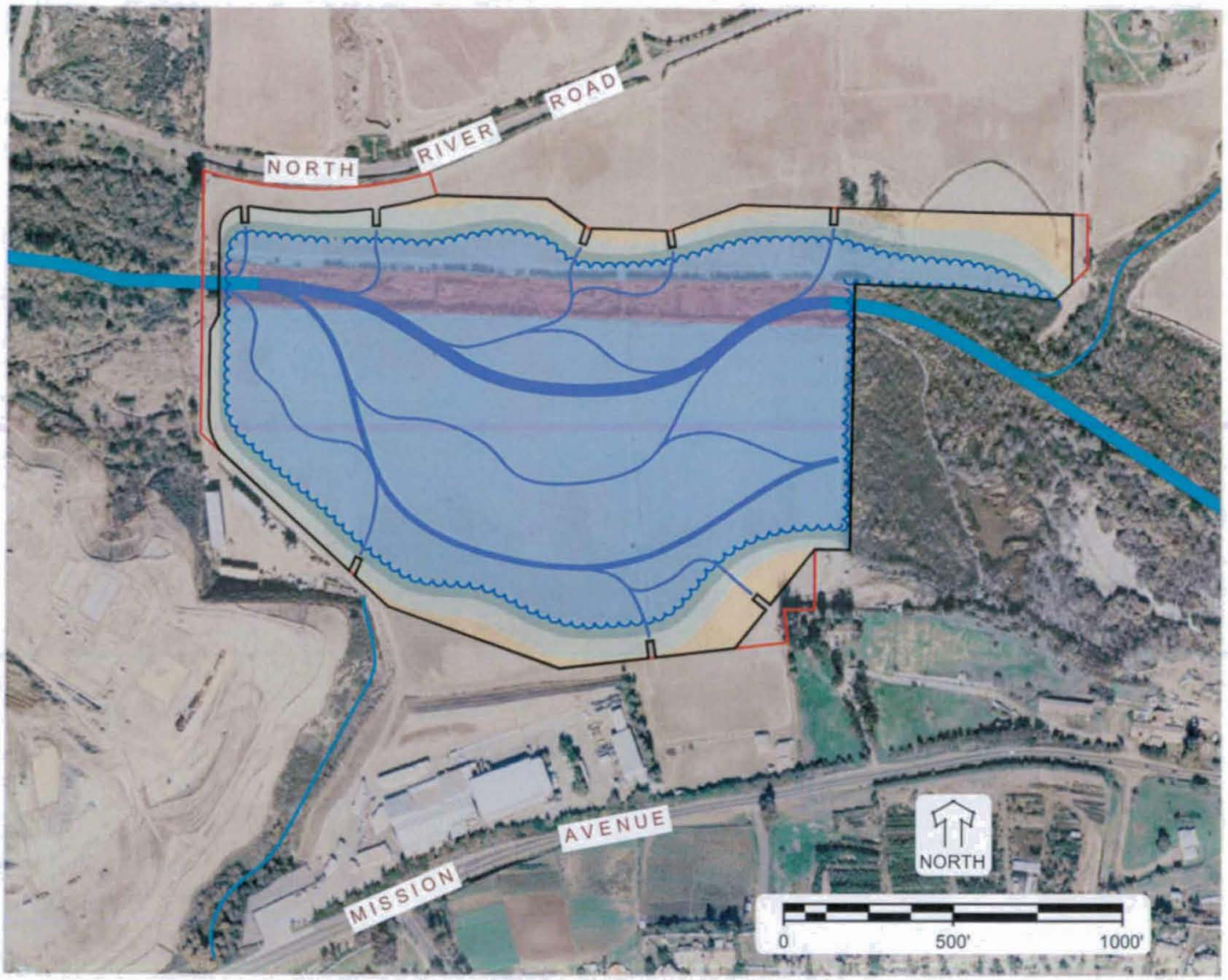
*Data Downloaded: June 2011

WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

Figure 16
Special Status Birds Documented within 5 Miles of the Bank Site


0
0.5
1
Miles
NORTH RIVER
MISSION
EAST
Bank Location
76
IDE
Legend
Bank Location
Regional Conservation Plans
Unincorporated North County Plan(1)
Multiple Species Conservation Plan (MSCP) Study Area Boundary
Pre-Approved Mitigation Area/Preserve Areas
Incorporated Multiple Habitat Conservation Plan (MHCP)(2)
Hardline/Softline Preserves
Incorporated MHCP Study Area Boundary
(1) Current as of December 2008; (2) Current as of June 2005.
*Background map taken from County of San Diego Dept of Planning and Land Use Multiple Species Conservation Program North County Plan Regional Conservation Plans. Nov 26. 2008.



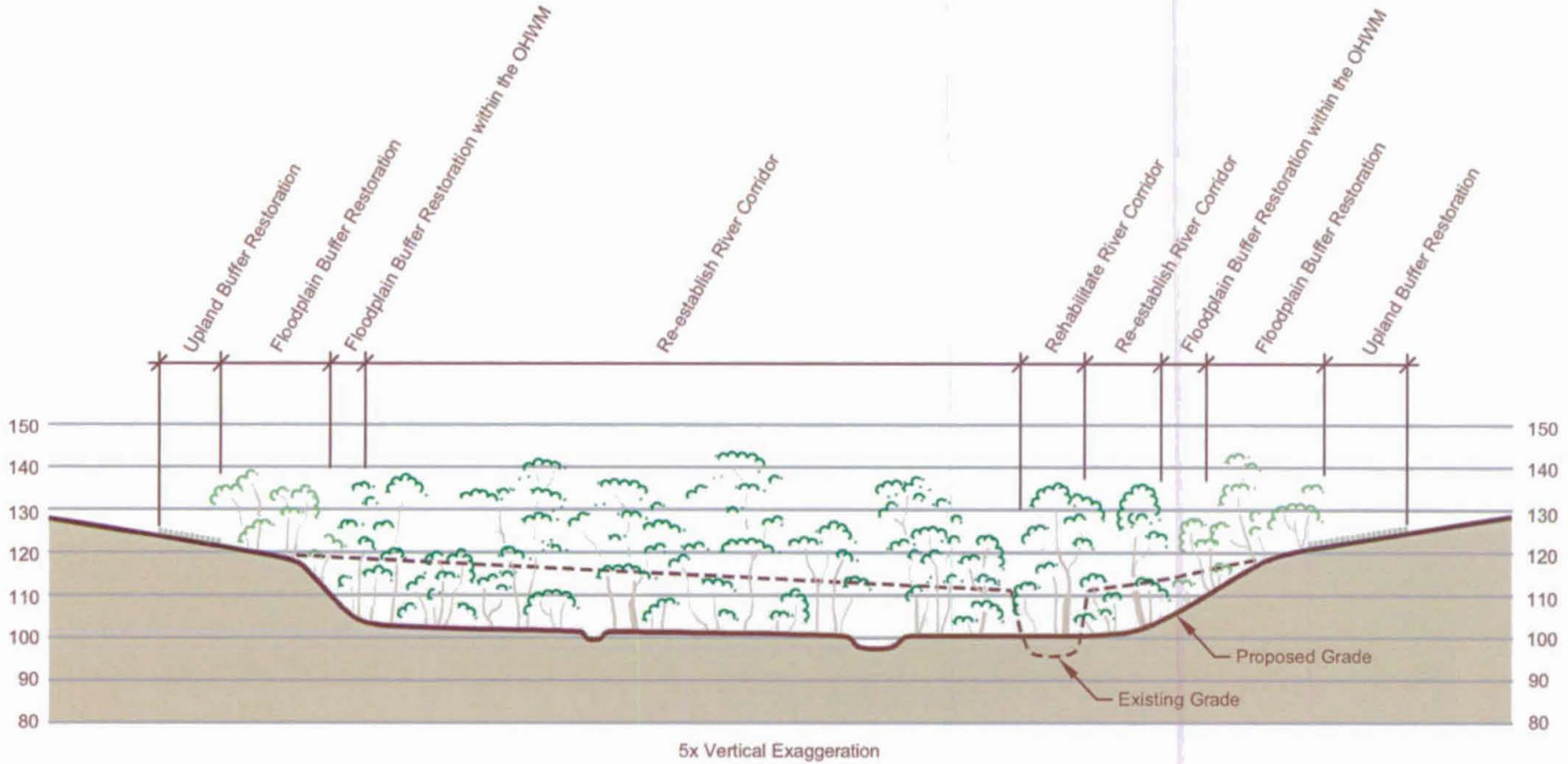
LEGEND

Property Boundary	56.54 acres
Bank Boundary	53.84 acres
Restore / Rehabilitate 404 Wetland River Corridor	5.28 acres
Restore / Re-establish 404 Wetland River Corridor	35.84 acres
Floodplain Buffer Restoration within OHWM	3.89 acres
Floodplain Buffer Restoration	5.34 acres
Upland Buffer Restoration	3.25 acres
Existing Riparian Forest	0.24 acres
Existing River	
Existing Stream / Drainage	
Restored River	
Restored Secondary Channel	

WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

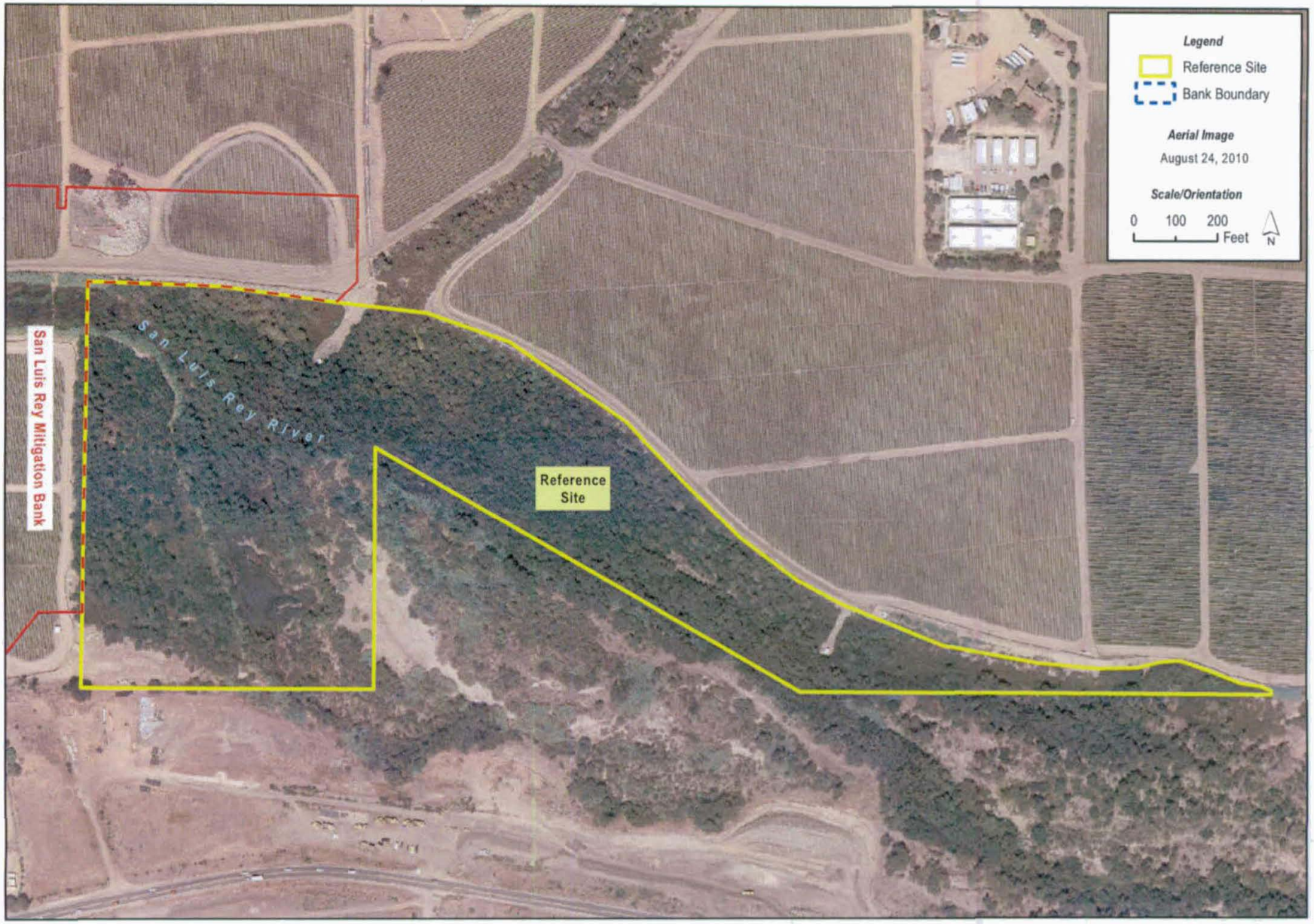
Figure 18
Preliminary Concept Plan



WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

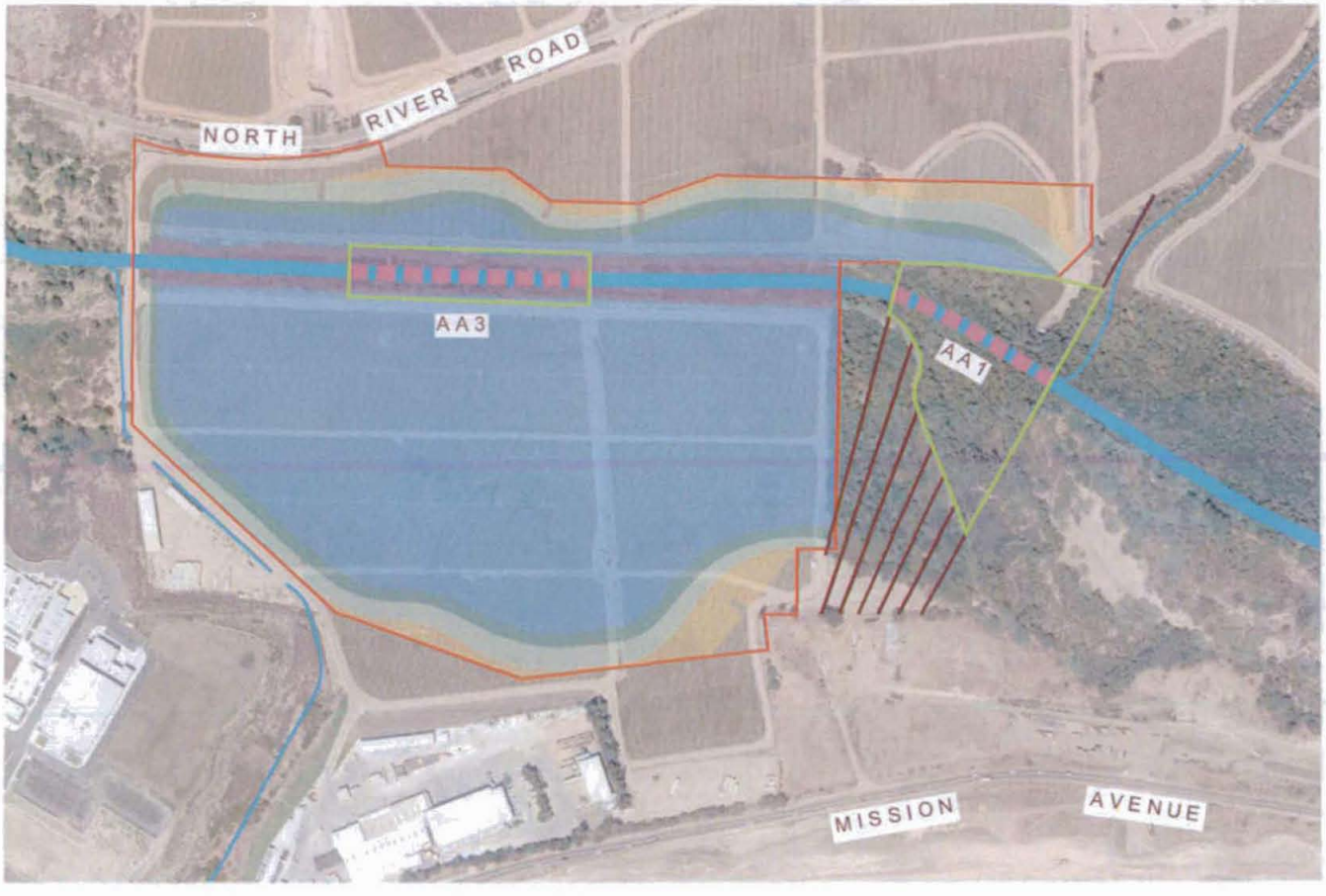
Figure 19
Schematic Cross-Section



WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

Figure 20
Reference Site



LEGEND

- Property Boundary
- Existing River
- Existing Stream / Drainage
- Proposed CRAM reach
- Proposed CRAM Assessment Area
- CRAM Buffer Line

