URS

ENVIRONMENTAL ASSESSMENT

MISSION SAN LUIS REY
WATERLINE
OCEANSIDE, CALIFORNIA

PREPARED FOR
CITY OF OCEANSIDE

URS PROJECT NO. 27653074.01000

JANUARY 6, 2005

ENVIRONMENTAL ASSESSMENT

MISSION SAN LUIS REY WATERLINE

Prepared for:

United States Environmental Protection Agency
Groundwater Office WTR-9
75 Hawthorne Street
San Francisco, CA 94105

Prepared by:

City of Oceanside
Water Utilities Department
300 North Coast Highway
Oceanside, CA 92054

URS Project No. 27653074.01000

January 6, 2005

URS
1615 Murray Canyon Road
Suite 1000
San Diego, CA 92108-4314
619.294.9400 Fax: 619.293.7920

TABLE OF CONTENTS

Figures

°F	degrees Fahrenheit
APE	area of potential effect
City	City of Oceanside
CO	carbon monoxide
CRHP	California Register of Historic Places
DOH	Department of Health
EA	environmental assessment
EPA	U.S. Environmental Protection Agency
LOS	Level of Service
Mission	Mission San Luis Rey
NEPA	National Environmental Policy Act
NO2	nitrogen dioxide
NRHP	National Register of Historic Places
O_3	ozone
Pb	lead
PI	principal investigator
PM_{10}	particulate matter of 10 microns in diameter
SDAPCD	San Diego Air Pollution Control District
SDCWA	San Diego County Water Authority
SIP	State Implementation Plan
SO_2	sulfur dioxide
State	State of California

The City of Oceanside (City) proposes to construct a new public waterline at the Mission San Luis Rey (Mission) in Oceanside, California. The objective of the proposed action is to enhance fire protection for the Mission. This Environmental Assessment was prepared to evaluate potential environmental effects of the proposed waterline in conformance with the National Environmental Policy Act of 1969.

The proposed waterline, which would be 10 inches in diameter and in the City right-of-way (a 20-foot-wide easement), would follow two general paths: one oriented east/west across the central area of the Mission grounds and a second along the eastern side of the complex, which runs north/south. Development of alternative alignments for the proposed waterline is constrained by the need to provide required locations for necessary fire hydrants and to connect such locations to the nearest existing City waterlines. An alternative alignment for the proposed waterline was identified but eliminated from further consideration because it would likely increase environmental impacts compared to the proposed alignment.

The waterline alignment would be within developed/disturbed portions of the Mission property. No wetlands, 100-year floodplains, sensitive species and/or habitats, or important agricultural lands are present along the proposed alignment. The Mission is an aesthetic resource composed of structures characteristic of California's history during the Spanish Period (1769 to 1821) that are open for public viewing.

The main access to the Mission forms the northern leg of the signalized intersection of Mission Avenue and Rancho Del Oro Drive. This intersection is currently operating at Level of Service C and B during A.M. and P.M. peak hours, respectively (Darnell & Associates, 2003). Although the proposed waterline construction would not generate significant vehicle trips daily, a traffic-control plan would need to be prepared and implemented during construction.

The Center for Spanish Colonial Research conducted an archaeological investigation of a portion of the proposed waterline in 2001. The discovery of various features and artifacts during that investigation suggests a high potential for encountering additional artifacts and features within the proposed alignment during project construction. Qualified archaeological and Native American monitors would be present during all ground-disturbing activities to prevent damage to or loss of cultural resources.

The City of Oceanside (City) proposes to construct a new public waterline at the Mission San Luis Rey (Mission) in Oceanside, California (Figure 1). This environmental assessment (EA) was prepared to evaluate potential environmental effects of the proposed waterline (proposed action) in conformance with the National Environmental Policy Act (NEPA) of 1969. The U.S. Environmental Protection Agency (EPA), the Lead Agency under NEPA, is providing funding for the proposed action. This EA was prepared according to the EPA's *Suggested Guidelines for the Preparation of Environmental Assessments (for water and wastewater projects).*

