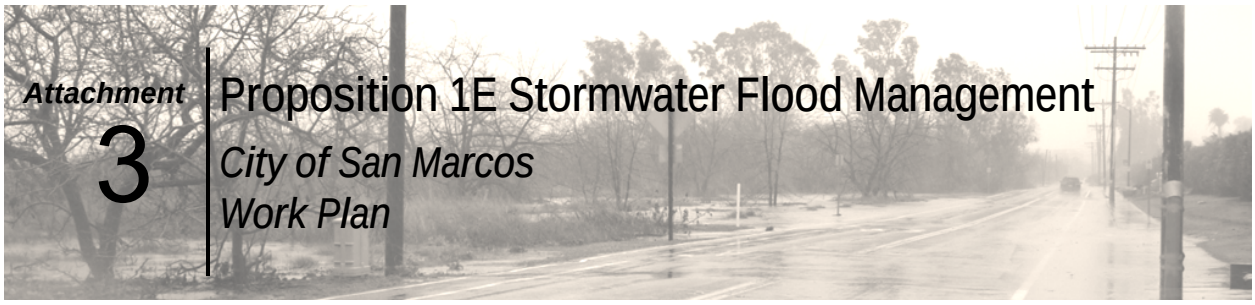


Attachment 3

Proposition 1E Stormwater Flood Management

City of San Marcos Work Plan

Attachment 3 consists of the following items:

- ✓ **Project Background.** This attachment contains background, purpose and need, and objectives, as well as supporting documents such as regional and project maps, and existing data and studies.
- ✓ **Work Plan.** This attachment contains detailed information regarding the tasks that were and will be performed for this grant proposal.

The City of San Marcos is located within the San Diego IRWM Region. The adopted 2007 San Diego IRWM Plan identified four goals and nine objectives that were established to guide water resource management in the Region. Each of the IRWM Plan goals and their corresponding objectives are listed in Table 1-1 in Attachment 1.

Project Background

The City of San Marcos (City), which is located within San Diego County, has grown in recent years from a small rural unincorporated community into an incorporated city. The City is undertaking specific planning efforts that will reflect changing land use patterns, as well as address environmental and other local issues. The *San Macros Creek Floodway Improvement Project* is being considered as part of the San Marcos Creek Specific Plan (Specific Plan). The Specific Plan includes flood control efforts relating to San Marcos Creek, a perennial stream channel that supports mostly disturbed wetland areas (Dudek 2009). Specifically, the Specific Plan includes proposed floodway improvements along the north and south side of San Marcos Creek to alleviate flooding hazards in the project area.

San Marcos Creek, a perennial, east-to-west trending watercourse, runs through downtown San Marcos via culverts under State Route (SR) 78 and exits the downtown area under Discovery Street near San Marcos High School. Roughly two-thirds of San Marcos Creek within downtown San Marcos is located within the 100-year floodplain, and has resulted in substantial flooding throughout this area. To alleviate the threat of flooding in downtown San Marcos and surrounding areas, and to better ensure public health and safety benefits, it was determined that a strategy to alleviate potential flooding hazards was needed to protect existing and planned development within the downtown district. To address this issue, the City is proposing to open the floodway under SR-78 with a new bridge and construct an earthen levee, ranging in height to a maximum of 15 feet, on the north and south side of San Marcos Creek from Bent Avenue/Craven Road west to the west end of Discovery Street. The levees have been designed to accommodate projected storm water runoff for the Federal Emergency Management Agency (FEMA) 100-year standard and are not expected to increase downstream flooding or scour within San Marcos Creek. To achieve the necessary hydraulics along this stretch of San Marcos Creek, existing fill will be removed at the upstream end of the project near SR-78 to re-open the floodplain and improve flow passage.

Project Purpose and Need

The *San Macros Creek Floodway Improvement Project* is located within the Upper San Marcos Creek watershed, which is located within the Carlsbad Hydrologic Unit (San Diego RWQCB 1994). The headwaters of San Marcos Creek drain runoff from the Merriam Mountains and the San Marcos Mountains, which enter Twin Oaks Valley and flows south-southwesterly through the City of San Marcos and into Lake San Marcos (HDR 2007). The project area is located approximately 0.5 mile upstream from Lake San Marcos, which is a privately-owned lake. San Marcos Creek eventually flows into the Batiquitos

Lagoon and then another 2.5 miles before entering the Pacific Ocean. San Marcos Creek is the primary tributary to the 600-acre Batiquitos coastal lagoon, which has been designated as an ecological reserve, and was severely impacted by excessive sedimentation prior to restoration efforts that took place in 1994 (HDR 2007).

Lake San Marcos is an 80-acre, privately-owned reservoir located within the San Marcos Creek watershed. The lake currently suffers algal blooms and has been placed on the San Diego Regional Water Quality Control Board (RWQCB) list of impaired water bodies (303(d) list) for nutrients, ammonia, and phosphorus. In addition, the primary tributary to Lake San Marcos, San Marcos Creek, is also listed for phosphorus, as well as dichlorodiphenyldichloroethylene (DDE), which is a byproduct of dichlorodiphenyltrichloroethane (DDT), and sediment toxicity (Anderson 2010). Water quality in and around San Marcos is affected by chemical, physical, or biological changes to water as a result of flowing over, and through, developed areas, soils, or rock material. Issues of concern within the Carlsbad Hydrologic Unit include surface water quality degradation, beach closures, sedimentation, habitat degradation and loss, invasive species, and eutrophication (HDR 2007).

The San Marcos Creek Specific Plan calls for many opportunities to use planned surface areas as low impact development design/treatment control best management practices (BMPs). There are also opportunities to design and construct bioretention BMPs within the downtown San Marcos area, which meet the conceptual design of the Specific Plan. Analysis of potential BMPs and treatment systems demonstrate an expected decrease in pollutant loading when comparing the existing site conditions to the built-out Specific Plan for San Marcos. Therefore, this grant proposal would help to address significant water quality issues within San Marcos Creek, and ultimately Lake San Marcos (Ogawa 2010). This grant proposal would also implement hydromodification components that are required as part of the region's Standard Urban Stormwater Management Plan (SUSMP).