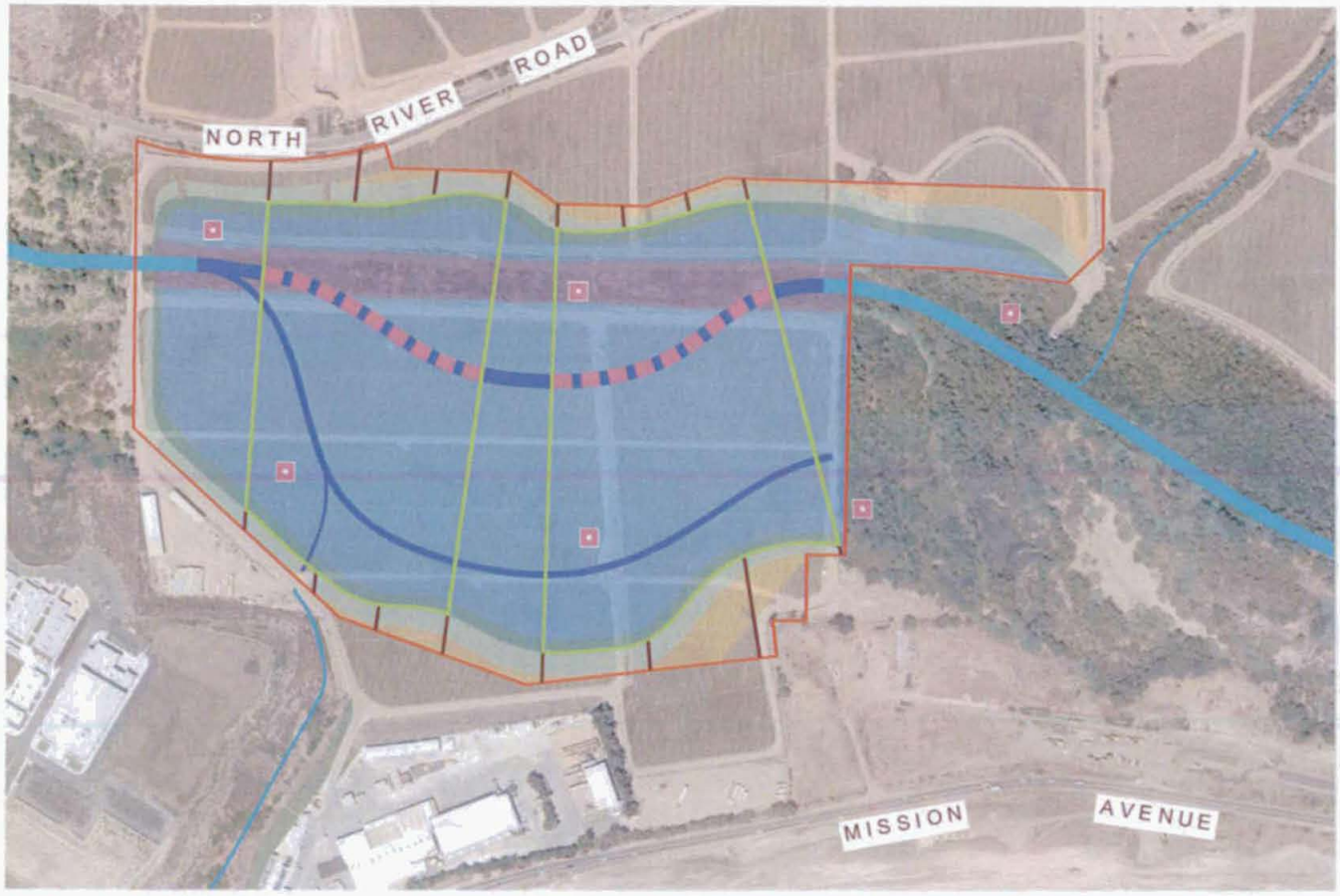
NORTH

0 500' 1000'

WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

Figure 21
Pre-Project CRAM Locations



LEGEND

Property Boundary	Existing River
Restore / Rehabilitate 404 Wetland River Corridor	Existing Stream / Drainage
Restore / Re-establish 404 Wetland River Corridor	Restored River
Floodplain Buffer Restoration within OHWM	Restored Secondary Channel
Floodplain Buffer Restoration	Proposed CRAM reach (200m)
Upland Buffer Restoration	Proposed CRAM Assessment Area
Existing Riparian Forest	CRAM Buffer Line
	Proposed Water Level Logger

NORTH

0 500' 1000'

WILDLANDS

San Luis Rey Mitigation Bank
Development Plan

Figure 22
Proposed CRAM Locations

GEOCON
INCORPORATED
GEOTECHNICAL ▫ ENVIRONMENTAL ▫ MATERIALS

Project No. 09881-06-01A
July 6, 2012

Mr. Paul Sherman
Wildlands SLR Holdings I, LLC
3855 Atherton Road
Rocklin, California 95765

Subject: CLARIFICATION OF RECOMMENDATIONS FOR SOIL REUSE
SINGH PROPERTY
OCEANSIDE, CALIFORNIA

Dear Mr. Sherman:

In accordance with your request, we have prepared this letter to clarify our recommendations regarding the reuse of soil excavated as part the proposed wetlands restoration project at the Singh Property located south of North River Road, north of Highway 76/Mission Road, and east of Mission Vista High School (the Site) in the city of Oceanside, California. We understand that the City of Oceanside reviewed our *Phase I Environmental Site Assessment* (ESA), *Singh Property, Oceanside, California,* dated September 7, 2011 and revised November 16, 2011, which included discussion of soil conditions at the Site, and has asked for clarification regarding the suitability of onsite soils for reuse within project footprint. Our Phase I ESA included the following discussion regarding soil conditions at the Site:

- The limited Phase II ESA conducted by SOTA in 2006 indicates that soil containing detectable concentrations of pesticides/herbicides and diesel is present on the Site. The limited Phase II ESA indicates that the soil contained "minor concentrations of several chemicals of potential concern (COPCs) at concentrations that do not pose an environmental concern." However, our comparison of detected concentrations of COPCs indicated that the maximum concentrations of dieldrin and diesel exceed the leaching San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs) that are protective of groundwater, which is a potential concern for the Site.

- The soil samples containing concentrations of dieldrin that exceed the ESLs for groundwater protection were reportedly collected from surface soils within the transformer and filtration plant in the south-central portion of the Site and immediately to the east of the plant in a drainage culvert. Due to the poor quality of the copy of the limited Phase II ESA report we were provided, the location of the soil sample collected at a depth of 8 to 10 feet that was reported with a diesel concentration that exceeds the ESL for groundwater protection is currently unknown. However, no staining was noted during our June 2011 site reconnaissance conducted as part of our Phase I ESA.

It is our understanding that the habitat restoration project will generate excess soil from areas adjacent to the San Luis Rey River during project grading. At the time of our Phase I ESA, there was discussion regarding the possibility of exporting this soil to an offsite location. It is our current understanding that the excess soil is planned to be placed directly adjacent to the wetland restoration

area for reuse in agricultural fields and/or agricultural support facilities. Based on our experience with the Regional Water Quality Control Board regarding the onsite reuse of pesticide and petroleum hydrocarbon impacted soil, we recommend the top one-foot of soil excavated from the area of the filtration plant and drainage culvert be placed at a minimum of five feet above the highest anticipated groundwater elevation and five feet from any slope faces to provide a buffer that will minimize future impacts to groundwater. Since the location of the diesel-impacted soil is currently unknown, we recommend that if soil that exhibits evidence of potential petroleum hydrocarbon impacts is encountered during site grading, this soil be segregated and a qualified environmental professional contacted. Based on information provided to us and the findings of our Phase I ESA, it is our opinion that the remaining excess soils may be reused in the agricultural fields and/or agricultural support facilities adjacent to the wetland restoration area without restriction.

If there are any questions regarding this letter, or if we may be of further service, please contact the undersigned at your convenience.

Sincerely,

GEOCON INCORPORATED

Matthew W. Lesh
Project Geologist

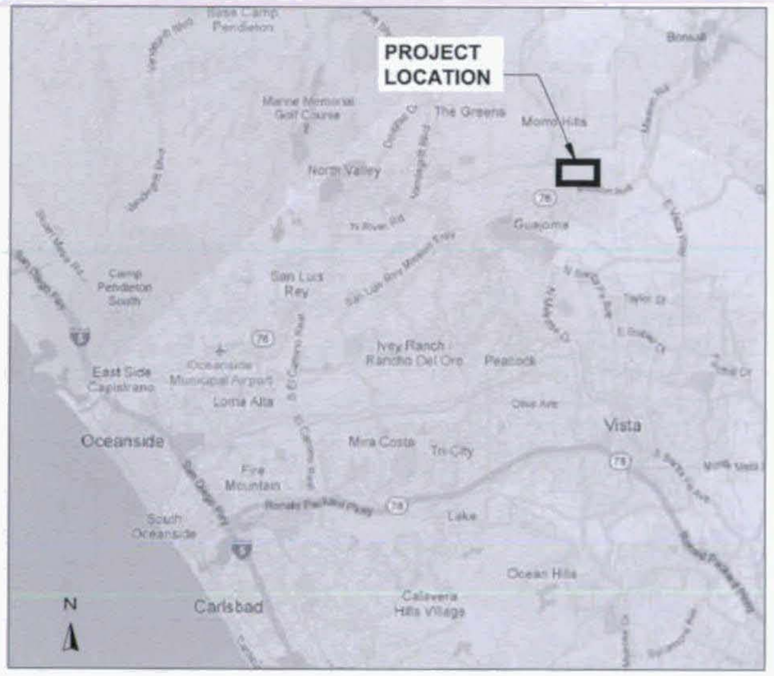
(2) Addressee

August 13, 2014
Item No. 10
Supporting Document No. 6

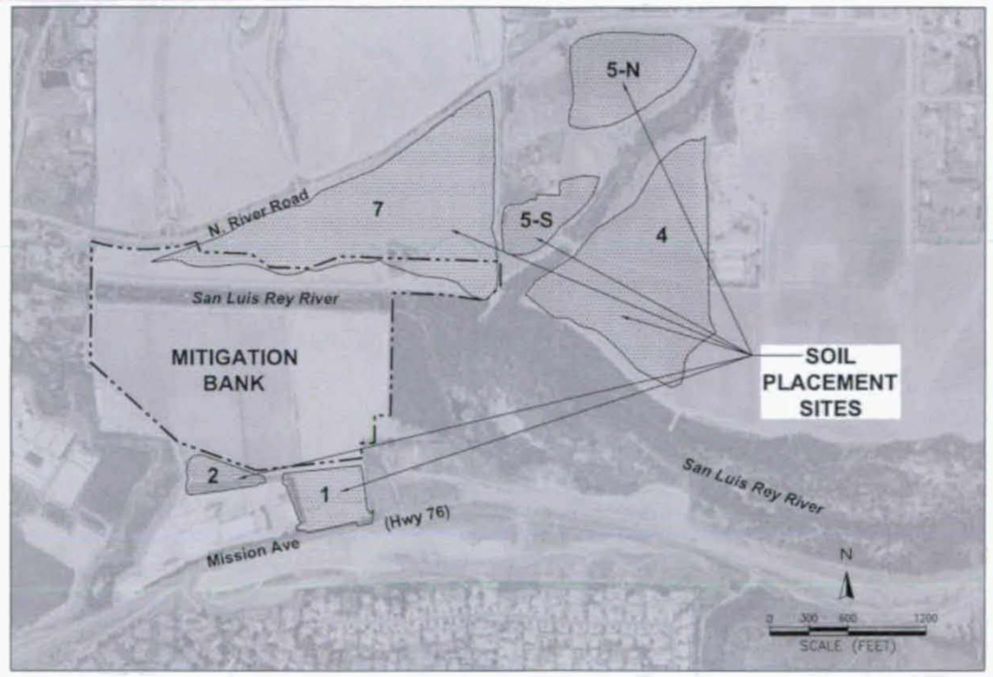
SAN LUIS REY MITIGATION BANK

OCEANSIDE, CALIFORNIA

WILDLANDS



VICINITY MAP
NOT TO SCALE



LOCATION MAP

INDEX OF SHEETS

NOTES

1. PRIOR TO START OF ANY GRADING FOR THIS DEVELOPMENT (SAN LUIS REY WETLANDS RESTORATION/MITIGATION BANK), A GRADING PERMIT SHALL BE REQUIRED TO INCLUDE ALL SOIL PLACEMENT SITES AND THE MITIGATION BANK IN ACCORDANCE WITH THE CITY OF OCEANSIDE GRADING ORDINANCE.
2. PRIOR TO APPROVAL OF THE GRADING PLAN, A HYDROLOGY STUDY SHALL BE REQUIRED TO INCLUDE ALL SOIL PLACEMENT SITES AND THE MITIGATION BANK.
3. PRIOR TO THE APPROVAL OF THIS DEVELOPMENT AND PRIOR TO THE PUBLIC HEARING, THE APPLICANT SHALL PROVIDE FEMA CONCURRENCE OF THE CLOMR.

ENTITLEMENT TYPE: DEVELOPMENT PLAN

ENTITLEMENT NUMBERS: D12–00004

RESTORATION PROJECT PARCEL LEGAL DESCRIPTION:

PARCEL B OF THAT CERTAIN LOT LINE ADJUSTMENT AND CERTIFICATE OF COMPLIANCE NO. PLA–11–00004, IN THE CITY OF OCEANSIDE, RECORDED NOVEMBER 23, 2011 AS DOCUMENT NO. 2011–0628785, OFFICIAL RECORDS IN THE OFFICE OF THE COUNTY RECORDER, IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

A PORTION OF THE WEST HALF OF SECTION 36, TOWNSHIP 10 SOUTH, RANGE 4 WEST TOGETHER WITH A PORTION OF PARCEL 2 OF CERTIFICATE OF COMPLIANCE PLA 02–98 PER DOCUMENT NO. 1999–0235759 RECORDED APRIL 08, 1999, IN THE CITY OF OCEANSIDE, IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID SECTION 36; THENCE, ALONG THE WEST LINE OF SAID SECTION 36, NORTH 0021'07" EAST 510.00 FEET TO THE TRUE POINT OF BEGINNING; THENCE, CONTINUING ALONG SAID WEST LINE, NORTH 0021'07" WEST 778.29 FEET TO A POINT PERPENDICULAR AND 42 FEET SOUTHERLY OF THE CENTERLINE OF NORTH RIVER ROAD PER ROAD SURVEY 674; THENCE, LEAVING SAID WEST LINE ALONG SAID PERPENDICULAR LINE, SOUTH 7234'48" EAST 1.84 FEET TO THE BEGINNING OF A 1,142 FOOT RADIUS CURVE CONCAVE TO THE NORTH; THENCE EASTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 3412'49" A DISTANCE OF 681.93 FEET; THENCE, NON–TANGENT TO SAID CURVE, SOUTH 1647'37" EAST 70.00 FEET; THENCE SOUTH 8817'35" EAST 325.00 FEET; THENCE SOUTH 5441'47" EAST 150.00 FEET; THENCE SOUTH 8817'35" EAST 243.92 FEET; THENCE NORTH 7007'54" EAST 225.71 FEET; THENCE SOUTH 8817'35" EAST 1,025.00 FEET TO A POINT ON THE EAST LINE OF THE WEST HALF OF SAID SECTION 36; THENCE, ALONG SAID EAST LINE, SOUTH 0016'42" WEST 159.42 FEET; THENCE, LEAVING SAID EAST LINE, SOUTH 4545'08" WEST 133.72 FEET; THENCE NORTH 8207'16" WEST 279.94 FEET; THENCE NORTH 8810'23" WEST 314.85 FEET; THENCE SOUTH 0056'46" WEST 787.51 FEET; THENCE NORTH 8943'18" WEST 103.27 FEET; THENCE SOUTH 0016'42" WEST 179.40 FEET TO A POINT ON THE SOUTH LINE OF SAID SECTION 36; THENCE, ALONG SAID SOUTH LINE, NORTH 8939'11" WEST 91.37 FEET TO THE NORTHEAST CORNER OF SAID PARCEL 2; THENCE, LEAVING SAID SOUTH LINE ALONG THE EAST LINE OF SAID PARCEL 2, SOUTH 0700'05" WEST 97.27 FEET; THENCE, LEAVING SAID EAST LINE, SOUTH 8318'23" WEST 681.37 FEET; THENCE NORTH 7004'57" WEST 537.33; THENCE NORTH 4727'16" WEST 759.27 FEET TO THE TRUE POINT OF BEGINNING.