The Mission is north of Mission Avenue at the terminus of Rancho Del Oro Drive (Figure 2). The objective of the proposed action is to enhance fire protection for the Mission. The proposed waterline, which would be 10 inches in diameter and in the City right-of-way (a 20-foot-wide easement), would follow two general paths: one oriented east/west across the central area of the Mission grounds and a second along the eastern side of the complex, which runs north/south (Figure 3). The proposed waterline needs to form a closed loop with existing City waterlines to avoid creation of stagnant water conditions that can be associated with dead-end lines. The north/south line would connect to an existing waterline in Via Los Padres to the north and an existing privately-owned waterline east of the Mission on the adjacent Parrish property to the south. The east/west and north/south lines are needed to support fire hydrants on two sides of the Mission structures. The northern portion of the existing Parrish waterline requires relocation and replacement because it's current location and condition are not suitable for City use.

The total length of pipe for the proposed waterline would be approximately 3,100 feet. The waterline would be installed by digging a trench approximately 0.5 meters wide and 1.2 meters deep. Three new fire hydrants are planned at various points in front of the Mission and one existing hydrant east of the Mission would be relocated. A double-check assembly where the existing Parrish waterline connects to the existing City waterline at Mission Avenue would need to be removed. A 12-foot-wide access road would need to be constructed over portions of the waterline alignment along the Mission's eastern property boundary toward Via Los Padres.

The waterline would be for fire protection of the Mission only and not for domestic purposes. The Mission would continue to draw domestic water from onsite wells. The capacity of the proposed waterline has been designed to accommodate peak hour/peak day conditions. Because the waterline would interconnect with other existing lines in the system and be used for emergency purposes only, there would be no increase in capacity to the City system. The proposed action is consistent with the City's Water Master Plan and State of California (State) Implementation Plan (SIP) criteria.

The proposed waterline would be on the Mission property, the Parrish property east of the Mission, and within the City right-of-way. The proposed waterline would connect to existing City waterlines and use existing City water supply; no storage facilities are proposed. The City receives 90% of its water from the San Diego County Water Authority (SDCWA). The remaining 10% is derived from groundwater treated at the City's Groundwater Purification Facility.

Development of alternative alignments for the proposed waterline is constrained by the need to provide the required locations for necessary fire hydrants and connect such locations to the nearest existing City waterlines as described in Section One of this EA. An alternative alignment for the proposed waterline was identified but eliminated from further consideration because it would likely increase environmental impacts compared to the proposed alignment. The alternative alignment would include the same north/south line that is included in the proposed alignment. The east/west portion of the alternative alignment, however, would follow El Camino Real to the south and connect with the existing waterline in Mission Avenue. Fire hydrants along this portion of the alignment would be too far south to serve the Mission structures and therefore extensions of the line would be required to provide hydrants in the necessary locations. This design would result in more linear feet of waterline and therefore a potentially greater impact to archaeological resources compared to the proposed alignment. Also, El Camino Real is the primary access road for the Mission and construction of the waterline along El Camino Real may cause more traffic delays or safety issues than construction of the proposed alignment which would avoid existing access routes.

Impacts to subsurface archaeological resources would be reduced if the proposed waterline was placed aboveground. An aboveground alternative, however, would create a significant visual impact that would compromise the historical integrity of the Mission and therefore was eliminated from further consideration.

3.1 COMMUNITY LOCATION, POPULATION, AND SERVICE AREA

The proposed waterline would be primarily within the grounds of the Mission, a private institution. The San Luis Rey Parrish is to the east and single-family homes are to the north. To the west are commercial uses and a mobile home park along Peyri Drive. Most of the waterline alignment would be within developed/disturbed portions of the Mission property. The proposed waterline would connect to the existing City water system, which serves approximately 161,000 Oceanside residents (U.S. Census Bureau, 2000).

3.2 TOPOGRAPHY AND GEOLOGY

Oceanside consists of low, rolling hills underlain by gently dipping marine and nonmarine sedimentary rocks of Eocene age. The Mission buildings are on a slight rise at an elevation of 90 feet above mean sea level. The terrain slopes gently upward to the north of the buildings with an approximate 10-foot increase in elevation. Slopes decline by approximately 25 feet on the eastern side of the property and by about 45 feet on the western edge. A knoll that reaches an elevation of 115 feet is on the northwestern corner of the property. Much of the property has been disturbed topographically. Flood-control berms have been added in the southwest portion of the Mission property, and extensive fill has been added near the northwest knoll (Mission San Luis Rey de Francia Board of Directors, 2003).