In addition to water quality issues, flooding is considered a significant issue within the downtown San Marcos area. FEMA maps designate the main branch of San Marcos Creek as Zone AE, which is an area subject to inundation by the 100-year flood zone. Areas adjacent to Zone AE within the project area are designated as Zone X, indicating that they are between the limits of the 100-year and 500-year floodplains, and are therefore considered areas of moderate flood hazard (HDR 2007). Due to these flood risks, the project area is subject to flooding and flood regulations. Figures 3-1 and 3-2 illustrate flooding hazards that have occurred during recent storm events.

Figure 3-1: Existing Flooding within the Project Area, Photo 1

Figure 3-2: Existing Flooding within the Project Area, Photo 2

One of the project objectives is to bring the 100-year storm flows within the constraints of the improved channel, thereby eliminating the flooding of San Marcos Boulevard and adjacent surface streets, adjacent residences and businesses, and portions of SR-78. The creek improvement portion of the project would include alterations of the creek through construction of a levee and other flood control measures. By design, these features would channelize the course of the creek. Therefore, the project would include drainage facilities that are capable of conveying 100-year on-site storm flows to San Marcos Creek without adversely impacting on-site flow rates. Drainage improvements would include approximately 5,900 feet of a new North Storm Drain System and several discharge points to San Marcos Creek. The North Storm Drain System would begin at the east end of the north levee alignment and extend to the confluence of San Marcos Creek and Las Posas Creek. Surface runoff would be treated in consistent with requirements by the RWQCB to avoid any potential water quality impacts and hydromodification effects (HDR 2007).

Goals and Objectives

The objectives of this *San Macros Creek Floodway Improvement Project* are to:

- Reduce flood damage impacts by protecting infrastructure and ecosystems and avoiding public safety and health impacts associated with flooding.
- Improve quality and availability of surface water supplies in San Marcos Lake that are used by golf course and agricultural uses by restoring natural stream function in upstream areas.
- Reduce hydromodification effects by improving the North Storm Drain System and by protecting, restoring, and enhancing San Marcos Creek.
- Improve water quality by increasing controls for sediment, nutrients, and bacteria into San Marcos Creek and its tributaries.
- Provide ecosystem restoration through habitat restoration, ecosystem improvement and preservation, and fish and wildlife protection and enhancement.
- Increase recreational opportunities and public access by protecting nearby recreational uses and improving the quality of recreational and public access.

This grant proposal is consistent with the 2007 San Diego IRWM Plan. The *San Macros Creek Floodway Improvement Project* is included within the online project database established for the Region, as shown in Attachment 1. As shown in Table 3-1, this project meets seven objectives established for the region. The table below provides an overview of the San Diego IRWM Plan objectives that are expected to be indirectly (○) or directly (●) achieved through implementation of the project.

Table 3-1: Contribution to IRWM Plan Objectives

Proposal Projects	Contribution to IRWM Plan Objectives								
	A	B	C	D	E	F	G	H	I
San Macros Creek Floodway Improvement Project	●	○		●		●	●	●	●

● = directly related; ○ = indirectly related

This project contributes to the IRWM Plan objectives in the following ways:

- **Objective A - Maximize stakeholder and community involvement and stewardship:** The *San Marcos Creek Floodway Improvement Project* maximizes stakeholder involvement through partnerships with other local agencies, water districts and school districts to implement the identification of nutrient sources, load allocations, and abatement strategies to address the water impairment issues in San Marcos Creek.
- **Objective B - Effectively obtain, manage, and assess water resources data and information:** The City of San Marcos has implemented several technical studies and analysis to obtain, manage, and asses the local water resources. The resulting data from these resources has solidified the need for the implementation of the project, which will contribute additional water quality data to the ongoing TMDL effort.
- **Objective D - Develop and maintain a diverse mix of water resources:** Implementation of the *San Marcos Creek Floodway Improvement Project* will protect and maintain the integrity of San Marcos Creek and Lake San Marcos, whose water supplies are used by golf course and agricultural uses.
- **Objective F - Reduce the negative effects on waterways and watershed health caused by hydromodification and flooding:** One of the main objectives of the *San Marcos Creek Floodway Improvement Project* is to reduce the 100-year storm flows within the San Marcos Creek Channel. This project will reduce negative effects on waterways by eliminating flooding on surface streets and surrounding areas that contribute to the impaired water quality that flows to Lake San Marcos.
- **Objective G - Effectively reduce sources of pollutants and environmental stressors:** The ***San Marcos Creek Floodway Improvement Project*** includes drainage facilities that are capable of conveying 100-year on-site storm flows to San Marcos Creek without adversely impacting on-site flow rates. Drainage improvements include a new North Storm Drain System, which would allow for the surface runoff to be treated in a manner consistent with RWQCB requirements to reduce potential water pollution and environmental stressors.
- **Objective H - Protect, restore, and maintain habitat and open space:** Phase 4 of the *San Marcos Creek Floodway Improvement Project* are dedicated to the restoration and mitigation of the creek site to preserve and maintain the natural habitat of the area.
- **Objective I - Optimize water-based recreational opportunities:** The *San Marcos Creek Floodway Improvement Project* will directly affect the flow of water to Lake San Marcos and lay the foundation for the City to implement the Creekside Promenade Project. Improved lake water quality will increase the community's recreational opportunities, while the Creekside Promenade Project will be a demonstrative project aimed at educating the community about San Marcos Creek and its surrounding habitat.

Project Specifics

Table 3-2 provides an abstract of the proposed project, the current status of the project in terms of percent completion of design, implementing agency, the site specific geographic location, and the project's function with relation to other stormwater or sewage conveyance systems.

Table 3-2: Proposed Project in Stormwater Flood Management Grant Proposal

Project	Description	
San Marcos Creek Floodway Improvement Project	*Abstract:*	The *San Macros Creek Floodway Improvement Project* addresses flooding and water quality issues on San Marcos Creek, a perennial stream channel located adjacent to the City's downtown district. The proposed project would construct floodway improvements along the north and south side of San Marcos Creek to alleviate flooding hazards in the project area. The project would also restore native riparian vegetation within the regraded channel in order to increase nutrient uptake and reduce sediment flowing downstream into Lake San Marcos.
	Status:	Planning and 30% design is complete.
	Implementing Agency:	City of San Marcos
	Location:	The project area is located along San Marcos Creek just west of Interstate 15 right-of-way in the City of San Marcos.
	Stormwater Conveyance:	Stormwater from the City's street drainage system discharges into San Marcos Creek and contributes to downstream water quality problems. The proposed project would improve the water quality of stormwater flows through drainage improvements, including treatment controls, hydromodification efforts, and best management practices.
	State Plan for Flood Control:	Not applicable. The State Plan for Flood Control (SPFC) infrastructure exists within the Sacramento-San Joaquin Bay Delta within northern California. This project is located within San Diego County, and is not within proximity or connected to the SPFC.