SUMMARY TABLE

DESCRIPTION	ACRES (APPROX.)	PARCEL IDENTIFICATION	PROPERTY OWNER	GRADING QUANTITIES (ESTIMATED CUBIC YARDS) (EST. CUBIC YARDS)	GENERAL PLAN (NO CHANGE)	ZONING (NO CHANGE)
RESTORATION AREA	56	PARCEL B	WILDLANDS SLR HOLDINGS I , LLC	684,000	A, EB-R	A-EQ
SOIL PLACEMENT SITE #1	3	PARCEL D	SINGH PROPERTY MANAGEMENT COMPANY	52,000	EB-R	A-EQ
SOIL PLACEMENT SITE #2	2	PARCEL D	SINGH PROPERTY MANAGEMENT COMPANY	53,000	EB-R	A-EQ
SOIL PLACEMENT SITE #4	50	APN 122-130-31 APN 157-150-11	SINGH PROPERTY MANAGEMENT COMPANY	295,000	A, EB-R	A
SOIL PLACEMENT SITE #5	15	APN 122-130-31	SINGH PROPERTY MANAGEMENT COMPANY	80,000	A	A
SOIL PLACEMENT SITE #7	22	PARCEL A	SINGH PROPERTY MANAGEMENT COMPANY	233,000	A	A
General Plan designations: A...Agricultural, EB-R...Estate B Residential						
Zoning classifications: A...Agricultural, -EQ...Equestrian Overlay						

60% SUBMITTAL
NOT FOR CONSTRUCTION

VERIFY SCALE

PREPARED BY: ESA PWA

SHEET TITLE: TITLE SHEET

PROJECT: SAN LUIS REY MITIGATION BANK

PREPARED FOR: WILDLANDS
3855 Atherton Road
Rocklin, CA 95765

DESIGNED P. LUECKING
INCHARGE P. LUECKING
DATE NOVEMBER 30, 2012

SHEET G1

1 OF 22

DEFINITIONS

PROPERTY OWNER:	WILDLANDS 3855 ATHERTON ROAD ROCKLIN, CA 95765 PH: (916)-435-3555 CONTACT: PAUL SHERMAN
RESTORATION ENGINEER:	ESA PWA 550 KEARNY STREET SUITE 800 SAN FRANCISCO, CA 94108 PH: (415)-896-5900 CONTACT: PHILIP LUECKING
CIVIL ENGINEER:	O'DAY CONSULTANTS, INC. 2710 LOKER AVENUE WEST SUITE 100 CARLSBAD, CA 92010 PH: (760)-931-7700 CONTACT: TIM CARROLL
LANDSCAPE ARCHITECT:	WILDLANDS 3855 ATHERTON ROAD ROCKLIN, CA 95765 PH: (916)-435-3555 CONTACT: JEFF NOVAK
OWNER'S REPRESENTATIVE:	THE OWNER-DESIGNATED CONSTRUCTION MANAGER OR PRIMARY CONTACT FOR THE CONTRACTOR (TO BE IDENTIFIED PRIOR TO CONSTRUCTION) THE OWNER'S REPRESENTATIVE WILL COORDINATE AS NEEDED BETWEEN THE OWNER, RESTORATION ENGINEER AND CIVIL ENGINEER.

GENERAL NOTES

1. EXISTING TOPOGRAPHY IS BASED ON FIELD SURVEYS CONDUCTED BY O'DAY CONSULTANTS (JULY AND SEPTEMBER 2011) AND WILDLANDS (FEBRUARY 2012).
2. ELEVATIONS ARE REFERENCED TO THE 1988 NORTH AMERICAN VERTICAL DATUM (NAVD 88), FEET.
3. THE COORDINATE GRID IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 6, NORTH AMERICAN DATUM OF 1983 (NAD83), FEET.
4. A THE CONTRACTOR SHALL CONFORM TO ALL GOVERNING LAWS, CODES, AND ORDINANCES.
5. THE EXISTING GRADE REFLECTS SITE CONDITIONS AT THE TIME OF THE SURVEYS. CONTRACTOR SHOULD VERIFY GRADES AND EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
6. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL CONTACT ALL APPROPRIATE AGENCIES AND THE UNDERGROUND SERVICE ALERT TO FIELD LOCATE ALL UNDERGROUND UTILITIES.
7. CONTRACTOR TO FIELD INVESTIGATE, VERIFY, AND BE RESPONSIBLE FOR ALL CONDITIONS, ELEVATIONS, AND DIMENSIONS OF THE PROJECT, AS SHOWN ON OR REFERENCED ON THE PLANS, AND NOTIFY THE OWNER'S REPRESENTATIVE ABOUT ANY CONDITION REQUIRING MODIFICATION OR CHANGE PRIOR TO BIDDING. EXAMINE THE PLANS AND SPECIFICATIONS AND CLEARLY UNDERSTAND THE EXISTING CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED PRIOR TO BIDDING. ENTERING INTO AN AGREEMENT WITH THE OWNER INDICATES THAT THE CONTRACTOR HAS VISITED THE SITE, FAMILIARIZED HIMSELF (OR HERSELF) WITH EXISTING CONDITIONS AND THE CONTRACT DOCUMENTS. NO ALLOWANCES OF ANY KIND WILL BE MADE FOR ANY EXTRA COST DUE TO THE CONTRACTOR'S FAILURE TO INFORM THE OWNER OF DISCREPANCIES IN TIME TO ISSUE CORRECTIVE ADDENDA PRIOR TO BIDDING. THE CONTRACT DOCUMENTS ILLUSTRATE THE INTENT OF THE WORK TO BE PERFORMED.
8. ANY REVISIONS OR ADDITIONAL WORK REQUIRED AS A RESULT OF FIELD CONDITIONS OR OWNER STANDARDS AND/OR REQUIREMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. WORK PERFORMED BY THE CONTRACTOR WITHOUT WRITTEN AUTHORIZATION SHALL BE THE FULL RESPONSIBILITY OF THE CONTRACTOR WHO SHALL BEAR ALL COSTS. ALL REVISIONS SHALL BE IN WRITTEN CHANGE ORDER FORM AND APPROVED AND AUTHORIZED BY OWNER BEFORE BEGINNING WORK.
9. THE CONTRACTOR IS RESPONSIBLE FOR ALL SURVEY CONTROL AND LAYOUT NEEDED TO PERFORM THE WORK. THE CONTRACTOR'S SURVEYING METHODS SHALL BE IN ACCORDANCE WITH STANDARD SURVEY PRACTICES AND SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCING THE SURVEY.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING, INCLUDING BUT NOT LIMITED TO:
    a. RECOVERING BENCHMARKS
    b. ESTABLISHING, DOCUMENTING AND MAINTAINING TEMPORARY BENCHMARKS
    c. PERFORMING LAYOUT AN CONSTRUCTION STAKING
    d. REVIEWING STAKING WITH OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK IN EACH WORK AREA
11. THE DIMENSIONS CAN BE SCALED FROM THESE PLANS. THE CONTRACTOR SHALL CONFIRM DIMENSIONS OF ALL GRADING ACTIVITIES WITH THE OWNERS REPRESENTATIVE BEFORE COMMENCING WORK.
12. OWNER'S REPRESENTATIVE ACCEPTS NO RESPONSIBILITY BEYOND THE ADEQUACY OF THE DESIGN CONTAINED HEREIN. SHOULD IT APPEAR THAT THE WORK TO BE DONE, OR ANY MATTER RELATIVE THERETO, IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS AND THE SPECIFICATIONS THE CONTRACTOR SHALL CONTACT THE OWNER OR OWNER'S REPRESENTATIVE FOR FURTHER EXPLANATION AS MAY BE NECESSARY.
13. ANY DEVIATIONS OR CHANGES TO THESE PLANS, WITHOUT OFFICIAL APPROVAL OF THE OWNER'S REPRESENTATIVE SHALL ABSOLVE THE OWNER'S REPRESENTATIVE OF ANY AND ALL RESPONSIBILITY OF SAID DEVIATION OR CHANGE.
14. A SET OF SIGNED WORKING PLANS AND SPECIFICATIONS SHALL BE KEPT AT THE JOB SITE AT ALL TIMES ON WHICH ALL CHANGES OR VARIATIONS IN THE WORK, INCLUDING ALL EXISTING UTILITIES, ARE TO BE RECORDED AND/OR CORRECTED DAILY AND SUBMITTED TO THE OWNER UPON COMPLETION OF WORK.
15. THE PLANS AND SPECIFICATIONS DESCRIBE IN GENERAL THE QUALITY AND CHARACTER OF THE MATERIALS, SHAPE AND CONFIGURATION OF THE IMPROVEMENTS AND DESIGN INTENT OF THE COMPLETED, INSTALLED WORK. MISCELLANEOUS ITEMS OF WORK, MATERIAL, EQUIPMENT, ETC. NECESSARY TO COMPLETE THE WORK SHALL BE PROVIDED BY THE CONTRACTOR WHETHER OR NOT MENTIONED IN THE SPECIFICATION OR SHOWN ON THE PLANS. SPECIFIC NOTES AND DETAILS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
16. THE CONTRACTOR SHALL UTILIZE BEST MANAGEMENT PRACTICES TO PREVENT WIND- OR WATER-BORNE EROSION, AND SEDIMENT LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
17. THE CONTRACTOR SHALL PERFORM ALL WORK IN A MANNER THAT COMPLIES WITH ALL PERMITS AND IS PROTECTIVE OF THE ENVIRONMENT, INCLUDING AIR AND WATER QUALITY, WILDLIFE, VEGETATION, AND HUMAN HEALTH.
18. THE CONTRACTOR SHALL COMPLY WITH ALL PERMITS OBTAINED BY THE OWNER FOR COMPLETION OF WORK. COPIES OF ALL PERMITS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
19. EXCAVATION AND GRADING WILL OCCUR WITHIN THE ACTIVE CHANNEL OF THE SAN LUIS REY RIVER. THE CONTRACTOR SHALL BE AWARE OF WEATHER AND RIVER CONDITIONS THAT MAY IMPACT CONSTRUCTION ACTIVITIES AND SHALL TAKE MEASURES NECESSARY TO PROTECT THE SITE AND EQUIPMENT DURING HIGHER RIVER FLOWS.
20. EXCAVATION AND GRADING WILL OCCUR WITHIN THE DELINEATED LIMITS OF THE FEMA EFFECTIVE FLOODPLAINS AND FLOODWAYS. THESE LIMITS ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL CONTACT THE OWNER'S REPRESENTATIVE FOR ADDITIONAL CLARIFICATION OF THESE LIMITS AND WORK RESTRICTIONS, AS NEEDED, PRIOR TO COMMENCING WORK.

LEGEND

- 100 EXISTING CONTOUR
- 100 DESIGN CONTOUR
- SOIL PLACEMENT
- EXCAVATE MATERIAL
- ×101.0 DESIGN GRADE SPOT ELEVATION
- FEMA 100-YR FLOODPLAIN
- FEMA 100-YR FLOODWAY
- FEMA 500-YR FLOODPLAIN
- EXISTING AG WELL, TO BE REMOVED
- EXISTING AG WELL, TO REMAIN
- EXISTING GROUNDWATER ELEVATION MONITORING WELL
- OVERHEAD POWER LINE
- LOT LINE
- (E) CULVERT
- NEW CULVERT
- (E) BUILDING
- VEGETATION LIMIT
- (2) NEW CULVERT ID

ABBREVIATIONS

APPROX.	APPROXIMATE
℄	CENTER LINE
DIA	DIAMETER
EL	ELEVATION
(E)	EXISTING
FT	FOOT, FEET
LF	LINEAR FEET
MAX	MAXIMUM
MIN	MINIMUM
(N)	NEW
NAVD	NORTH AMERICAN VERTICAL DATUM
NTS	NOT TO SCALE
SPECS	SPECIFICATIONS
SPS	SOIL PLACEMENT SITES
TBD	TO BE DETERMINED
TYP	TYPICAL
VIF	VERIFY IN FIELD
3:1	SLOPE, HORIZONTAL:VERTICAL
PIP	PROTECT IN PLACE
APN	ASSESSOR'S PARCEL NUMBER
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY
CLOMR	CONDITIONAL LETTER OF MAP REVISION
LOMR	LETTER OF MAP REVISION

LEGAL DESCRIPTIONS

SOIL PLACEMENT SITE 7 – PORTIONS OF 122-130-32 AND 34 THAT ARE SOUTH OF NORTH RIVER ROAD

PARCEL "A" OF THAT CERTAIN LOT LINE ADJUSTMENT AND CERTIFICATE OF COMPLIANCE NO. PLA 11-00004 IN THE CITY OF OCEANSIDE, RECORDED ON NOVEMBER 23, 2011, AS DOCUMENT NO. 2011-0628785, IN THE OFFICE OF COUNTY RECORDER OF SAN DIEGO COUNTY, STATE OF CALI
FORNIA, EXCEPTING THEREFROM THE AREA NORTH OF THE PUBLIC RIGHT OF WAY AS CONTAINED WITHIN COUNTY ROAD SURVEY NO. 674, AS SAID ROAD IS DESCRIBED IN DEED TO THE COUNTY OF SAN DIEGO, RECORDED APRIL 27, 1938, IN BOOK 775, PAGE 126 OF OFFICIAL RECORDS.

EXISTING WELL #5 AND NEW IRRIGATION PIPELINES – 122-130-40

PARCEL "C" OF THAT CERTAIN LOT LINE ADJUSTMENT AND CERTIFICATE OF COMPLIANCE NO. PLA 11-00004 IN THE CITY OF OCEANSIDE, RECORDED ON NOVEMBER 23, 2011, AS DOCUMENT NO. 2011-0628785, IN THE OFFICE OF COUNTY RECORDER OF SAN DIEGO COUNTY, STATE OF CALIFORNIA.

SOIL PLACEMENT AREAS 1 AND 2 AND NEW IRRIGATION PIPELINES – 122-130-38 AND 157-150-62

PARCEL "D" OF THAT CERTAIN LOT LINE ADJUSTMENT AND CERTIFICATE OF COMPLIANCE NO. PLA 11-00004 IN THE CITY OF OCEANSIDE, RECORDED ON NOVEMBER 23, 2011, AS DOCUMENT NO. 2011-0628785, IN THE OFFICE OF COUNTY RECORDER OF SAN DIEGO COUNTY, STATE OF CALIFORNIA

SOIL PLACEMENT SITES 4 AND 5 – 122-130-31

ALL OF THE WEST HALF OF THE SOUTHEAST QUARTER AND ALL OF THE SOUTHERLY THREE-QUARTERS OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER, ALL BEING IN SECTION 36, TOWNSHIP 10 SOUTH, RANGE 4 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE CITY OF OCEANSIDE, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

EXCEPTING FROM THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 36 THAT PORTION THEREOF LYING SOUTHWESTERLY OF A LINE DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTH – SOUTH CENTER LINE OF SAID SECTION 36, DISTANT THEREON NORTH 0015'36" WEST 578.21 FEET FROM THE SOUTH QUARTER CORNER OF SAID SECTION 36, THENCE SOUTH 6041'02" EAST, 1173.46 FEET TO A POINT ON THE SOUTHERLY LINE OF SAID SECTION 36; DISTANT THEREON SOUTH 8947'42" WEST, 1603.37 FEET FROM THE SOUTHEAST CORNER OF SAID SECTION 36.

ALSO EXCEPTING FROM THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 36 THAT PORTION DESCRIBED AS FOLLOWS:

BEGINNING AT THE CENTER OF SAID SECTION 36; THENCE SOUTHERLY ALONG THE NORTH – SOUTH CENTER LINE OF SAID SECTION 36 A DISTANCE OF 1113.00 FEET; THENCE EASTERLY PARALLEL WITH THE EAST – WEST CENTER LINE OF SAID SECTION 36 A DISTANCE OF 226.00 FEET; THENCE NORTHERLY PARALLEL WITH SAID NORTH – SOUTH CENTER LINE A DISTANCE OF 1113.00 FEET TO THE EAST – WEST CENTER LINE OF SAID SECTION 36; THENCE WESTERLY ALONG SAID EAST – WEST CENTER LINE A DISTANCE OF 226.00 FEET TO THE POINT OF THE BEGINNING.