The Mission is in the Valley Margin Deposits Sub-Unit of the Bay Point Formation, which consists of moderately compacted and consolidated brownish gray and gray silty sand of marine origin interbedded with sand and gravel of nonmarine origin. Deposits of the sub-unit are exposed in the San Luis Rey River Valley from about Oceanside Airport eastward to about one mile east of Vandergrift Boulevard in the main river channel. Where exposed in artificial cuts, deposits commonly stand without surficially sliding but are subject to extensive erosional rilling (Weber, 1982). The nearest known active fault is the Newport-Ingelwood-Rose Canyon Fault, approximately 6 miles west of the Mission (Jennings, 1992).

3.3 CLIMATE AND AIR QUALITY

Meteorological and climatological conditions influence ambient air quality. The climate of San Diego County is characterized by warm, dry summers and mild winters and dominated by a semi-permanent, high-pressure cell over the Pacific Ocean. The high-pressure cell maintains clear skies for much of the year. It also drives the dominant onshore circulation and helps create two types of temperature inversions—subsidence and radiation—that contribute to local air quality degradation.

Subsidence inversions occur during warmer months as descending air associated with the Pacific high-pressure cell meets cool marine air. The boundary between the two layers of air represents a temperature inversion that traps pollutants below it. Radiation inversions develop typically on winter nights with low wind speeds, when air near the ground cools by radiation and the air aloft remains warm. A shallow inversion layer that can trap pollutants is formed between the two layers.

In Oceanside, the normal daily maximum temperature is 74.4 degrees Fahrenheit (°F) in August, and the normal daily minimum temperature is 44.5°F in December, according to the "Climate Data Summary" provided by the Western Regional Climate Center (2003). The normal annual precipitation in Oceanside is 10.21 inches, occurring primarily from November through March. The prevailing wind direction is from the west-northwest, with an annual mean speed of seven miles per hour.

3.4 ENVIRONMENTAL INVENTORY

3.4.1 Wetlands, Floodplains, and Groundwater Resources

There are no wetlands within or adjacent to the proposed waterline alignment. The proposed alignment is outside the 100-year floodplain. There are no EPA-designated sole-source aquifers near the project.

3.4.2 Important/Significant Agricultural Lands

There are no agricultural lands within or adjacent to the proposed waterline alignment.

3.4.3 Coastal Zones and Coastal Barrier

The Mission property is outside the Coastal Zone and is not a coastal barrier.

3.4.4 National Natural Landmarks and Wild and Scenic Rivers

The Mission is not designated as a National Natural Landmark. The Mission is, however, designated as a National Historic Landmark (see Section 3.4.9). The nearest river, the San Luis Rey River, is not designated as a Wild and Scenic River.

3.4.5 Major Botanical Features, Important Fish and Wildlife, Endangered and Threatened Species, Critical Habitats, and Environmental Sensitive Areas

Waterline construction would occur in areas of the Mission property that have been disturbed previously and contain no native habitat. A small patch of disturbed coastal sage scrub is adjacent to the north end of the proposed waterline but would not be directly impacted by the project. No endangered or threatened plant or animal species were observed during biological reconnaissance of the Mission property (Affinis, 2001). Pepper trees adjacent to the proposed alignment are the only historic plant remnants from the original mission era.

3.4.6 Aesthetic Resources

The Mission is an aesthetic resource composed of structures characteristic of California's history during the Spanish Period (1769 to 1821) that are open for public viewing.

3.4.7 Hazardous Materials /Human Health and Safety

According to the San Diego County Environmental Assessment listing of June 8, 1998, there is no hazardous waste near the project. The project is located in a tourist area, and construction trucks and worker vehicles would be passing through this area during construction. Therefore, it would be important to address pedestrian safety in the traffic-control plan (See Section 4.2 for discussion of public safety impacts and mitigation).

3.4.8 Socioeconomics/Environmental Justice

The proposed waterline would be located entirely on private property and will not result in impacts to human health, housing, employment, lifestyles, or stability of adjacent communities. Therefore no disproportionately high adverse human health or environmental effects on minority communities and low-income communities would occur. The proposed action would enhance fire protection of the Mission, which is an important historical resource to the local community as well as at a regional and national level.