Project Partners

The City of San Marcos is the Lead Agency for the Upper San Marcos Creek Watershed Voluntary Nutrient Total Maximum Daily Load (TMDL) effort. The City, in coordination with the San Diego RWQCB, has entered into a Participation Agreement to implement the identification of nutrient sources, load allocations, and abatement strategies to address impairments within San Marcos Creek and Lake San Marcos. The proposed project would contribute to water quality improvements in accordance with the TMDL effort. Currently, the Participation Agreement includes the Vallecitos Water District, San Diego RWQCB, City of Escondido, Caltrans, County of San Diego, and the San Marcos Unified School District.

Integrated Elements of Projects

Implementation and completion of the *San Marcos Creek Floodway Improvement Project* will provide the basis for implementation of other projects in the same area to improve water quality. One such project is the design and construction of a levee, pad, and improvement of the corresponding surface street south of the creek. The other project that will contribute to the flood control efforts is the improvement of another surface street adjacent to the creek. These two separate project elements of the San Marcos Creek Specific Plan will be designed simultaneously with the proposed floodwall to provide a symbiosis in the construction of the infrastructure. Although the bridge projects and the *San Marcos Creek Floodway Improvement Project* are independent projects, City staff believes that the benefits of designing these projects simultaneously will provide a significant time and economic benefits.

The *San Marcos Creek Floodway Improvement Project* will also give way to the Creek District Promenade Project that is currently being designed by the City and seeking funding from the Proposition 84 Urban Greening Grant Program. The Creek District Promenade Project is currently undergoing design. The design of the project aims at constructing a pedestrian and bike promenade that maximizes stormwater bio-filtration to decrease air and water pollution and hydromodification effects. Furthermore, the project incorporates native landscapes with public educational elements to improve public education and access to the Creek District.

All of the concurrent or subsequent projects will provide an added value to the water quality, recreational and natural habitat preservation aspects of the *San Marcos Creek Floodway Improvement Project*. However, unlike the levee and street improvement projects, in order for the Creek District Promenade Project to come to fruition, improvements to the San Marcos Creek Channel need to be completed.

Regional and Project Maps

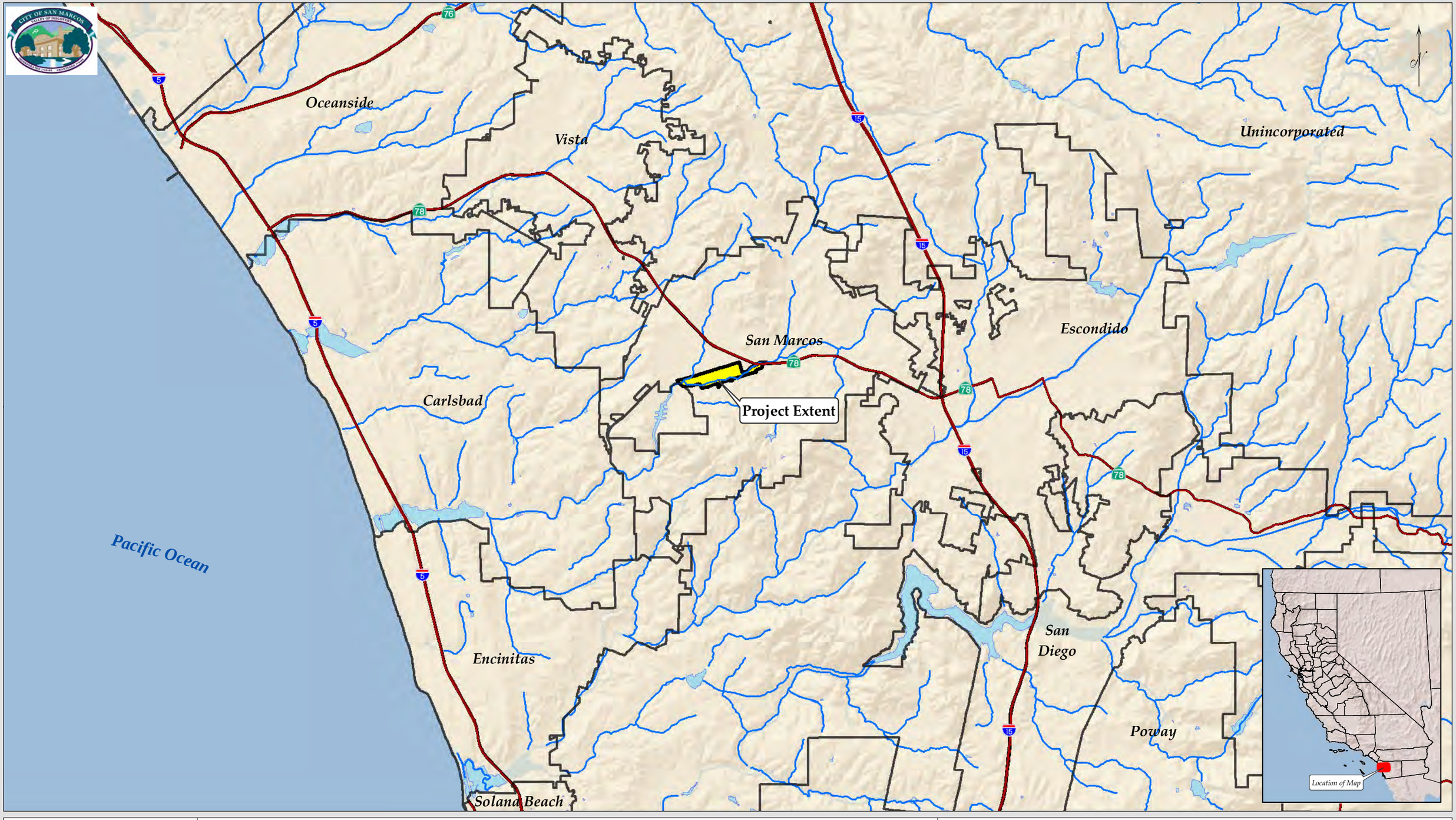
Figure 3-3 provides an overview of the regional and local drainage systems, major water bodies and streams, and the proposed site location. Figure 3-4 provides the detailed project area with current 100-year floodplain (flood control level of protection). Please note that these maps demonstrate this project's location within Southern California; as such, SPFC infrastructure is not included on these figures.