AND ALSO EXCEPTING FROM SAID NORTHWEST QUARTER OF THE SOUTHEAST QUARTER THAT PORTION DESCRIBED AS FOLLOWS:

COMMENCING AT THE CENTER OF SAID SECTION 36; THENCE EASTERLY ALONG THE EAST – WEST CENTER LINE OF SAID SECTION 36 A DISTANCE OF 226.0 FEET OF THE TRUE POINT OF BEGINNING; THENCE SOUTHERLY PARALLEL WITH NORTH – SOUTH CENTER LINE OF SAID SECTION 36 A DISTANCE OF 1080.00 FEET; THENCE EASTERLY PARALLEL WITH THE EAST – WEST CENTER LINE OF SAID SECTION 36 A DISTANCE OF 150.00 FEET; THENCE NORTHERLY PARALLEL WITH SAID NORTH – SOUTH CENTER LINE 1080.00 FEET TO SAID EAST – WEST CENTER LINE OF SECTION 36; THENCE WESTERLY ALONG SAID EAST – WEST CENTER LINE A DISTANCE OF 150.00 FEET TO THE TRUE POINT OF THE BEGINNING.

60% SUBMITTAL
NOT FOR CONSTRUCTION

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

PREPARED BY: ESA PWA

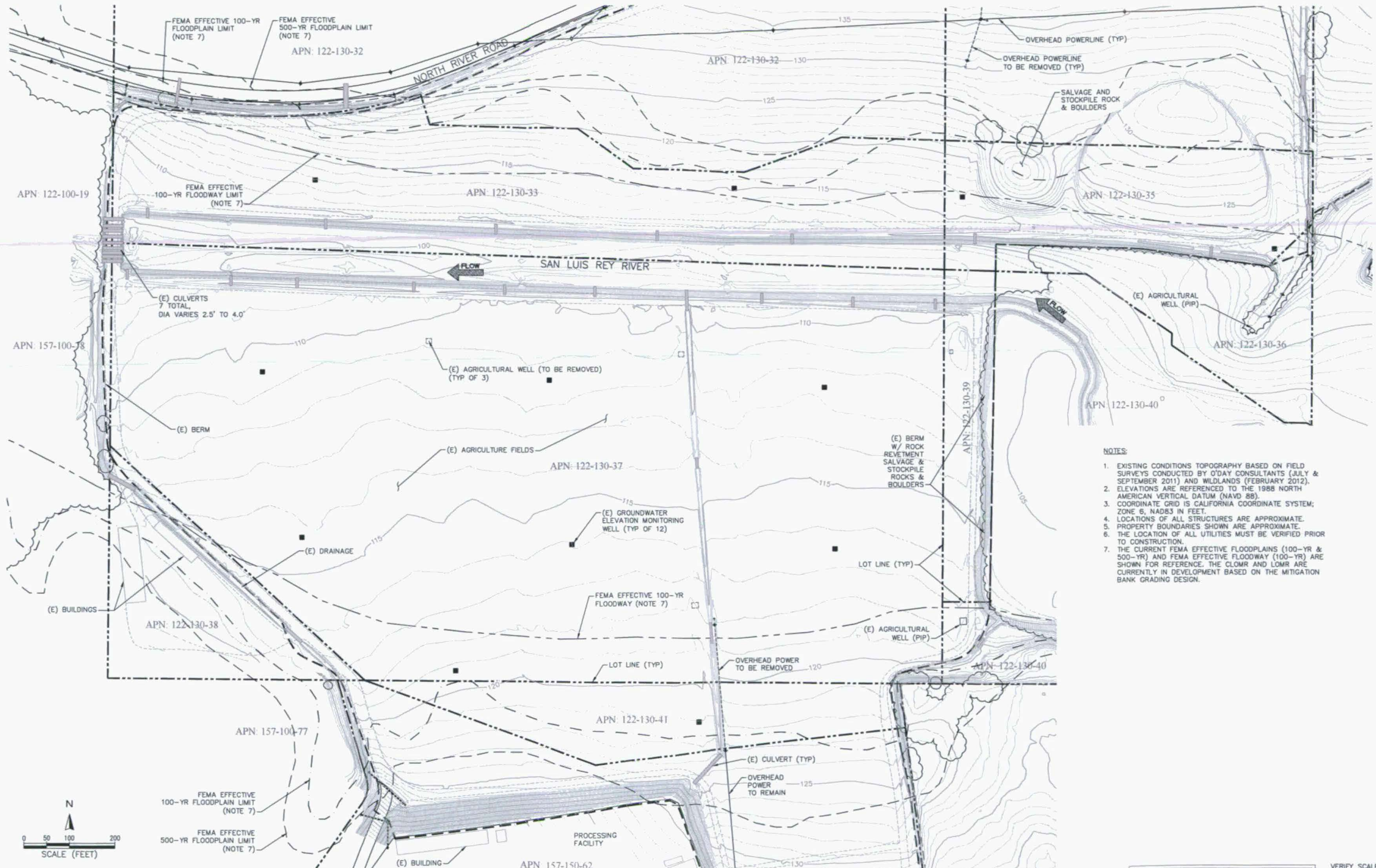
SHEET TITLE: GENERAL NOTES, LEGEND AND ABBREVIATIONS

PROJECT: SAN LUIS REY MITIGATION BANK

PREPARED FOR: WILDLANDS
3855 Atherton Road
Rocklin, CA 95765

REGISTERED PROFESSIONAL ENGINEER PHILIP L. LUECKING 66113 EXP. 6/30/14 CIVIL STATE OF CALIFORNIA

APPROVED	
DESIGNED	P. LUECKING
DRAWN	
INCHARGE	P. LUECKING C66113
SCALE	
DATE	NOVEMBER 30, 2012
SHEET	G2



NOTES:

1. EXISTING CONDITIONS TOPOGRAPHY BASED ON FIELD SURVEYS CONDUCTED BY O'DAY CONSULTANTS (JULY & SEPTEMBER 2011) AND WILDLANDS (FEBRUARY 2012).
2. ELEVATIONS ARE REFERENCED TO THE 1988 NORTH AMERICAN VERTICAL DATUM (NAVD 88).
3. COORDINATE GRID IS CALIFORNIA COORDINATE SYSTEM; ZONE 6, NAD83 IN FEET.
4. LOCATIONS OF ALL STRUCTURES ARE APPROXIMATE.
5. PROPERTY BOUNDARIES SHOWN ARE APPROXIMATE.
6. THE LOCATION OF ALL UTILITIES MUST BE VERIFIED PRIOR TO CONSTRUCTION.
7. THE CURRENT FEMA EFFECTIVE FLOODPLAINS (100-YR & 500-YR) AND FEMA EFFECTIVE FLOODWAY (100-YR) ARE SHOWN FOR REFERENCE. THE CLOMR AND LOMR ARE CURRENTLY IN DEVELOPMENT BASED ON THE MITIGATION BANK GRADING DESIGN.

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VERIFY SCALE
0 1"
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PREPARED BY: ESA PWA

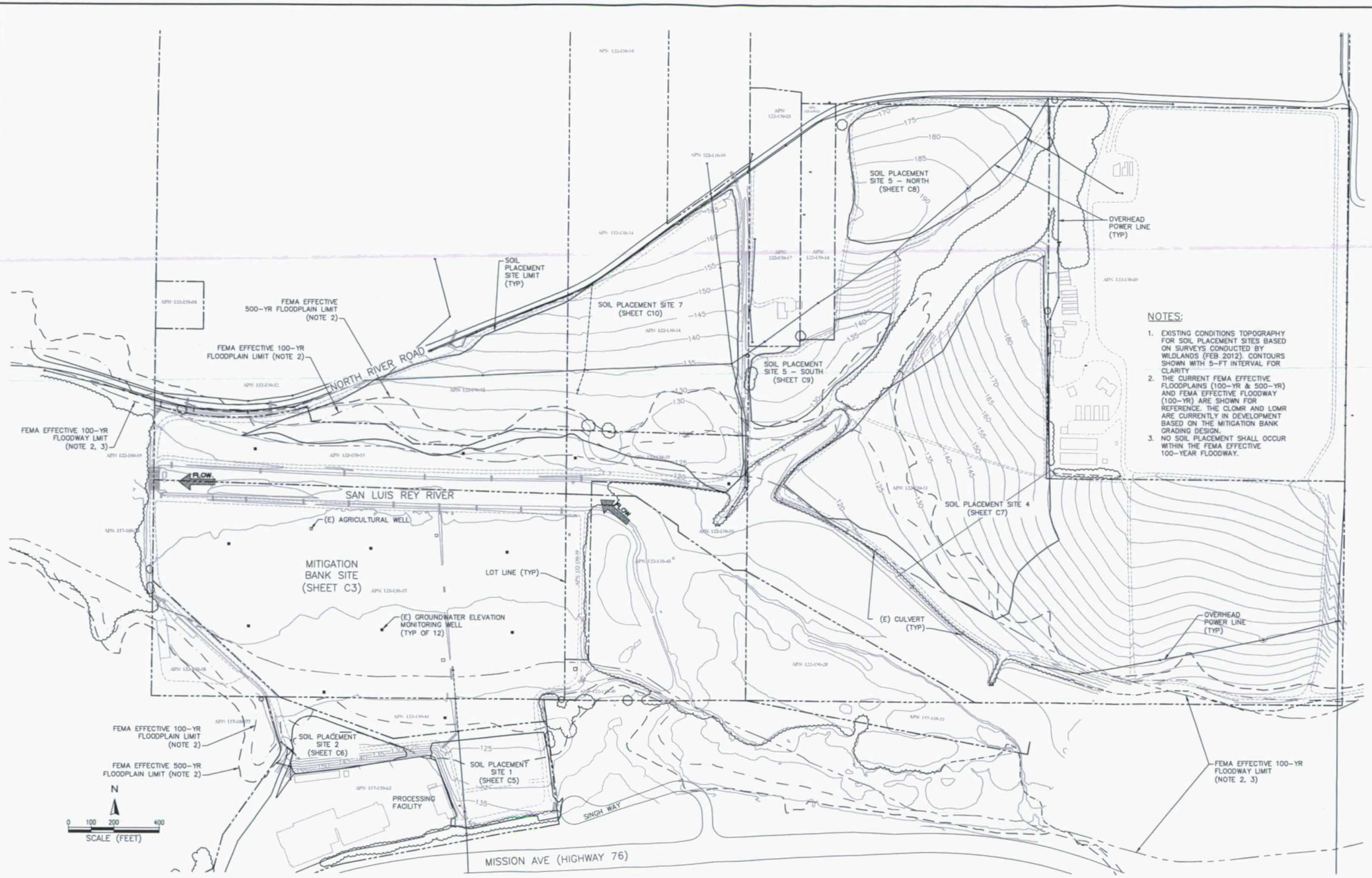
SHEET TITLE: EXISTING SITE PLAN MITIGATION BANK

PROJECT: SAN LUIS REY MITIGATION BANK

PREPARED FOR: WILDLANDS
3855 Atherton Road
Rocklin, CA 95765

APPROVED

DESIGNED: P. LUECKING
DRAWN
INCHARGE: P. LUECKING C66113
SCALE
DATE: NOVEMBER 30, 2012
SHEET: C1
3 OF 22



NOTES:

1. EXISTING CONDITIONS TOPOGRAPHY FOR SOIL PLACEMENT SITES BASED ON SURVEYS CONDUCTED BY WILDLANDS (FEB 2012). CONTOURS SHOWN WITH 5–FT INTERVAL FOR CLARITY
2. THE CURRENT FEMA EFFECTIVE FLOODPLAINS (100–YR & 500–YR) AND FEMA EFFECTIVE FLOODWAY (100–YR) ARE SHOWN FOR REFERENCE. THE CLOMR AND LOMR ARE CURRENTLY IN DEVELOPMENT BASED ON THE MITIGATION BANK GRADING DESIGN.
3. NO SOIL PLACEMENT SHALL OCCUR WITHIN THE FEMA EFFECTIVE 100–YEAR FLOODWAY.

60% SUBMITTAL
NOT FOR CONSTRUCTION

VERIFY SCALE
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

PREPARED BY:
ESA PWA
1001 Bryant Street, Suite 300
San Francisco, CA 94103
415.896.5900 phone 415.896.0332 fax
www.esapwa.com

SHEET TITLE: EXISTING SITE PLAN SOIL PLACEMENT SITES

PROJECT: SAN LUIS REY MITIGATION BANK

PREPARED FOR:
WILDLANDS
3855 Atherton Road
Rocklin, CA 95765

REGISTERED PROFESSIONAL ENGINEER
PHILIP L. LUECKING
66113
EXP. 6/30/14
CIVIL
STATE OF CALIFORNIA

APPROVED	
DESIGNED	P. LUECKING
DRAWN	
INCHARGE	P. LUECKING C66113
SCALE	
DATE	NOVEMBER 30, 2012
SHEET	C2

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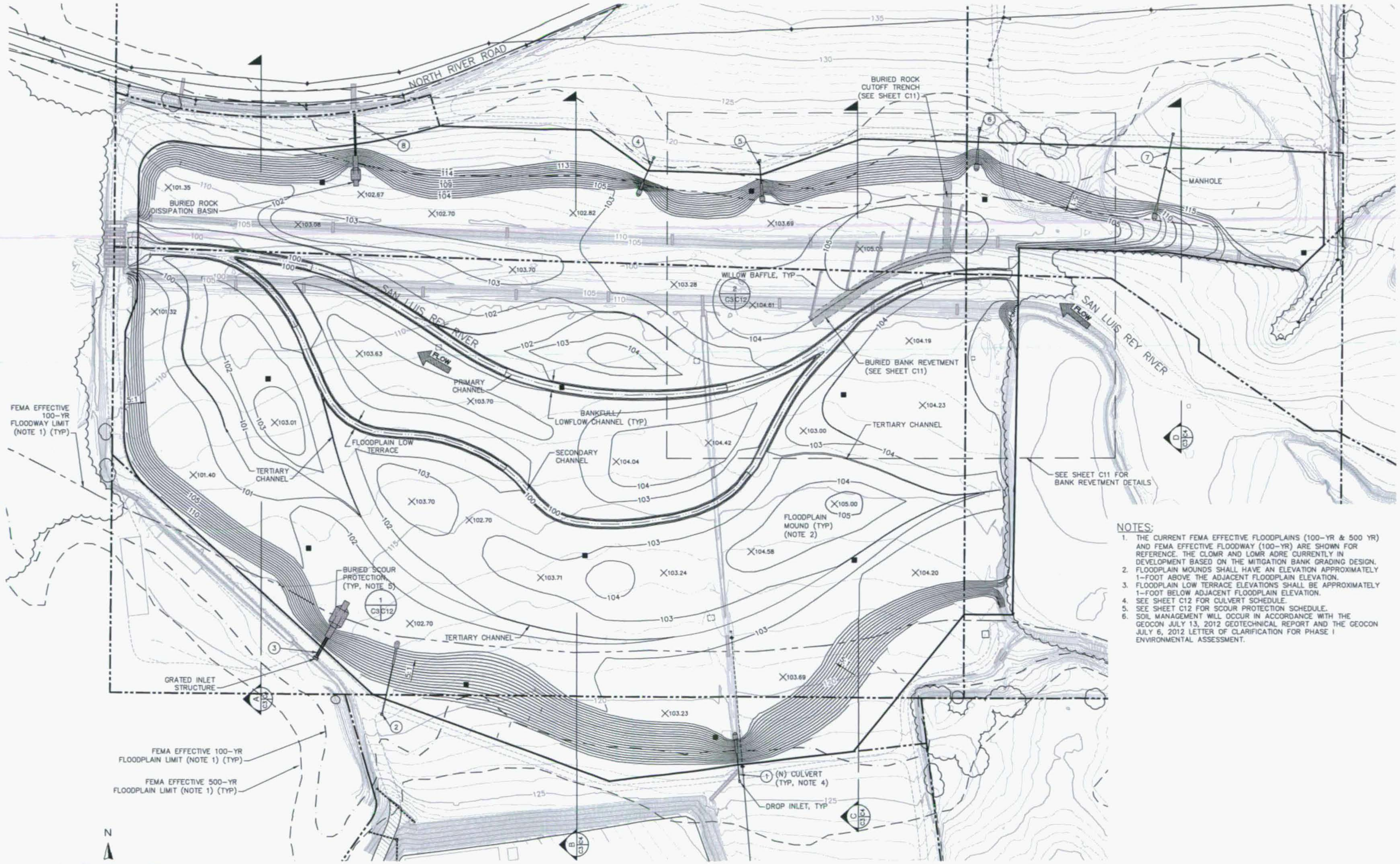


NOTES:

1. THE CURRENT FEMA EFFECTIVE FLOODPLAINS (100-YR & 500 YR) AND FEMA EFFECTIVE FLOODWAY (100-YR) ARE SHOWN FOR REFERENCE. THE CLOMR AND LOMR ADRE CURRENTLY IN DEVELOPMENT BASED ON THE MITIGATION BANK GRADING DESIGN.
2. FLOODPLAIN MOUNDS SHALL HAVE AN ELEVATION APPROXIMATELY 1-FOOT ABOVE THE ADJACENT FLOODPLAIN ELEVATION.
3. FLOODPLAIN LOW TERRACE ELEVATIONS SHALL BE APPROXIMATELY 1-FOOT BELOW ADJACENT FLOODPLAIN ELEVATION.
4. SEE SHEET C12 FOR CULVERT SCHEDULE.
5. SEE SHEET C12 FOR SCOUR PROTECTION SCHEDULE.
6. SOIL MANAGEMENT WILL OCCUR IN ACCORDANCE WITH THE GEOCON JULY 13, 2012 GEOTECHNICAL REPORT AND THE GEOCON JULY 6, 2012 LETTER OF CLARIFICATION FOR PHASE I ENVIRONMENTAL ASSESSMENT.