3.4.9 Transportation and Access

Mission Avenue provides access to the Mission via Rancho Del Oro Drive. Mission Avenue, west of Rancho Del Oro Drive, is a four-lane Major Arterial; east of Rancho Del Oro Drive, it is a two-lane Secondary roadway. Based on the "Traffic Study for Mission San Luis Rey" (Darnell & Associates, 2003), the intersection of Mission Avenue and Rancho Del Oro Drive is currently operating at Level of Service (LOS) C and B during A.M. and P.M. peak hours, respectively.

The Mission currently has three access points. The main access point, aligned with Rancho Del Oro Drive, forms the northern leg of the signalized intersection of Mission Avenue and Rancho Del Oro Drive. A secondary access point, on Peyri Drive, leads to the parking area, northwest of the Mission. A third access point is provided at the eastern end of El Camino Real, where El Camino Real terminates at the Mission just south of the Peyri Drive access point. This access point provides emergency access and event traffic access only.

3.4.10 Prehistoric, Historic, Architectural, and Cultural Sites

The Mission was designated a National Historic Landmark (National Register, No. 7000142) in 1970 because of the significance of the architecture, period of construction, and potential to yield important information on regional history. This section discusses the general prehistory and history of Southern California, Oceanside, and the Mission project area. This context provides a framework from which to evaluate the potential impacts of the proposed action on cultural resources in the area of potential effect.

3.4.10.1 Prehistory

Several regional cultural chronologies have been developed for the San Diego area (Rogers, 1939; Wallace, 1955, 1978; True, 1958, 1966, 1970; Meighan, 1959; Moriarty, 1966); however, it is beyond the scope of this report to discuss all chronologies. A brief summary of the major stages is provided below.

The cultural prehistory of the southern California coastal region, which extends roughly to 10,000 B.C., includes a diverse array of cultural traditions. Early sites in the Oceanside vicinity are associated with nomadic hunter-gatherers. This period is often referred to as the San Dieguito Period or Horizon I (Wallace, 1955). Cultural materials identified at hunter-gatherer sites are often limited to stone tools and fire pits, with a variety of large bifacial points (Clovis, Eden) diagnostic of the period spanning 12,000 to 6,000 B.C. This period is characterized by plant processing, shellfish collection, fishing, hunting, and gathering (Strudwick and Gallegos, 1994). During the mid-Holocene period (5,500 to 3,000 B.C.) hunter-gatherer subsistence and settlement practices shifted in response to the changing environment and new technological innovations. This period, referred to as the La Jolla Complex, is characterized by milling stone assemblages in shell middens and large bifacial points replaced with smaller arrowheads and groundstone artifacts. These sites typically are near sloughs and lagoons. Burial was the primary means of interment during both of these periods (Strudwick et al., 1995). The La Jolla Complex is often cited as Horizon II (Wallace, 1955). Later horizons, spanning 3,000 B.C. to A.D. 500, are characterized by an increased use of mortars and pestles and the first manifestation of discoidals.

Around A.D. 500, the region saw another major shift in technological innovations with introduction of the bow and arrow, identified by the appearance of very small projectile points in archaeological assemblages (William Self Associates, 1999). Ceramics were also widely used during this period, milling stone assemblages were more prevalent, obsidian from the Salton Sea appeared with greater frequency, and the deceased were cremated rather than buried (Moratto, 1984). During the later prehistoric period, Mission-area inhabitants were associated with the San Luis Rey Complex (circa A.D. 1400-1750). These were the ancestors of the Shoshone-speaking natives residing in the area when the first Europeans arrived.

3.4.10.2 Historic Periods

California's history is separated typically into three periods. The first non-Indian to explore the coastal region was Juan Rodriguez Cabrillo during the middle of the 16th century (1542). It was not until 1769, however, that a European population made its home in California. This marks the beginning of California's first historic period and is referred to as the Spanish Period (1769 to 1821), which is characterized predominately by establishment of the San Diego and San Luis Rey Missions and San Diego Presidio (Engelhardt, 1921). The major land route of this period that connected San Diego with the northern settlements (the Camino Real) passed directly through the Mission study area. Livestock and agriculture were introduced during this period. There is evidence that between 1769 and 1798, Luiseño Indians of the San Luis Rey Valley and colonists from San Diego often exchanged ideas and goods (Williams, 2000). Unfortunately, few documentary records exist to help understand the details of Spanish/Indian interaction during this period.