Completed Work

The City of San Marcos has completed the following studies and technical analyses related to the *San Macros Creek Floodway Improvement Project*:

- The *Application for a Section 404 Individual Permit, San Marcos Creek Specific Plan, San Marcos, California* was completed for the City of San Marcos in 2009. This application included conceptual wetlands mitigation and monitoring plan that will be the basis of environmental mitigation for this project.
- The *Upper San Marcos Creek Watershed Nutrient Management Plan* was prepared in 2010 by the Upper San Marcos Creek (USMC) Watershed MS4 Copermitees (City of San Marcos, County of San Diego, and City of Escondido). The objectives for this plan were to establish baseline data to assess nutrient-related water quality in the watershed and to measure future improvements, to identify potential sources of nutrients in the watershed and establish priorities for source control activities, to identify best management practices (BMPs) and other actions that will help to reduce nutrient discharges into and from municipal separate storm sewer systems (MS4s) operated by the USMC Watershed MS4 Copermittees, and to establish a framework for collaboration among the USMC Watershed MS4 Copermittees, including, data collection, monitoring, outreach, and reporting.
- The final version of the *Water Quality Management in Lake San Marcos: Analysis of Available Data* report was completed for the City of San Marcos in 2010. This report included a review that had the objectives of (i) analyzing available water quality data and related information for Lake San Marcos, (ii) identifying, to the extent possible, the factors and processes controlling lake water quality, (iii) identifying any gaps in understanding of the limnology, ecology and water quality conditions in the lake, and (iv) assessing the feasibility of various techniques for improving water quality in Lake San Marcos.
- The *San Marcos Creek Specific Plan Area Preliminary Water Quality Treatment Analysis* was completed for the City of San Marcos in 2010. This report was produced as a result of preliminary meetings with the San Diego RWQCB, during which it was requested that a study be conducted to compare pre-project impacts on water quality to post-project impacts to determine how much impact the completed Specific Plan Area would have on water quality and the beneficial uses of receiving waters.

Figure 3-3: Regional Project Map



Every effort has been made to assure the accuracy of the maps and data provided; however, some information may not be accurate or current. The City of San Marcos assumes no responsibility arising from use of this information and incorporates by reference its disclaimer regarding the lack of any warranties, whether expressed or implied, concerning the use of the same. For additional information see the Disclaimer on the City's website.

City of San Marcos
San Marcos Creek Floodway Improvement Project
Site Map

Project Area
Jurisdictional Boundaries
Freeways / Highways
Creeks / Rivers
Lakes

0 2,500 5,000 10,000 Feet
1 inch = 10,000 feet

CREATED BY: City of San Marcos GIS
SOURCES OF DATA:
Data.gov, 2005; Cal-Atlas, 2009; HDR, 2007
SanGIS, 7/10, 2/11; City of San Marcos, 3/11

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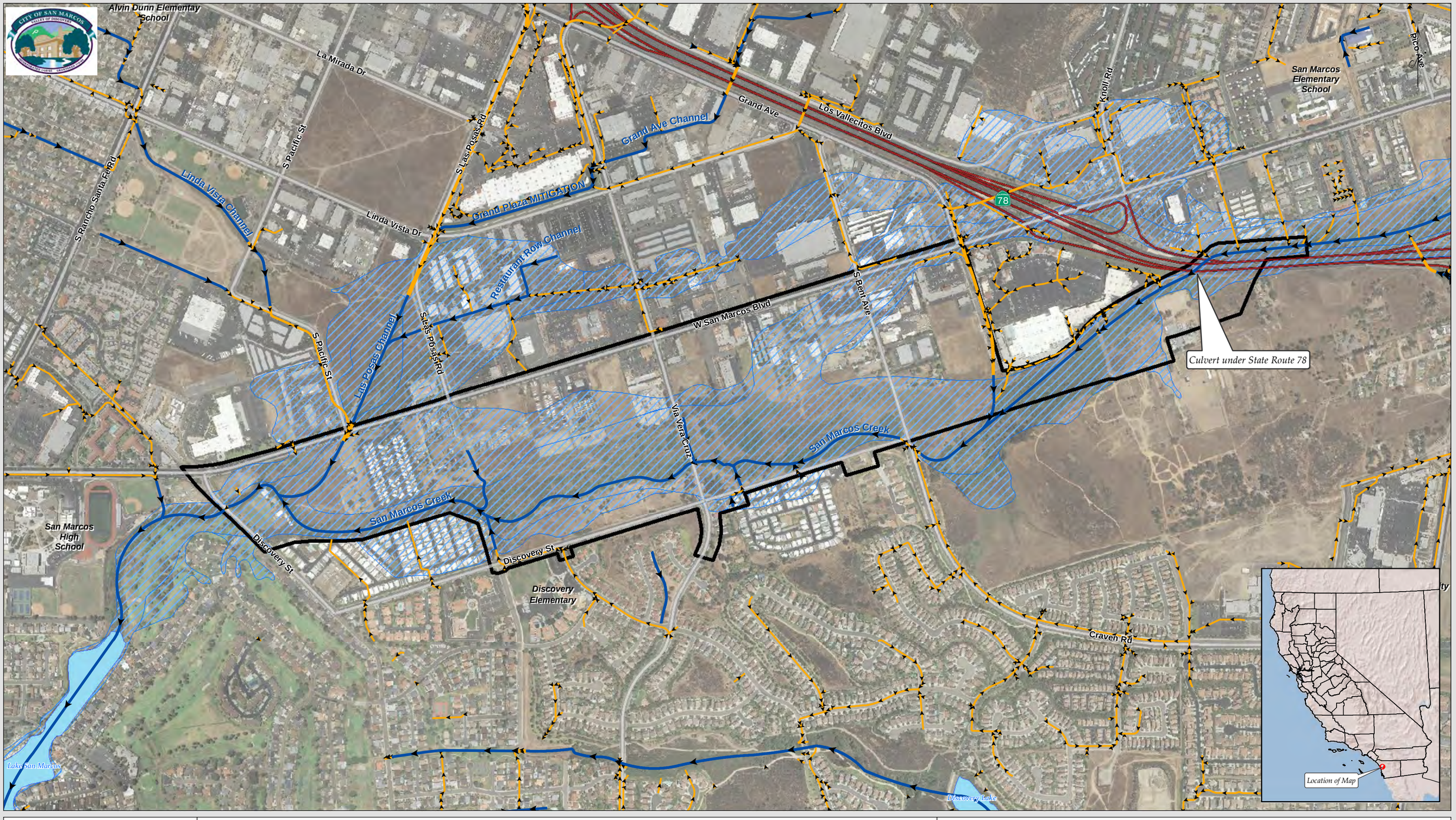
Figure 3-4: Detailed Project Map