60% SUBMITTAL
NOT FOR CONSTRUCTION

VERIFY SCALE

PREPARED BY: ESA PWA

SHEET TITLE: GRADING PLAN MITIGATION BANK

PROJECT: SAN LUIS REY MITIGATION BANK

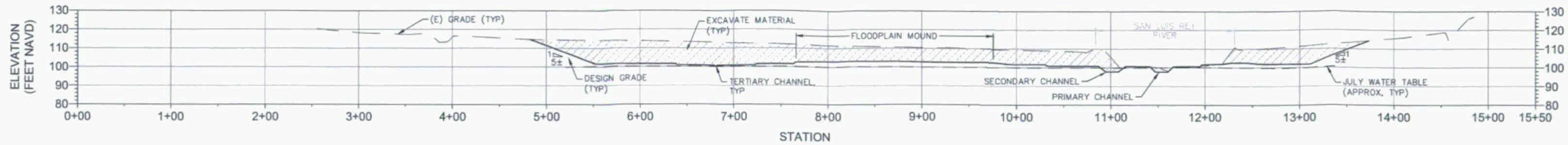
PREPARED FOR: WILDLANDS
3855 Atherton Road
Rocklin, CA 95765

REGISTERED PROFESSIONAL ENGINEER PHILIP L. LUECKING 68113 EXP. 6/30/14 CIVIL STATE OF CALIFORNIA

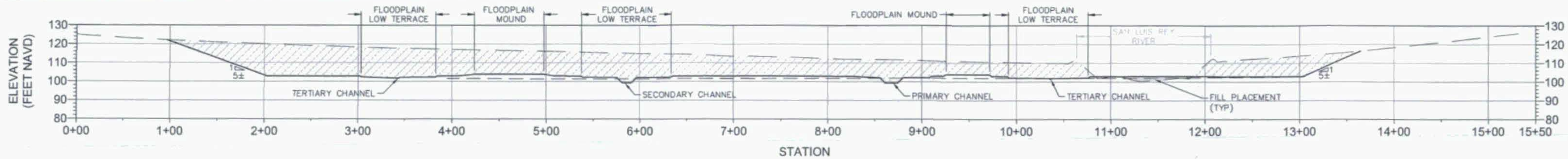
APPROVED

DESIGNED P. LUECKING
DRAWN
INCHARGE P. LUECKING C68113
SCALE
DATE NOVEMBER 30, 2012
SHEET C3

5 OF 22



A C3 C4 PRELIMINARY GRADING TYPICAL SECTION
SCALE: HORIZ: 1" = 60' VERT: 1" = 30'



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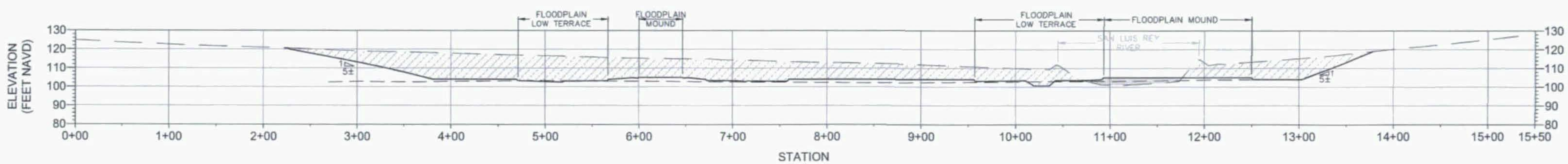

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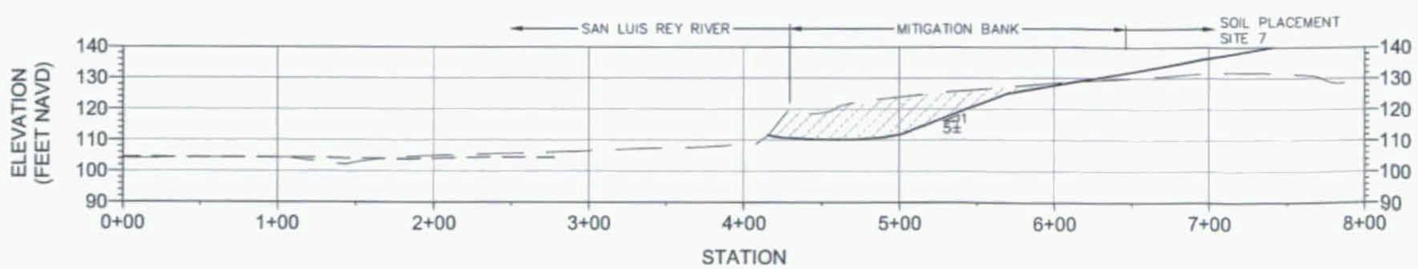
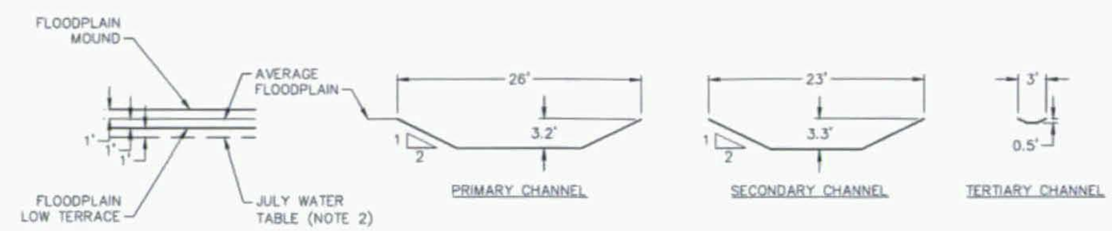
SCALE: HORIZ: 1" = 60' VERT: 1" = 30'



D C3 C4 PRELIMINARY GRADING TYPICAL SECTION
SCALE: HORIZ: 1" = 60' VERT: 1" = 30'



CHANNEL & FLOODPLAIN TYPICAL DIMENSIONS
SCALE: 1" = 10'

NOTES:

1. CROSS SECTIONS ARE SHOWN AT TWO (2) TIMES VERTICAL EXAGGERATION.
2. THE GROUNDWATER TABLE SHOWN REPRESENTS TYPICAL JULY CONDITIONS BASED ON TOPOGRAPHIC AND GROUNDWATER DATA COLLECTED AT THE PROJECT SITE. THE WATER TABLE SHOULD BE INTERPOLATED BEYOND THE EXTENTS SHOWN HERE.
3. TYPICAL CHANNEL WIDTHS ARE SHOWN IN THE CROSS SECTIONS THOUGH THE CHANNEL ALIGNMENT MAY SKEW THE TYPICAL CHANNEL DIMENSION (WIDTH).
4. FLOODPLAIN LOW TERRACES TYPICALLY VARY BETWEEN 0.6' AND 1.0' BELOW THE AVERAGE FLOODPLAIN ELEVATION.
5. FLOODPLAIN MOUNDS TYPICALLY VARY BETWEEN 0.8' AND 1.0' ABOVE THE AVERAGE FLOODPLAIN ELEVATION.

60% SUBMITTAL
NOT FOR CONSTRUCTION

VERIFY SCALE

PREPARED BY: ESA PWA

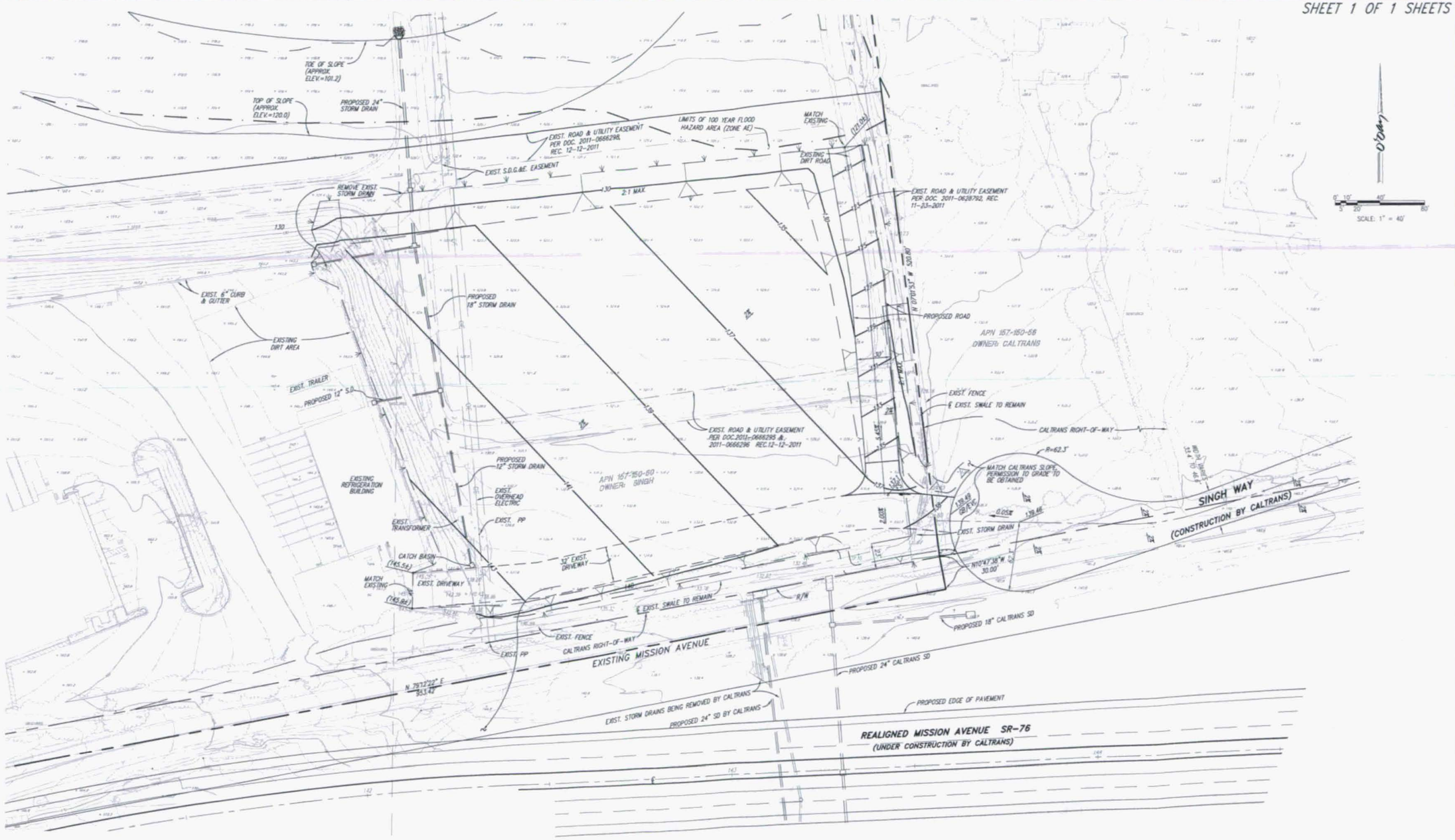
SHEET TITLE: GRADING SECTIONS MITIGATION BANK

PROJECT: SAN LUIS REY MITIGATION BANK

PREPARED FOR: WILDLANDS
3855 Atherton Road
Rockiin, CA 95765

REGISTERED PROFESSIONAL ENGINEER PHILIP L. LUECKING 66113 EXP. 6/30/14 CIVIL STATE OF CALIFORNIA

APPROVED	
DESIGNED	P. LUECKING
DRAWN	
INCHARGE	P. LUECKING C66113
SCALE	
DATE	NOVEMBER 30, 2012
SHEET	C4



SITE 1 GRADING

SCALE 1"=40'

SURVEY BENCHMARK NOTE

THIS PLAN IS BASED ON THE VERTICAL DATUM OF NGVD 29.

NOTES

1. STATIONING SHOWN ON MISSION AVE. & SINGH WAY USES METRIC CONVERSION OF 1 METER = 3.28'.

NOTE!!
THIS PLAN IS NOT FOR CONSTRUCTION.

REVISED: SEP. 19, 2012
PREPARED: SEP. 12, 2012

O'Day CONSULTANTS
2710 Loker Ave. Suite 100
Carlsbad, California, 92010
760-931-7700
Fax. 760-931-8680
Oday@Odayconsultants.com
Civil Engineering
Planning
Processing
Surveying

DESIGNED BY: T.C.	DATE: SEP 2012		
DRAWN BY: J.S.	SCALE: 1" = 40'		
PROJECT MGR.: T.C.	JOB NO.: 101307		

ENGINEER OF WORK

TIM CARROLL RCE: 32014 DATE:

\\ACAD-VAULT\Jobs\031060\Exhibits\Site1\Site1.dwg Sep 20, 2012 5:24pm
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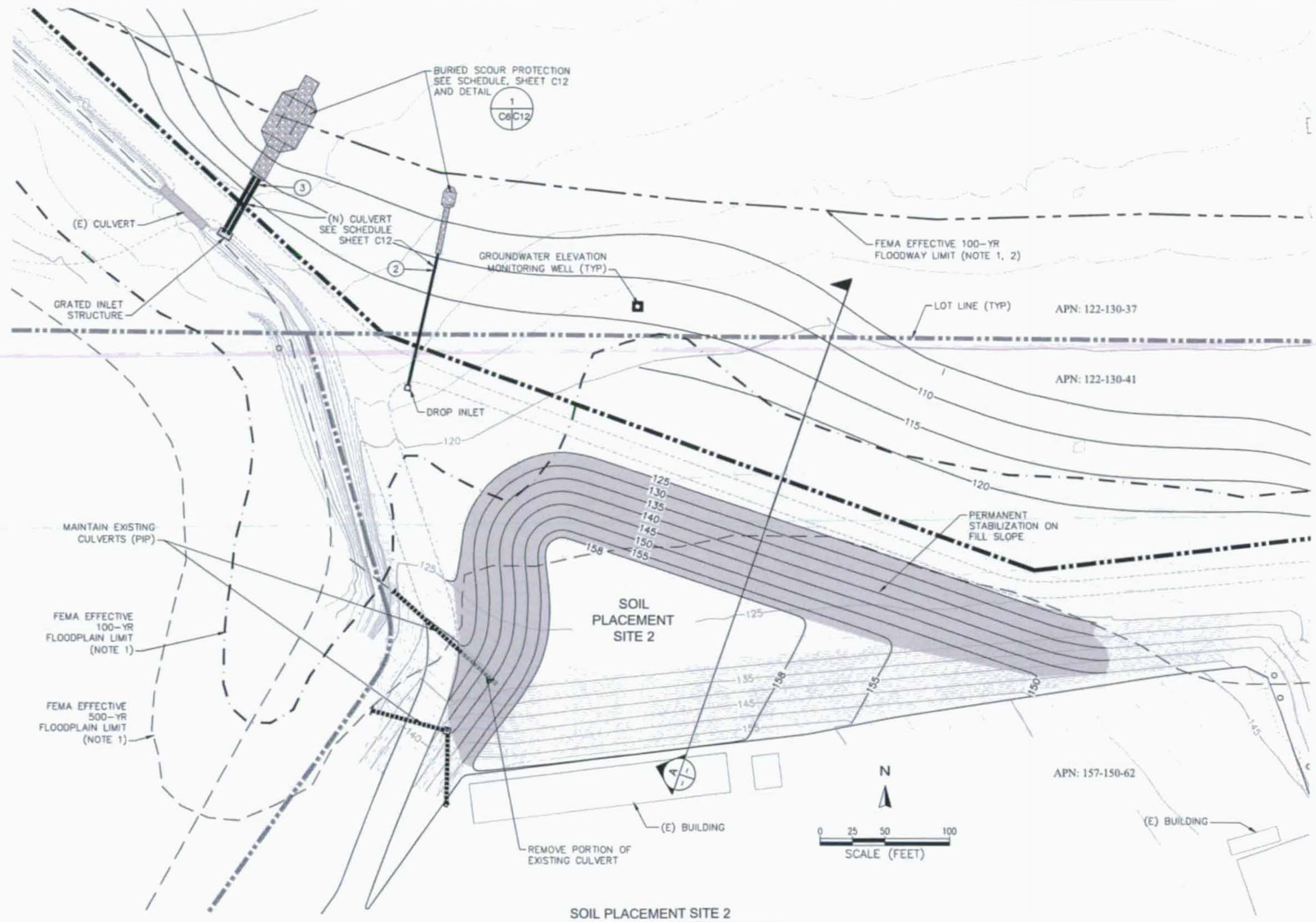
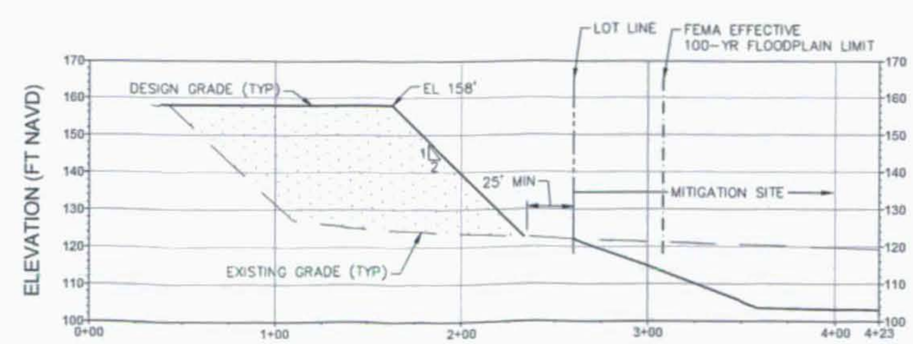


SOIL PLACEMENT SITE 2
PLAN 1" = 50'



A
SOIL PLACEMENT SITE 2
GRADING SECTION
SCALE: HORIZ: 1" = 50' VERT: 1" = 25'

NOTES:

1. THE CURRENT FEMA EFFECTIVE FLOODPLAINS (100-YR & 500-YR) AND FEMA EFFECTIVE FLOODWAY (100-YR) ARE SHOWN FOR REFERENCE. THE CLOMR AND LOMR ARE CURRENTLY IN DEVELOPMENT BASED ON THE MITIGATION BANK GRADING DESIGN.
2. NO SOIL PLACEMENT SHALL OCCUR WITHIN THE FEMA EFFECTIVE 100-YEAR FLOODWAY.
3. SOIL MANAGEMENT WILL OCCUR IN ACCORDANCE WITH THE GEOCON JULY 13, 2012 GEOTECHNICAL REPORT AND THE GEOCON JULY 6, 2012 LETTER OF CLARIFICATION FOR PHASE I ENVIRONMENTAL ASSESSMENT.

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VERIFY SCALE

PREPARED BY: ESA PWA

SHEET TITLE: GRADING PLAN AND SECTIONS SOIL PLACEMENT SITE 2

PROJECT: SAN LUIS REY MITIGATION BANK

PREPARED FOR: WILDLANDS
3855 Atherton Road
Rocklin, CA 95765

REGISTERED PROFESSIONAL ENGINEER PHILIP L. LUECKING 66113 EXP. 6/30/14 CIVIL STATE OF CALIFORNIA

APPROVED

DESIGNED P. LUECKING

DRAWN

INCHARGE P. LUECKING C66113

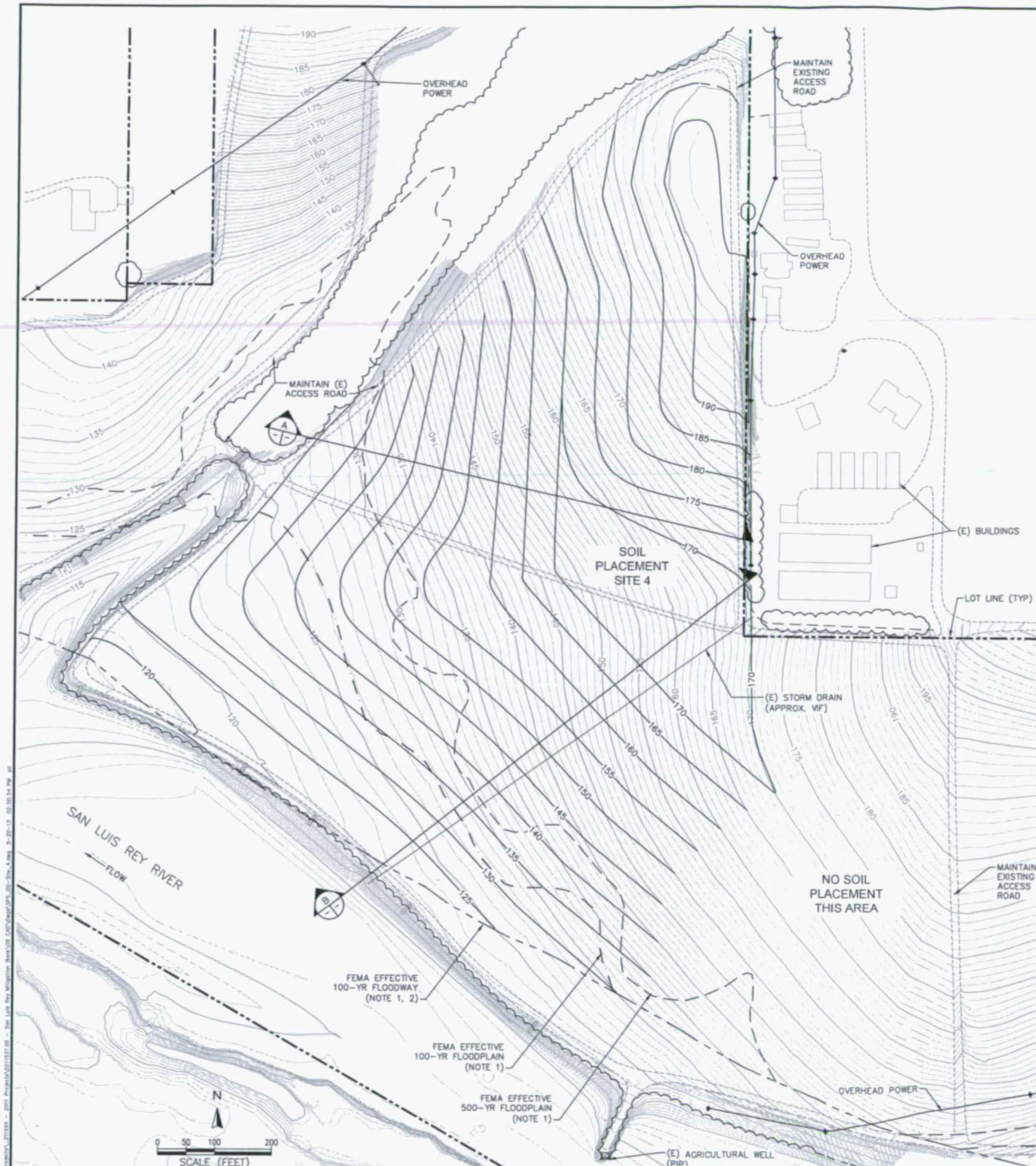
SCALE

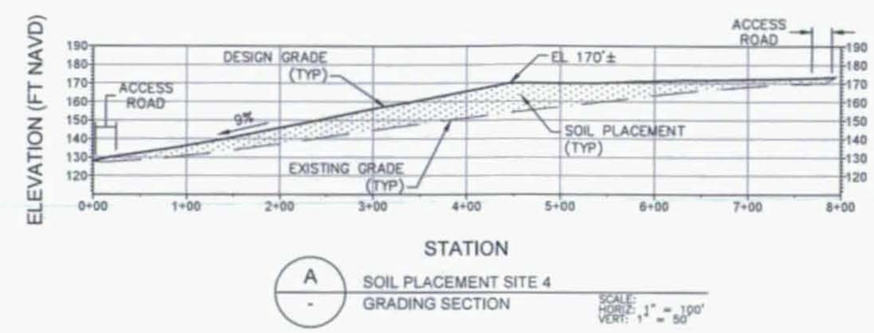
DATE NOVEMBER 30, 2012

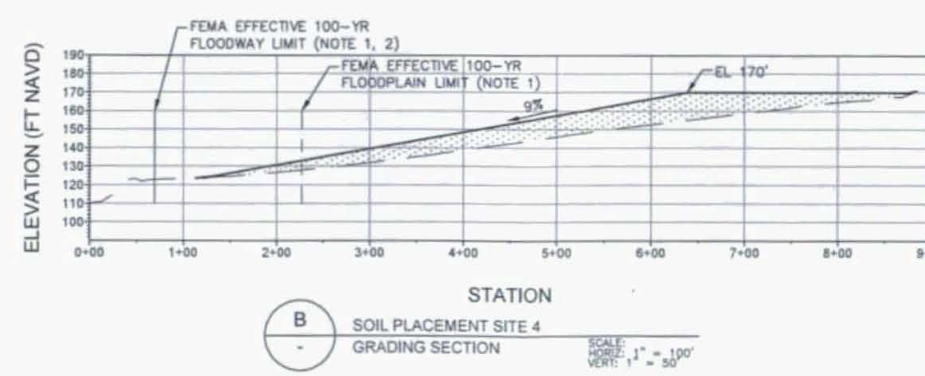
SHEET C6

8 OF 22

August 13, 2014
Item No. 10
Supporting Document No. 6







NOTES:

1. THE CURRENT FEMA EFFECTIVE FLOODPLAINS (100-YR & 500-YR) AND FEMA EFFECTIVE FLOODWAY (100-YR) ARE SHOWN FOR REFERENCE. THE CLOMR AND LOMR ARE CURRENTLY IN DEVELOPMENT BASED ON THE MITIGATION BANK GRADING DESIGN.
2. NO SOIL PLACEMENT SHALL OCCUR WITHIN THE FEMA EFFECTIVE 100-YEAR FLOODWAY.
3. SOIL MANAGEMENT WILL OCCUR IN ACCORDANCE WITH THE GEOCON JULY 13, 2012 GEOTECHNICAL REPORT AND THE GEOCON JULY 6, 2012 LETTER OF CLARIFICATION FOR PHASE I ENVIRONMENTAL ASSESSMENT.

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PREPARED BY: ESA PWA

SHEET TITLE: GRADING PLAN AND SECTIONS SOIL PLACEMENT SITE 4

PROJECT: SAN LUIS REY MITIGATION BANK

PREPARED FOR: WILDLANDS 3855 Atherton Road Rocklin, CA 95765

REGISTERED PROFESSIONAL ENGINEER PHILIP L. LUECKING 66113 EXP. 6/30/14 CIVIL STATE OF CALIFORNIA

APPROVED

DESIGNED P. LUECKING

DRAWN

INCHARGE P. LUECKING C66113

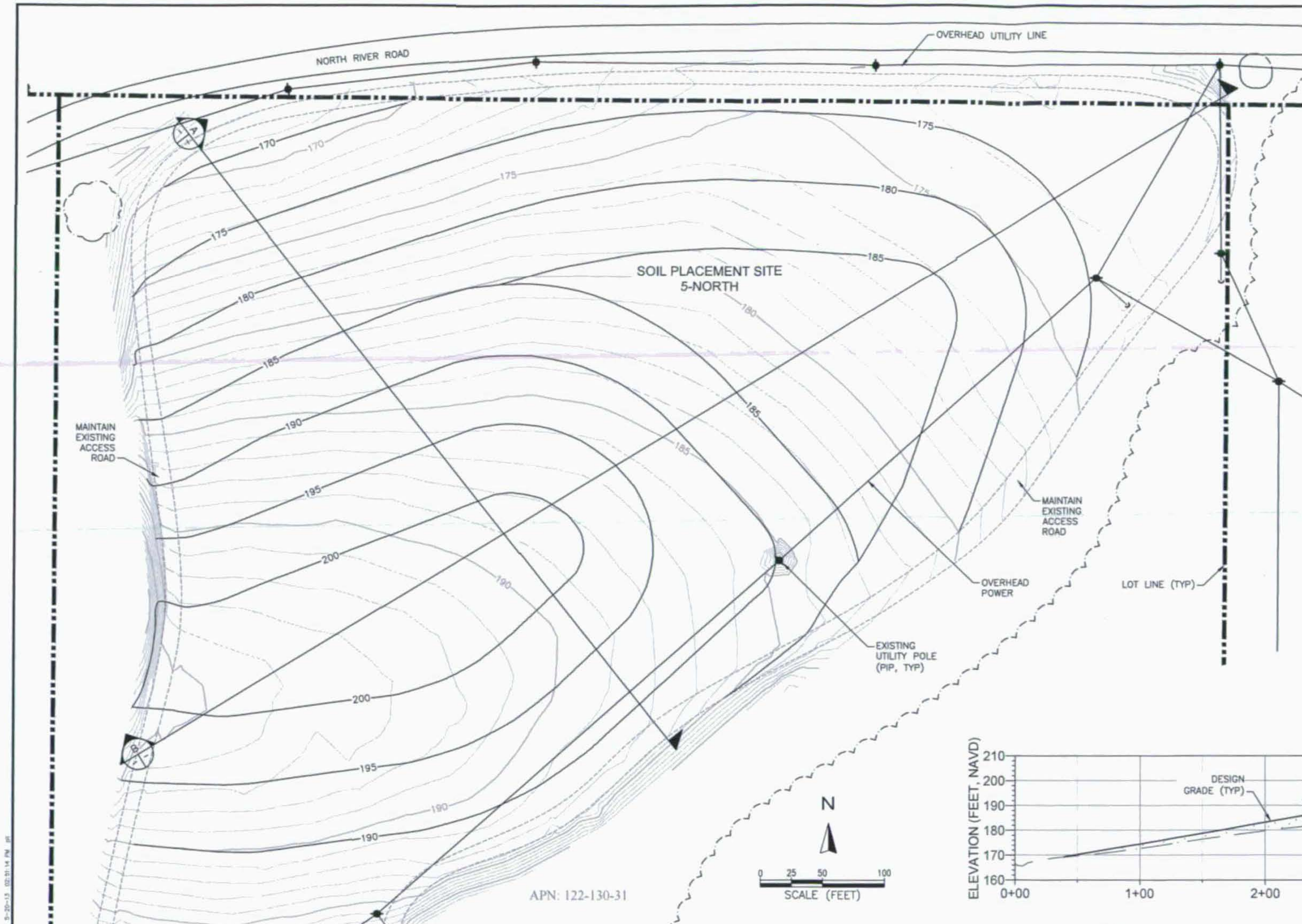
SCALE

DATE NOVEMBER 30, 2012

SHEET C7

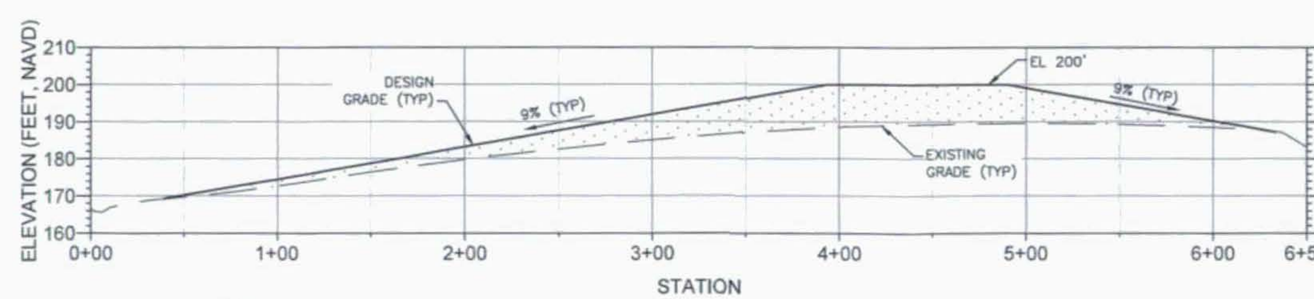
9 OF 22

August 13, 2014
Item No. 10
Supporting Document No. 6

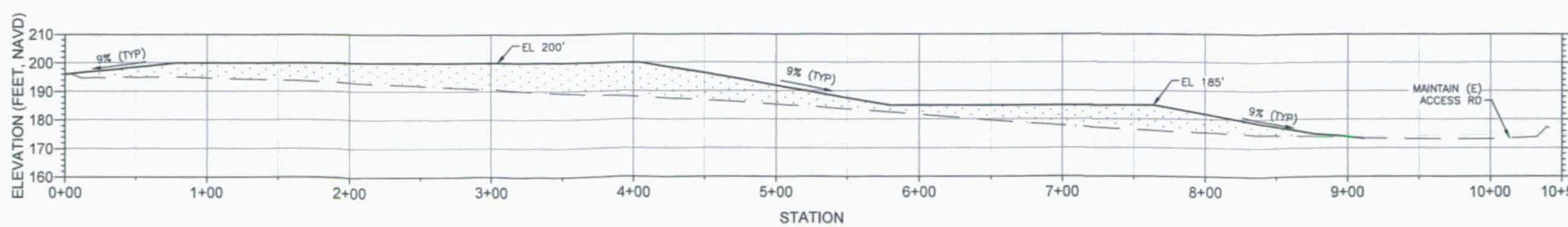


SOIL PLACEMENT SITE 5 - NORTH
PLAN 1" = 50'

NOTES:
1. SOIL MANAGEMENT WILL OCCUR IN ACCORDANCE WITH THE GEOCON JULY 13, 2012 GEOTECHNICAL REPORT AND THE GEOCON JULY 6, 2012 LETTER OF CLARIFICATION FOR PHASE I ENVIRONMENTAL ASSESSMENT.