On June 13, 1798, Father Fermín Francisco de Lasuen of Vitoria, Spain, founded the Mission. Within a short period, the Mission became one of the most prosperous settlements in California (Williams, 2001). From the beginning, large numbers of local Luiseño people joined the community (Bean, 1978). With the increased population, the missionaries could pursue ambitious construction programs. The first adobe chapel and *convento* (mission residence) were erected at the site by the end of 1798. A new adobe church with a tile roof was completed in 1802. Work on the current structure began in 1811 but was not completed until 1815. José Antonio Ramírez, a master mason from Mexico, supervised construction.

The settlement was still growing at the time of secularization in 1834. Secularization of the missions marked the end of the Spanish Period and beginning of the second of California's historic periods, the Mexican Period, which lasted from 1821 to 1848. During the Mexican Period, large land grants were given to individuals, and the cattle industry blossomed in the region. San Diego was established during this period. Within a decade of the Mexican government taking possession of the Mission, most of the Indian population had abandoned the site.

The Mexican Period ended with the Mexican-American War of 1846. At the end of the war in 1848, the American Period began, which continues to the present day. After the Mexican-American War, the U.S. Army used the Mission buildings as a military base. In 1865, President Abraham Lincoln returned the Mission and surrounding ruins to the Church. A group of Franciscans returned to the site in 1892 and began the long process of reconstruction. Since then, many buildings have been added to the complex.

3.4.10.3 Architectural and Cultural Sites

In 1970, the Mission was designated a National Historic Landmark. The significance of the architecture, period of construction, and potential to yield important prehistoric and historic information played roles in the designation process (see National Register Criteria A, B, C, and D). California's Office of Historic Preservation has also recorded both the Mission and its grounds as archaeological site CA-Sdi-241. These designations emphasize the importance of the Mission to the state and nation as a cultural resource to be preserved and protected. The Mission property has onsite security for the protection of the site's historical resources.

Available historical and archaeological studies give an incomplete understanding of the extent and character of the Mission buildings. Although the most important structures have been located and identified, many remain lost. The Franciscans restored the later church and its *convento*. Other historic sites still present include the ruins of the soldiers' barracks complex, a brick kiln, and a series of waterworks (including two elaborate *lavanderias* [clothes-washing areas]). No one, however, has identified the locations of many other early structures mentioned in historic documents (Williams, 2001).

Archaeological research conducted at the Mission before 1990 is poorly documented, making it difficult to expound on the Mission's history. During the early 20th century, the Franciscans undertook informal excavations as they rebuilt various parts of the Mission. Scientific investigations

began during the middle of the century. Anthony Soto and Maida Boyle were the first scholars to take serious interest in documenting the site. However, few records of their work exist.

The most recent archaeological investigation at the Mission was in 2001 by the Center for Spanish Colonial Research. This preliminary investigation of the proposed waterline included excavation of 19 one-by-one-meter-square sample units. All of the units produced numerous archaeological materials, including three significant features: an ephemeral irrigation ditch (*zanja*), a tile aqueduct identified as a masonry *acequia*, and "unidentified footings." Other artifacts found included plainware, animal bone, marine shell, tile, annular ware, two percussion caps, a nickel dated 1954, and a penny dated 1902. No distinctive Native American artifacts were found in the sample units.

3.5 PRESENT FACILITIES

The City currently has 12 reservoirs with a capacity of 50.5 million gallons. Water sources include surface water provided by the SDCWA that is either already treated by Metropolitan Water District or treated at the City's Robert Weese Filtration Plant, and groundwater that is treated at the City's Groundwater Purification Facility. The water filtration plant treats water through coagulation, flocculation, filtration, disinfection and supporting processes. The groundwater treatment process demineralizes about 80 % through a reverse-osmosis process. The demineralized groundwater is blended with about 20 % undermineralized water. The combined stream then receives post-treatment before leaving the facility. The filtration plant and purification facility meet or exceed State Department of Health (DOH) requirements.