City of San Marcos
San Marcos Creek Floodway Improvement Project
Detailed Area Map

- Channels
- Storm Mains
- Freeways / Highways
- Major Road
- Project Area
- Lakes
- 100-Year Floodplain

0 200 400 800 Feet
1 inch = 800 feet

CREATED BY: City of San Marcos GIS
SOURCES OF DATA:
Data.gov, 2005; Cal-Atlas, 2009; HDR, 2007
SanGIS, 7/10, 2/11; City of San Marcos, 3/11

X:\Projects\Stormwater\Projects\Prop1E\Maps\SMCFloodwayImpProj_DetailedMapV3.mxd 3/23/2011

Existing Data and Studies

Many studies and data have been collected and performed, which support the project's site location, feasibility, and technical methods. Those existing data and studies are described in brief below:

- Nolte Associates, Inc. 2000. *San Marcos Creek Conceptual Design Report*. Draft. Prepared for the City of San Marcos. July 2000.
- Nolte Associates, Inc. 2005. *San Marcos Creek Specific Plan Technical Study*. Draft. Prepared for the City of San Marcos. April 2005.
- Parsons Brinckerhoff. 2006. *Draft Hydrologic and Hydraulic Report for San Marcos Creek Improvement.* Prepared for the City of San Marcos. October 2006.
- HDR Engineering, Inc. (HDR). 2007. *Final Environmental Impact Report for the San Marcos Creek Specific Plan and Floodway Improvement Project.* Prepared for the City of San Marcos. June 2007.
- San Diego Regional Water Quality Control Board (RWQCB). 2010a. *Executive Officer Summary Report: Resolution Requesting Funding from the State Water Pollution Cleanup and Abatement Account (CAA) for the Lake San Marcos Nutrient Diagnostic and Cleanup Planning Study.*
- San Diego Regional Water Quality Control Board (RWQCB). 2010b. *Executive Officer's Report: November 10, 2010 – Lake San Marcos Update.*

Project Timing and Phasing

The City of San Marcos has developed three multi-phase projects to improve environmental and community safety within the San Marcos Creek District. The first of these projects is the *San Marcos Creek Floodway Improvement Project*, which includes the implementation of a floodwall, channel grading, and subsequent restoration and mitigation. The other two multi-phase projects, also elements of the San Marcos Creek Specific Plan, involves the construction of a levee and pad, and improvements to two nearby surface streets to alleviate community safety concerns created by seasonal flooding.

Phase 1 of this project will consist of simultaneous design of the three projects in approximately one year. The design aspect of this phase includes the following elements: Assessment & Evaluation, Final Design, Environmental Documentation, and Permitting. Although the City of San Marcos plans to design the levee, pad, streets, and floodwall concurrently, any impediments in the design of the other integrated elements will not hinder the design and implementation of the floodwall.

Upon completion of the Phase 1 elements, the City plans to initiate the construction phase of the previously designed elements independently. Phase 2 will include the construction and implementation of all of the flood control elements, for which Proposition 1E funds are being requested. Phase 3 of the *San Marcos Creek Floodway Improvement Project* will provide for the completion of channel grading, while Phase 4 will consist of the restoration and mitigation of the impacted area. The restoration and mitigation components will minimize erosion, improve the aquatic ecosystem, reduce in-stream erosion and sediment, and reduce other environmental impacts.

Work Plan

The following sections outline the specific activities that will be performed to implement each project in this grant proposal.

Row (a) Direct Project Administration Costs

Task 1 – Project Administration

General project administration will be conducted by City of San Marcos staff members. General project administration includes tracking of work plan, budget, and schedule to ensure the project is being implemented as planned. General project administration will require the collaboration of several departments within the City and is not included within this Work Plan or Budget (Attachment 4).

Task 2 – Labor Compliance Program

The City of San Marcos currently has a Labor Compliance Program in place to comply with the California Department of Industrial Relations requirements for all qualifying public works projects. All public works projects are overseen by at least two City staff members to ensure State labor compliance is maintained. The administrative labor compliance tasks are performed by a designated administrative staff member, who is responsible for reviewing certified payroll documents, fringe benefits statements, apprenticeship program compliance, and other related tasks. The City's on-site labor compliance tasks are carried out by another staff member who regularly conducts interviews during onsite inspections, various daily and weekly work reports, and ensures contractor and subcontractor conformance with rules. As a result of the City's current Labor Compliance Program, the costs associated with this program were previously budgeted as a direct operating cost for the City. Therefore, the expected labor compliance tasks associated with the project are not included within this Work Plan or Budget (Attachment 4).

Task 3 – Reporting

All reporting requirements associated with this Proposition 1E Stormwater Flood Management grant will be conducted by the City of San Marcos staff members. Staff members will prepare a project assessment and evaluation plan, quarterly progress reports, invoices, and a final project completion report, when necessary. Project reporting and invoicing will require the collaboration of several departments within the City and is not included within this Work Plan or Budget (Attachment 4).

Table 3-3: Task 3 Reporting Deliverables

Project Administration Submittals	Date	Status
BEFORE September 1, 2011		
N/A	N/A	N/A
AFTER September 1, 2011		
Project Assessment and Evaluation Plan (PAEP)	September 2011	Not started
Quarterly Reports and Invoices	Quarterly as determined by Start	Not started
Project Completion Report*	February 2014	Not started

*Based on completion of project by November 2013. Project completion report due 90 days after end of term.

Row (b) Land Purchase Easement

Not applicable.

Row (c) Planning / Design / Engineering / Environmental Documentation

The majority of planning, design, engineering, and environmental documentation will be completed by selected qualified consultants. Upon completion, all reports and documents will be stored in electronic format at the City. The City of San Marcos staff members will be responsible for maintaining all related project files.