A - SOIL PLACEMENT SITE 5 - NORTH
GRADING SECTION SCALE: HORIZ: 1" = 50' VERT: 1" = 25'



B - SOIL PLACEMENT SITE 5 - NORTH
GRADING SECTION SCALE: HORIZ: 1" = 50' VERT: 1" = 25'

60% SUBMITTAL
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PREPARED BY: ESA PWA

SHEET TITLE: GRADING PLAN AND SECTIONS SOIL PLACEMENT SITE 5 - NORTH

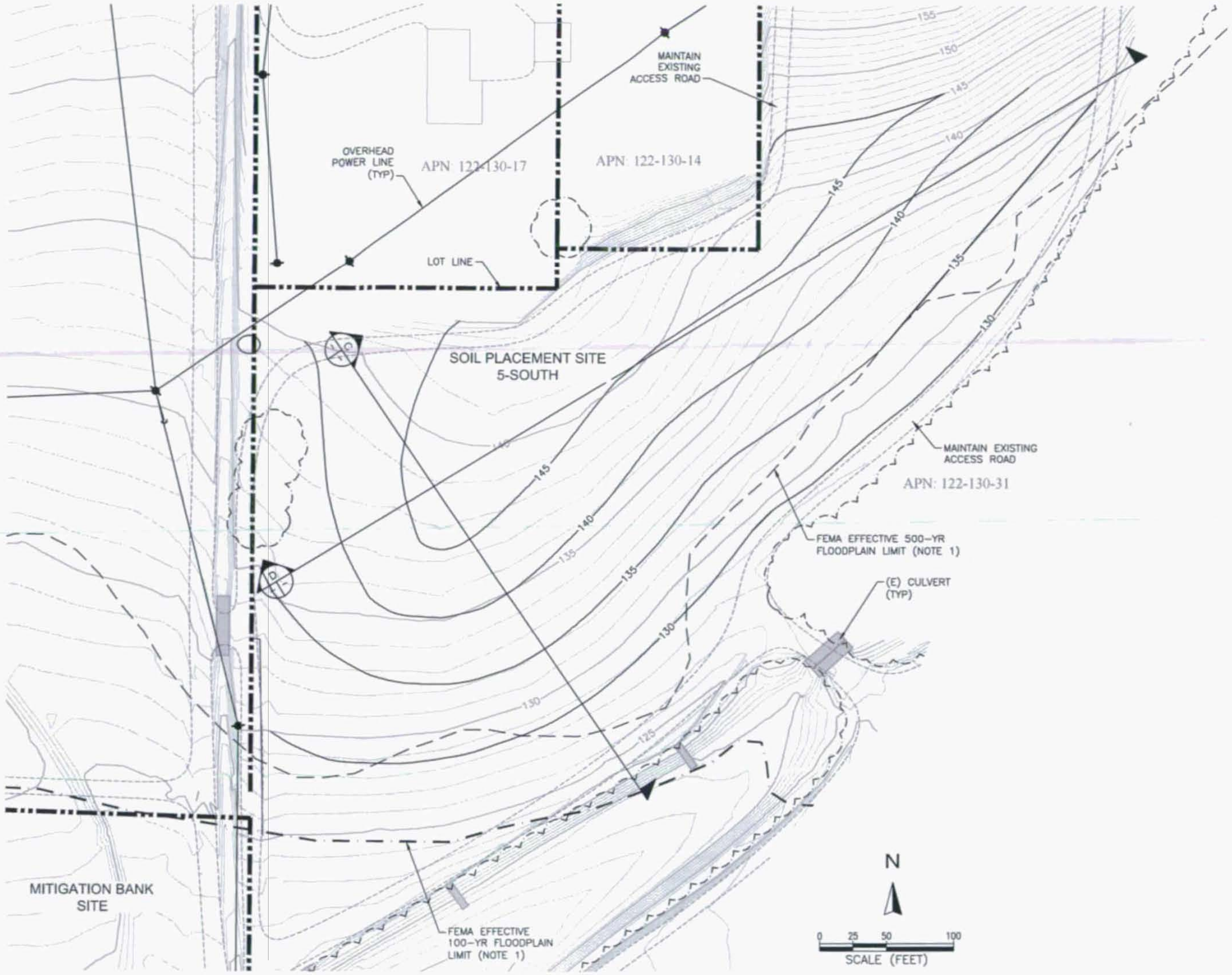
PROJECT: SAN LUIS REY MITIGATION BANK

PREPARED FOR: WILDLANDS
3855 Atherton Road
Rocklin, CA 95765

REGISTERED PROFESSIONAL ENGINEER PHILIP L. LUECKING 66113 EXP. 6/30/14 CIVIL STATE OF CALIFORNIA

APPROVED
DESIGNED P. LUECKING
DRAWN
INCHARGE P. LUECKING C66113
SCALE
DATE NOVEMBER 30, 2012
SHEET C8
10 OF 22

August 13, 2014
Item No. 10
Supporting Document No. 6



NOTES:
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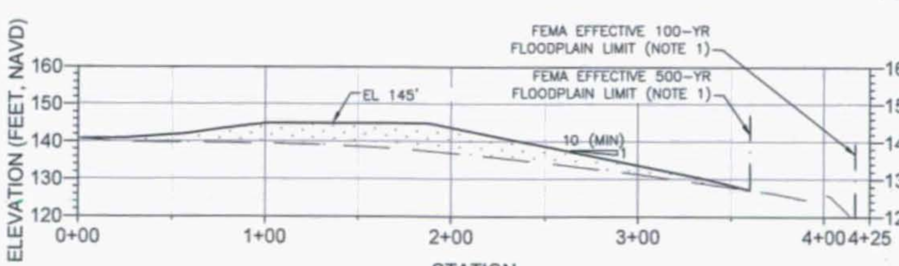
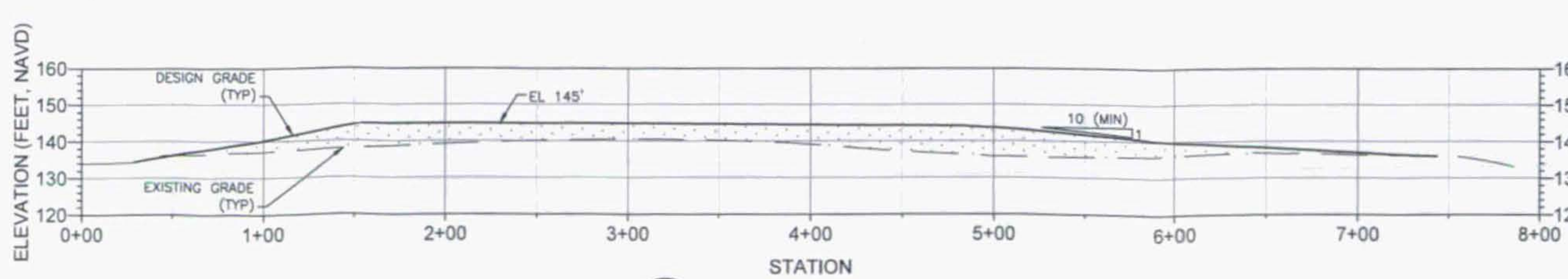
3. SOIL MANAGEMENT WILL OCCUR IN ACCORDANCE WITH THE GEOCON JULY 13, 2012 GEOTECHNICAL REPORT AND THE GEOCON JULY 6, 2012 LETTER OF CLARIFICATION FOR PHASE I ENVIRONMENTAL ASSESSMENT.

SOIL PLACEMENT SITE 5 - SOUTH
PLAN 1" = 50'



C - SOIL PLACEMENT SITE 5 SOUTH
GRADING SECTION
SCALE: HORIZ: 1" = 50' VERT: 1" = 25'



D - SOIL PLACEMENT SITE 5 SOUTH
GRADING SECTION
SCALE: HORIZ: 1" = 50' VERT: 1" = 25'

60% SUBMITTAL
NOT FOR CONSTRUCTION

VERIFY SCALE

PREPARED BY: ESA PWA

SHEET TITLE: GRADING PLAN & SECTIONS
SOIL PLACEMENT SITE 5 - SOUTH

PROJECT: SAN LUIS REY
MITIGATION BANK

PREPARED FOR: WILDLANDS
3855 Atherton Road
Rocklin, CA 95765

REGISTERED PROFESSIONAL ENGINEER PHILIP L. LUECKING 66113 EXP. 6/30/14 CIVIL STATE OF CALIFORNIA

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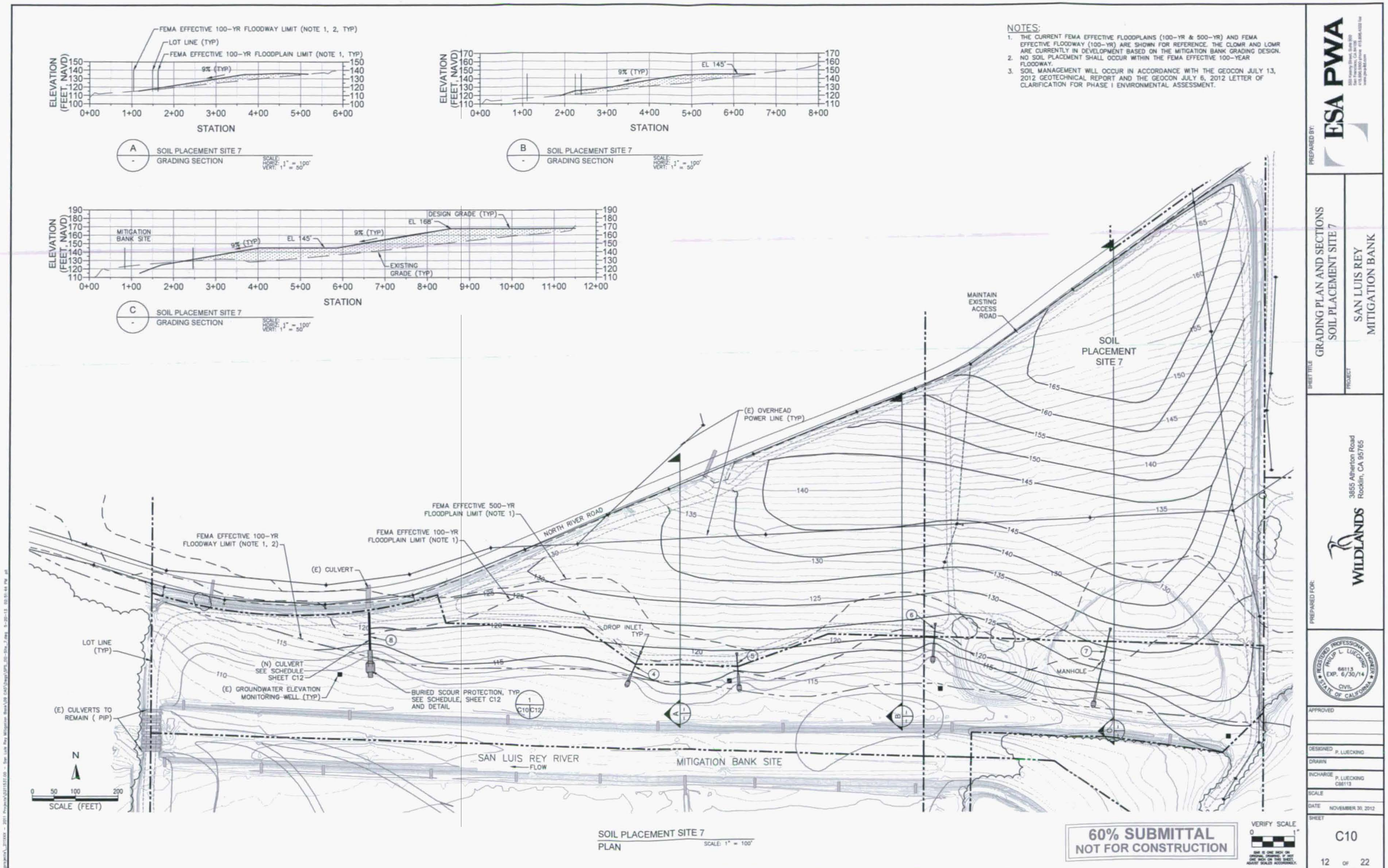
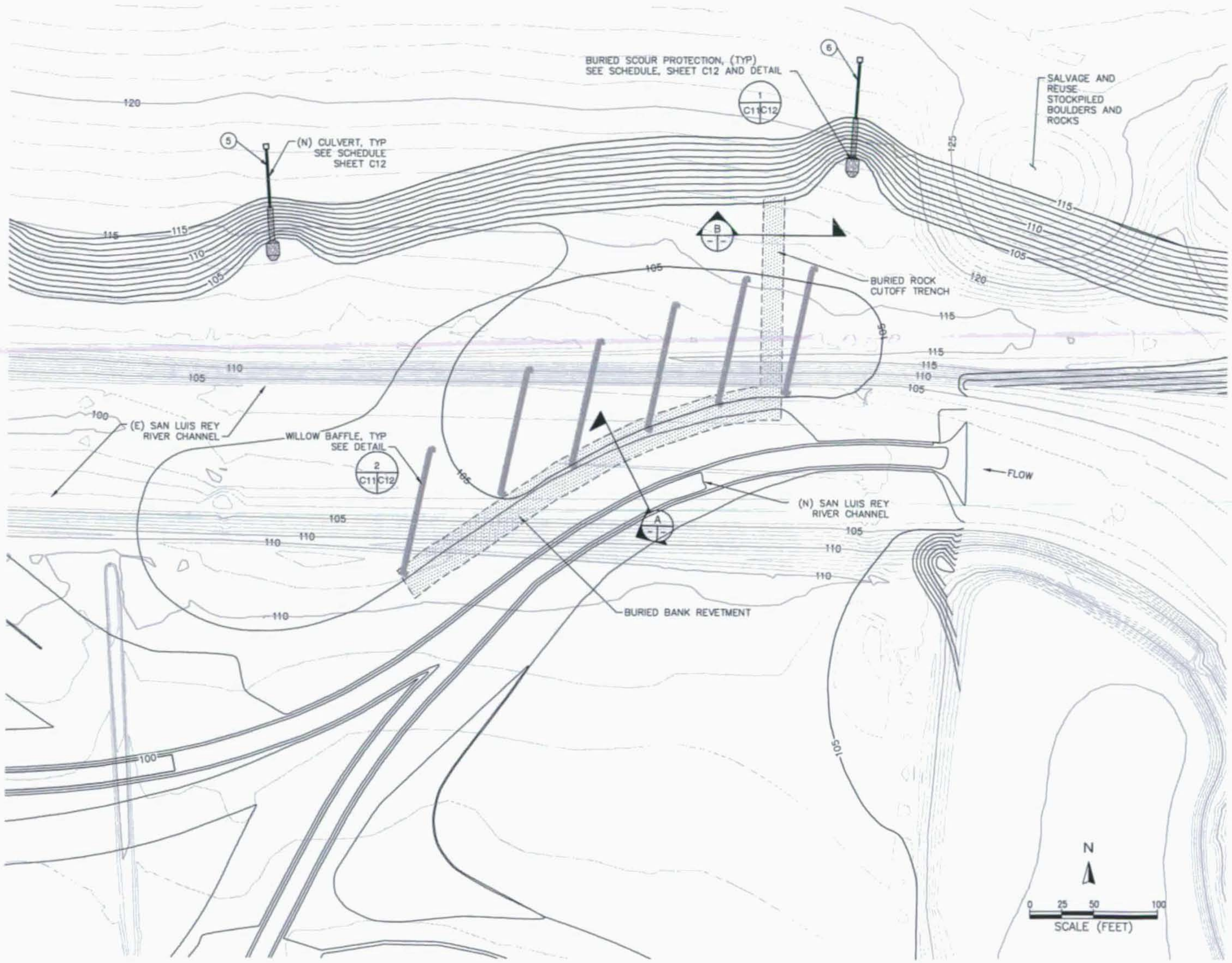
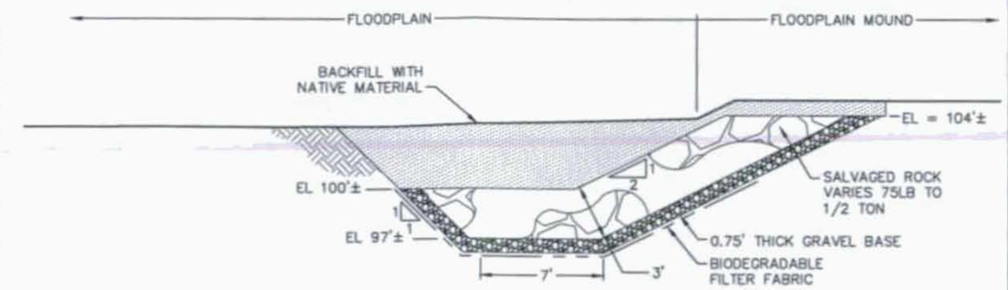
DESIGNED P. LUECKING
DRAWN
INCHARGE P. LUECKING C66113
SCALE
DATE NOVEMBER 30, 2012
SHEET C9
11 OF 22