Task 4 – Assessment and Evaluation

Currently, the *San Macros Creek Floodway Improvement Project* has completed design analysis and some civil, structural, mechanical, and hydrologic design detail provided. Extensive studies and technical evaluation of the channel and surrounding area have been completed. All work completed by City staff and consultants prior to September 30, 2008 is listed above under "Existing Data and Studies".

Therefore, any new technical assessments will be included in the new consultant contract for engineering design which is expected to be ready for award in September 2011. The City anticipates that an additional 353 hours of work will be completed by September 2011 to complete a Floodwall Hydraulic Analysis Technical Memorandum to finalize selection of the floodwall materials.

Table 3-4: Task 4 Assessment and Evaluation Deliverables

Study Performed	Date	Status
BEFORE September 1, 2011		
None	N/A	N/A
AFTER September 1, 2011		
Floodwall Hydraulic Analysis Technical Memorandum	September 2011	Not started

Task 5 – Final Design

Preliminary design and engineering has been completed up to 30% for proposed improvements to the channel and surrounding area. Preliminary design was completed in March 2011. Pending concurrence from resource agencies, the proposed design should proceed to 90% design by November 2011. Subsequently, the final design phase is scheduled to be completed after environmental permitting (see Task 7) in July 2012.

The 100% design is the design package that will be advertised for project award. Final design of the project is anticipated to begin in July 2012. The completed package will consist of the complete, signed final design plans, contract specifications, and necessary technical studies. The final design plans will address the following project components:

1. Final Project Plans & Specifications
2. Final Geotechnical Report
3. Final Hydraulic Report
4. Final Hydrology Report
5. Final Design Calculations
6. Final Environmental Documentation
7. Final Permit Conditions

Furthermore, a constructability review will be conducted when the 100% plans are submitted. The final design package will be completed by the selected consultant, with the approval of the City engineering staff, by July 2012.

The design listed above is with respect to Phase 1 of the *San Marcos Creek Floodway Improvement Project.* In addition to those design efforts, it is anticipated that further construction engineering work will need to be conducted for Phases 2, 3, and 4 of the project. For Phase 2, the City anticipates allocating 2,567 hours of effort towards completing Floodwall Final Engineering design tasks. This Phase 2 engineering is anticipated to be completed by July 2012. For Phase 3, the City anticipates allocating 592 hours of effort to complete Channel Grading Engineering by January 2013. For Phase 4, the City anticipates allocating 3,517 hours for Mitigation Engineering by November 2013.

Table 3-5: Task 5 Final Design Deliverables

Design Submittals	Date	Status
BEFORE September 1, 2011		
30% Design, Phase 1	March 2011	Completed
AFTER September 1, 2011		
90% Design, Phase 1	November 2011	Not started
100% Design, Phase 1	July 2012	Not started
Phase 2- Floodwall Final Engineering	December 2012	Not started
Phase 3- Channel Grading Engineering	January 2013	Not started
Phase 4- Restoration / Mitigation Engineering	November 2013	Not started

Task 6 – Environmental Documentation

The construction and implementation of the *San Marcos Creek Floodway Improvement Project* will comply with all State environmental requirements including the California Environmental Quality Act (CEQA). Per CEQA regulations, the City prepared an Environmental impact Report (EIR) to assess the potential environmental impacts of the proposed San Marcos Creek District improvements. An EIR was previously conducted to assess the San Marcos Creek District in 2007 and is listed above under "Existing Data and Studies". This same EIR is currently being updated and is anticipated to be completed and recirculated in January 2012.

Table 3-6: Task 6 Environmental Documentation Deliverables

Environmental Documentation	Date	Status
BEFORE September 1, 2011		
N/A	N/A	N/A
AFTER September 1, 2011		
Recirculated San Marcos Creek Specific Plan and Floodway Improvement Project EIR	January 2012	Underway

Task 7 – Permitting

The City of San Marcos is currently in the process of preparing the required applications for the several different regulatory agency permits for the San Marcos Creek improvements. These various agencies and corresponding permits include:

- California Department of Fish and Game (CDFG) - The *San Marcos Creek Floodway Improvement Project* will be required to obtain a Lake/Streambed Alteration Agreement, commonly referred to as a Section 1602 Streambed Alteration Agreement. This is a standard notification agreement to protect fish and wildlife resources while maintaining CEQA compliance. Upon acceptance of this application, the City may proceed with the activities detailed in the CDFG final agreement.
- Regional Water Quality Control Board (RWQCB) - The *San Marcos Creek Floodway Improvement Project* will also be required to obtain a Water Quality Certification that the improvement project will comply with State water quality requirements, per Clean Water act (CWA) Section 401. This is permit requirement is directly related to projects involving flood control channelization, levee construction, channel clearing, fill of wetlands for development, or other related activities.
- U.S. Army Corps of Engineers (Corps) – Additionally, the anticipated removal/placement of soil, sediment, and other materials in the *San Marcos Creek Floodway Improvement Project* will require a permit from the Corps under CWA Section 404. The Corps CWA Section 404 Individual Permit is required for any activities in wetlands that involve more than minimal impact to the project area, such as dredge and fill discharge associated with the project construction.

The *San Marcos Creek Floodway Improvement Project* will need to obtain the above referenced permits prior to beginning construction. The efforts to obtain the required permits have been a collaborative task between various consultants and City staff.

Table 3-7: Task 7 Permitting Deliverables

Permit	Date	Status
BEFORE September 1, 2011		
N/A	N/A	N/A
AFTER September 1, 2011		
CDFG Section 1602 Streambed Alteration Agreement	January 2012	Underway
RWQCB Section 401 Water Quality Certification	January 2012	Underway
Corps Section 404 Permit	January 2012	Underway

Row (d) Construction / Implementation

Task 8 – Construction Contracting

The City of San Marcos will conduct a formal advertising and competitive bid process prior to contract award. Upon completion and acceptance of the final design the process for a formal Request for Proposal for construction will begin. The San Marcos City Council will provide approval of construction documents and permission to solicit bids. Once permission is granted, City staff will follow the proper City protocol to select the most competitive and qualified bidder. The bid solicitation will be advertised three weeks prior to selection. At the end of the bidding process, City staff will conduct one pre-bid meeting to answer bidders' questions and concerns, one bid opening meeting will be overseen by the City clerk prior to granting of the award. After careful review of the submissions, one contractor will be selected for award of the contract. The selected contractor's bid will then be presented to the San Marcos City Council for approval. Upon approval, City staff will hold a preconstruction meeting to discuss important project specifics as well as prevailing wage and non discrimination compliance.