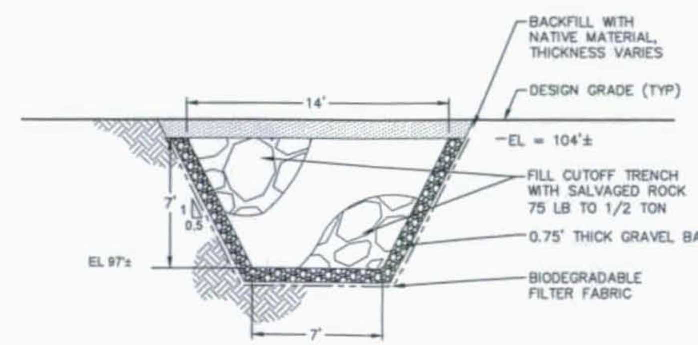

NOTES:
1. THE CURRENT FEMA EFFECTIVE FLOODPLAINS (100-YR & 500-YR) AND FEMA EFFECTIVE FLOODWAY (100-YR) ARE SHOWN FOR REFERENCE. THE CLOMR AND LOMR ARE CURRENTLY IN DEVELOPMENT BASED ON THE MITIGATION BANK GRADING DESIGN.
2. NO SOIL PLACEMENT SHALL OCCUR WITHIN THE FEMA EFFECTIVE 100-YEAR FLOODWAY.
3. SOIL MANAGEMENT WILL OCCUR IN ACCORDANCE WITH THE GEOCON JULY 13, 2012 GEOTECHNICAL REPORT AND THE GEOCON JULY 6, 2012 LETTER OF CLARIFICATION FOR PHASE I ENVIRONMENTAL ASSESSMENT.
FEMA EFFECTIVE 100-YR FLOODWAY LIMIT (NOTE 1, 2, TYP)
LOT LINE (TYP)
FEMA EFFECTIVE 100-YR FLOODPLAIN LIMIT (NOTE 1, TYP)
9% (TYP)
ELEVATION (FEET, NAVD)
STATION
A SOIL PLACEMENT SITE 7 GRADING SECTION
EL 145'
B SOIL PLACEMENT SITE 7 GRADING SECTION
MITIGATION BANK SITE
DESIGN GRADE (TYP)
EL 168'
EXISTING GRADE (TYP)
C SOIL PLACEMENT SITE 7 GRADING SECTION
MAINTAIN EXISTING ACCESS ROAD
SOIL PLACEMENT SITE 7
(E) OVERHEAD POWER LINE (TYP)
FEMA EFFECTIVE 500-YR FLOODPLAIN LIMIT (NOTE 1)
FEMA EFFECTIVE 100-YR FLOODPLAIN LIMIT (NOTE 1)
FEMA EFFECTIVE 100-YR FLOODWAY LIMIT (NOTE 1, 2)
NORTH RIVER ROAD
(E) CULVERT
DROP INLET, TYP
MANHOLE
LOT LINE (TYP)
(N) CULVERT SEE SCHEDULE SHEET C12
(E) GROUNDWATER ELEVATION MONITORING WELL (TYP)
BURIED SCOUR PROTECTION, TYP SEE SCHEDULE, SHEET C12 AND DETAIL
(E) CULVERTS TO REMAIN (PIP)
SAN LUIS REY RIVER
FLOW
MITIGATION BANK SITE
N
SCALE (FEET)
SOIL PLACEMENT SITE 7
PLAN
SCALE: 1" = 100'
60% SUBMITTAL
NOT FOR CONSTRUCTION
VERIFY SCALE
ESA PWA
GRADING PLAN AND SECTIONS SOIL PLACEMENT SITE 7
SAN LUIS REY MITIGATION BANK
WILDLANDS
3855 Atherton Road
Rocklin, CA 95765
DESIGNED P. LUECKING
INCHARGE P. LUECKING C66113
DATE NOVEMBER 30, 2012
C10
12 OF 22



BANK REVETMENT MEASURES
DETAIL PLAN
SCALE: 1" = 50'



A BURIED BANK REVETMENT
TYPICAL SECTION
SCALE: 1" = 5'



B BURIED ROCK CUTOFF TRENCH
TYPICAL SECTION
SCALE: 1" = 5'

60% SUBMITTAL
NOT FOR CONSTRUCTION

VERIFY SCALE

PREPARED BY: ESA PWA

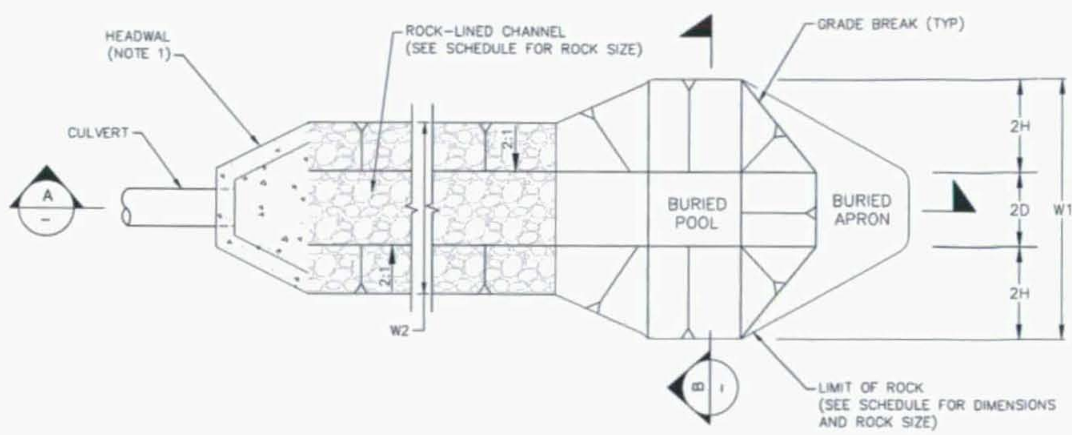
SHEET TITLE: DETAIL PLAN BANK REVETMENT MEASURES

PROJECT: SAN LUIS REY MITIGATION BANK

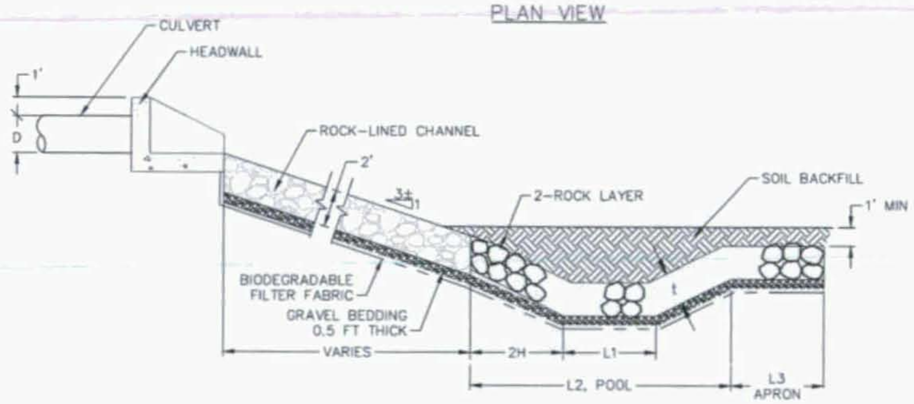
PREPARED FOR: WILDLANDS
3855 Atherton Road
Rocklin, CA 95765

REGISTERED PROFESSIONAL ENGINEER PHILIP L. LUECKING 66113 EXP. 6/30/14 CIVIL STATE OF CALIFORNIA

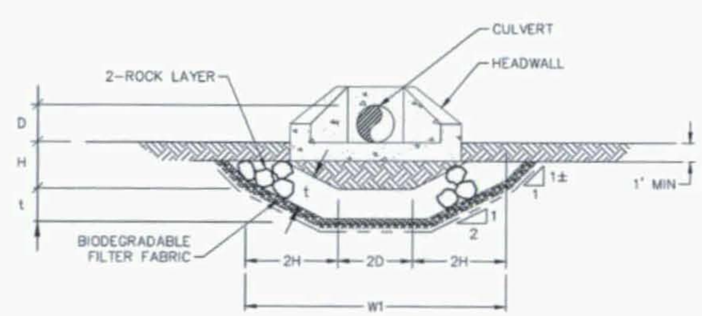
APPROVED	
DESIGNED	P. LUECKING
DRAWN	
INCHARGE	P. LUECKING C66113
SCALE	
DATE	NOVEMBER 30, 2012
SHEET	C11
	13 OF 22



PLAN VIEW

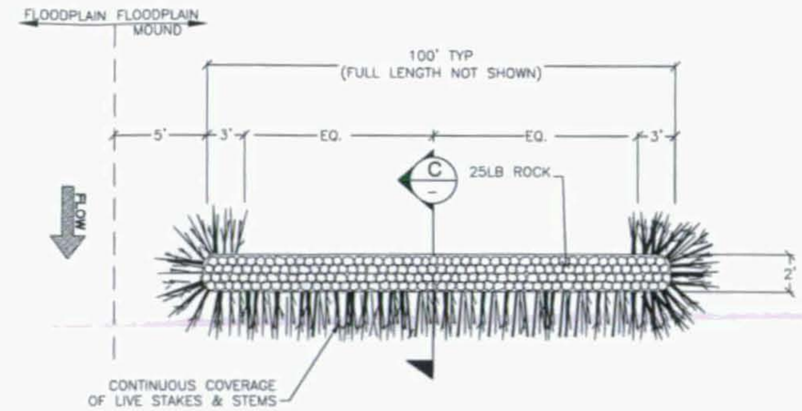


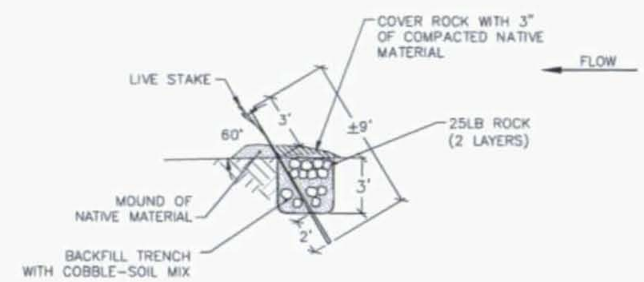
SECTION A



SECTION B

1 (C4 | C12) BURIED SCOUR PROTECTION TYPICAL DETAIL — NTS





SECTION C

2 (C11 | C12) WILLOW BAFFLE TYPICAL DETAIL — SCALE: 1" = 5'

NOTES:

1. THE HEADWALL CULVERT CONFIGURATION VARIES FOR EACH SYSTEM. NOT ALL SYSTEMS WILL INCLUDE A HEADWALL.
2. ALL CULVERTS SHALL BE REINFORCED CONCRETE PIPE. THE OUTLET END OF THE PIPE WILL BE CUT TO MATCH ADJACENT SLOPE IF A HEADWALL IS NOT USED.
3. ROCK WILL BE SALVAGED DURING OTHER CONSTRUCTION ACTIVITIES FOR REUSE IN THE SCOUR PROTECTION, WILLOW BAFFLE AND BANK REVETMENT STRUCTURES TO THE EXTENT POSSIBLE.

SCOUR PROTECTION SCHEDULE

SYSTEM ID	DESCRIPTION	D PIPE DIA (FEET)	SCOUR PROTECTION DIMENSIONS (FEET)						ROCK SIZING	
			H POOL DEPTH	L1 POOL BOTTOM	L2 POOL LENGTH	L3 APRON LENGTH	W1 POOL MAX WIDTH	W2 CHANNEL WIDTH	WEIGHT CLASS (LB)	t, MIN THICKNESS (FEET)
1	SPS 1	2	1	8	12	4	10	4	75	2
2	SPS 2	2	1	8	12	4	10	4	75	2
3	HWY 76 OFFSITE, 2 BARRELS	3	4	34	51	10	30	12	500	4
4	SPS 7-B	2	1	8	12	4	10	4	75	2
5	SPS 7-C	2	1	8	12	4	10	4	75	2
6	SPS 7-D	2	1	8	12	4	10	4	75	2
7	SPS 7-E	2	1	8	12	4	10	4	75	2
8	OFFSITE AG FIELDS	5	2.5	16	26	8	20	10	500	4

CULVERT SCHEDULE

TABLE	DESCRIPTION	D PIPE DIA (FEET)	INLET RIM ELEV (FEET)	INLET INVERT ELEV (FEET)	OUTLET INVERT ELEV (FEET)	LENGTH (FEET)	SLOPE (%)
1	SPS 1	2	120.1	115.6	115.0	58	1.0%
2	SPS 2	2	118.3	113.8	112.9	85	1.1%
3	HWY 76 OFFSITE, 2 BARRELS	2	115.7	111.2	110.7	50	1.0%
4	SPS 7-B	2	117.0	112.5	111.9	55	1.1%
5	SPS 7-C	2	117.3	112.8	112.3	46	1.1%
6	SPS 7-D	2	119.7	115.2	115.0	45	0.5%
7	SPS 7-E	3	128.3	123.8	115.0	147	1.3%
8	OFFSITE AG FIELDS	5	120.6	113.1	110.0	90	3.4%

60% SUBMITTAL
NOT FOR CONSTRUCTION

VERIFY SCALE

PREPARED BY: ESA PWA

SHEET TITLE: TYPICAL DETAILS

PROJECT: SAN LUIS REY MITIGATION BANK

PREPARED FOR: WILDLANDS, 3855 Atherton Road, Rocklin, CA 95765

REGISTERED PROFESSIONAL ENGINEER — PHILIP L. LUECKING — 66113 — EXP. 6/30/14 — CIVIL — STATE OF CALIFORNIA

APPROVED

DESIGNED P. LUECKING

DRAWN

INCHARGE P. LUECKING C66113

SCALE

DATE NOVEMBER 30, 2012

SHEET C12