Construction contracting will require the collaboration of several departments within the City and is not included within this Work Plan and Budget (Attachment 4).

Table 3-8: Task 8 Construction Contracting Deliverables

Construction Submittals	Date	Status
BEFORE September 1, 2011		
N/A	N/A	N/A
AFTER September 1, 2011		
Notice to Proceed	December 2012	Not started
Notice of Completion	October 2013	Not started

Task 9 – Construction / Implementation

Implementation of this project will occur after initiation of the Grant Agreement on September 1, 2011.

Materials and/or Design Standards

The Materials and Design Standards utilized for this project will be consistent with U.S. Army Corps of Engineers and FEMA requirements. Soil that can be impacted to a 95% compaction rate will be imported to the site to construct the foundation for the floodwall. The proposed floodwall material has yet to be determined, but in general, construction materials consist of sheet pile or cast- in-place of concrete. As detailed in Budget Category D, reinforced concrete pipe will be utilized to install storm water drainage. Natural rock material will also be imported to the site to provide erosion control. Additional materials will be specified during the construction bid process.

Construction Tasks

Tasks to complete construction have not yet been initiated. A preliminary engineer's estimate has been used to estimate construction task and costs as detailed in the Budget (refer to Attachment 4). Currently, the City of San Marcos anticipates construction to occur in the last four phases of the project. Phase 2 will include the construction of the floodwall, Phase 3 will consist of channel grading, and Phase 4 will combine channel restoration and mitigation.

- ***Subtask 9.1 – Mobilization and Site Preparation:*** Mobilization will include setting up staging sites within the City's right-of-way north of San Marcos Creek between Bent Street and Via Vera Cruz. Site preparation will include clearing and grubbing, and setting up BMPs for stormwater according to requirements of the Stormwater Pollution Prevention Plan. No demolition is required.
- ***Subtask 9.2 – Project Construction:*** Construction of the floodwall will include removing unsuitable materials, building foundation, floodwall, and backfill, and installing drainage facilities listed within the Budget (refer to Attachment 4).

The first phase of construction, Phase 2, consists of installing the floodwall. After clearing and grubbing, the City will coordinate and facilitate the relocation of existing utilities with San Diego Gas & Electric. Over-excavation will then proceed to remove all unsuitable materials and soil in preparation for the foundation. The foundation is then constructed with suitable soil from elsewhere that can be packed to meet a 95% compaction rate. Once the foundation is formed, the next step is to begin pile-driving the iron pile into the ground to form the floodwall. The sheet pile used to create this floodwall will be approximately eight feet tall as dictated by the surface elevation calculation to withstand a 100-Year storm event.

The next phase, Phase 3, will prepare the San Marcos Creek bed by removing existing invasive species and grading the area to create a low flow channel. This process consists of trenching along Discovery from Bent to Via Vera Cruz. During this phase, construction of the storm drainage improvements will begin to carry surface runoff to the creek channel, downstream of the floodwall and within the proposed restoration area. The storm drainage improvements will consist of installing 50- to 60-inch reinforced concrete pipes, constructing inlets, outfalls, and wingwalls. This process will also assemble rock material to act as a barrier to potential channel erosion. This process of erosion control will stabilize the creek and protect against changes in the stream configuration over time.

The final phase, Phase 4, will consist of the restoration of natural riparian habitat within the creek channel. The first step of this process will install irrigation to establish the foliage that will be planted and maintained. Subsequently, the planting will consist of certain species to help control the stability of the stream and provide nesting and foraging habitat to native species. Phase 4 activities and costs are included below within Task 10.

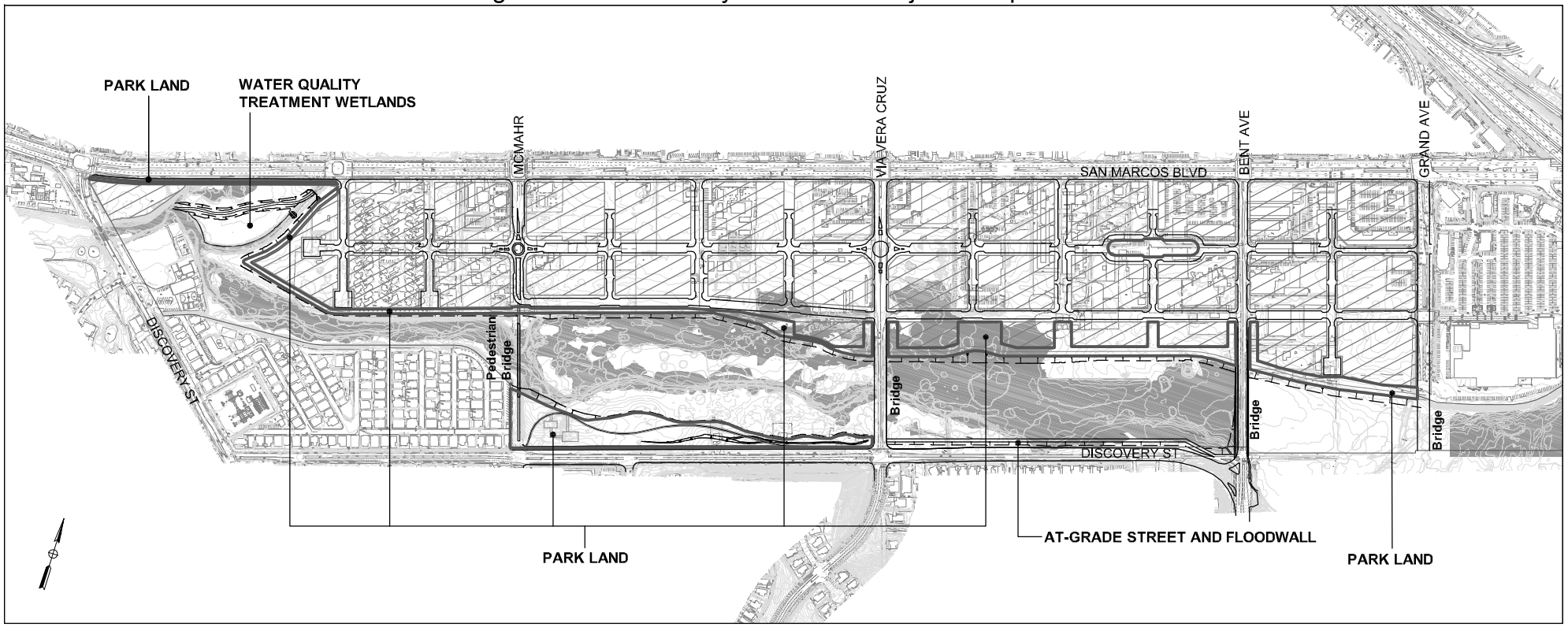
- ***Subtask 9.3 – Performance Testing and Demobilization:*** Performance testing will be completed in accordance with the City's Quality Assurance Manual. Once the project is complete, the contractor is required to restore the site to the existing condition, free of debris and contamination.

Table 3-9: Task 9 Construction / Implementation Deliverables

Construction Submittals	Date	Status
BEFORE September 1, 2011		
N/A	N/A	N/A
AFTER September 1, 2011		
Construction Submittal- Phase 2 Floodwall	December 2012	Not started
Construction Submittal- Phase 3 Channel Grading	January 2013	Not started
Construction Submittal- Phase 4 Restoration / Mitigation	November 2013	Not started

Figure 3-5 below demonstrates the approximate location of project components that are anticipated as part of the *San Marcos Creek Floodway Improvement Project.*

Figure 3-5: Preliminary Location of Project Components



SCALE: 1"=800'

SAN MARCOS CREEK IMPROVEMENTS

ALTERNATIVE 7: REALIGNMENT OF LAS POSAS CREEK , DEVELOPMENT REDUCTION BETWEEN MCMAHR AND VIA VERA CRUZ ,AT-GRADE DISCOVERY STREET WITH FLOODWALL, ELIMINATION OF CHANNEL EXCAVATION WEST OF VIA VERA CRUZ, BRIDGE CROSSING AT BENT AVENUE

LEGEND

- PADS
- ROADWAYS
- PARK LAND
- ARMY CORPS JURISDICTIONAL AREA

LAND USE COMPARISON					
	NEW DEVELOPMENT AREA (AC)	RETAIL (SF)	OFFICE (SF)	RESIDENTIAL (UNIT)	PARK (AC)
ADOPTED PLAN	81.30	1,284,703	598,205	2,341	20.64
ALT. 7 PLAN	76.75	1,212,804	564,727	2,210	14.65
DIFFERENCE	-4.55	-71,899	-33,478	-131	-5.99

December 27, 2010 / WRT

Row (e) Environmental Compliance / Mitigation / Enhancement

Task 10 – Environmental Compliance / Mitigation / Enhancement

The San Marcos Creek is a major environmental resource for the nearby urbanized community. The proposed creek restoration activities will not only improve local wildlife habitat and community safety due to management of flood flows, but it will also improve surface water quality of flows that enter into Lake San Marcos. The restoration activities undertaken in an effort to improve the aquatic ecosystem will reduce in-stream erosion and sedimentation and other environmental impacts associated with a poorly-functioning stream ecosystem.

Mitigation deliverables will include the following: preparing mitigation plans and specifications; preparing, processing, and recording a conservation easement; preparing a habitat management plan; and preparing a property assessment record. On-the-ground mitigation and enhancement activities that are anticipated will also include, but are not limited to, the following actions to reduce the environmental impacts of the construction:

- All areas disturbed or cleared of vegetation for construction shall be re-vegetated as soon as possible after completion of construction activities.
- Re-vegetation of all graded slopes must be demonstrated. A re-vegetation plan shall be developed by a qualified landscape architect or horticulturalist demonstrating that the visual impacts of manufactured slopes have been minimized to the extent feasible.

Mitigation and enhancement activities will be implemented between December 2012 and January 2014. The combined workforce of the City's public works department and consultant services mean that implementation and maintenance of the restoration can be successfully completed.

Table 3-10: Task 10 Environmental Compliance / Mitigation / Enhancement Deliverables

Labor Category	Date	Status
BEFORE September 1, 2011		
N/A	N/A	N/A
AFTER September 1, 2011		
Mitigation Plans and Specifications	January 2014	Not started
Conservation Easement	January 2014	Not started
Habitat Management Plan	January 2014	Not started
Property Assessment Record	January 2014	Not started

Row (f) Construction Administration

Task 11 – Construction Administration

Construction administration will require the collaboration of several departments within the City and consultant services. However, City staff time is not included in the construction administration costs and is not shown in the proposed budget. The current budget for construction management performed by a qualified consultant is estimated at $255,500 (Budget Category F). This lump sum is based on a percentage of the total construction costs. In this case, the amount allocated is 7% of $3,650,000. Although this is a commonly accepted practice for estimating costs, the contract bid process will provide a more detailed estimate prior to award.

Table 3-11: Task 11 Construction Administration Deliverables

Labor Category	Date	Status
BEFORE September 1, 2011		
N/A	N/A	N/A
AFTER September 1, 2011		
Construction Management	January 2014	Not started

Row (g) Other Costs

Not applicable.

Row (h) Construction Contingency

A Construction Contingency for the *San Marcos Creek Floodway Improvement Project* is included within the budget (Attachment 4) to cover unforeseen overruns.

References

Anderson, Michael A. 2010. *Water Quality Management in Lake San Marcos: Analysis of Available Data.* Submitted to the City of San Marcos. February 2010.

Dudek. 2009. Application for a Section 404 Individual Permit, San Marcos Creek Specific Plan, San Marcos, California. Prepared for the City of San Marcos. October 2009.

HDR Engineering, Inc. (HDR). 2007. *Final Environmental Impact Report for the San Marcos Creek Specific Plan and Floodway Improvement Project.* Prepared for the City of San Marcos. June 2007.

Mikhail Ogawa Engineering (Ogawa). 2010. *San Marcos Creek Specific Plan Area Preliminary Water Quality Treatment Analysis.* Prepared for the City of San Marcos. May 2010.

San Diego Regional Water Quality Control Board (SDRWQCB). 1994. *Water Quality Control Plan for the San Diego Basin (Basin Plan)*.