Water received from the City's filtration plant and treated water received from the SDCWA comes by gravity to the City via transmission lines (14-inch-diameter and larger) and conveys water to different segments of the city through reservoir systems or pump stations, then through distribution lines (12-inch-diameter and smaller) to consumers. A couple of locations in the Morro Hills service area served by pump stations experience low pressure during peak demands. Most of the city, including in the vicinity of the Mission, is fed by gravity and does not experience low pressure.

3.6 WATER QUALITY

The proposed action is construction of a waterline for fire protection purposes only. As stated in Section 3.5, all sources for City water supply are treated and meet or exceed State DOH requirements.

3.7 AIR BASIN CHARACTERISTICS

San Diego County is currently designated as federal attainment for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), lead (Pb), and sulfur dioxide (SO_2), and unclassifiable for particulate matter of 10 microns in diameter (PM_{10}) by the EPA. San Diego County had been designated as a nonattainment area for the federal one-hour ozone standard in the past. On June 26, 2003, the EPA issued "Approval and Promulgation of Implementation Plans and Designation of Areas for Air Quality Planning Purposes, One-Hour Ozone Standard for San Diego, CA" (Federal Register, Vol. 68, No. 123, 2003). According to

the Federal Register, the EPA approved a one-hour ozone maintenance plan and motor vehicle emissions budgets as revisions to the San Diego portion of the SIP.

The San Diego Air Basin, which includes Oceanside, is currently designated by the California Air Resources Board as state non-attainment for O_3 and PM_{10}; attainment for CO, NO_2, SO_2, Pb, and sulfates; and unclassified for hydrogen sulfide and visibility. Under requirements of the California Clean Air Act, each air basin is required to develop its own strategies to achieve both State and federal air quality standards. The San Diego Air Pollution Control District (SDAPCD) developed "The San Diego Air Basin 2001 Triennial Regional Air Quality Strategy Revision," which was adopted by the SDAPCD Board in 2001. This planning document identifies emission-control measures to provide expeditious progress toward attaining the State ozone standard.

Based on the environmental inventory described in Section 3.4, resources that could potentially be affected by the proposed action include aesthetic resources, noise, transportation and access, and prehistoric, historic, architectural and cultural sites. Potential impacts and mitigation measures for each of these resources are discussed in this section.

4.1 AESTHETIC RESOURCES

The proposed action would not result in obstruction of any scenic vista or public view. The only aboveground structures would be fire hydrants that would not detract from the appearance of the Mission to visitors. No visual impacts would occur from project implementation, therefore no mitigation measures would be required.

4.2 NOISE

The proposed waterline would result in short-term noise impacts during project construction only. Construction activities would be limited to the daytime hours in compliance with the City of Oceanside noise ordinance.

4.3 TRANSPORTATION AND ACCESS

4.3.1 Impacts

Potential traffic impacts of the proposed action comprise those associated with construction worker vehicles and truck trip generation for construction of the proposed waterline. The construction period is anticipated to be 12 months, with the number of workers and truck deliveries varying each month. Project construction activities would result in short-term increases in traffic associated with movement of construction vehicles, equipment, and personnel on the transportation network serving the project area. The project laydown area and construction worker parking lot would be on site.

4.3.1.1 Construction Trip Generation

A typical pipeline project with one crew of five operating three company vehicles, one dump truck, one water truck, one excavator, and one front end loader would generate approximately 12 vehicle trips (construction workers) and 12 truck trips (equivalent to 30 vehicle trips) per day. A total of 42 daily vehicle trips would be generated from construction of the proposed waterline.

4.3.1.2 Construction Traffic Access

A 12-foot-wide access road would need to be constructed over portions of the proposed waterline alignment along the Mission's eastern property boundary, where the line would connect to an existing waterline in Via Los Padres. The access road would accommodate a large portion of the construction traffic.

4.3.1.3 Impacts on Intersection Level of Service

Only a small amount (approximately 10 or fewer vehicle trips) of construction traffic would access the intersection of Mission Avenue and Rancho Del Oro Drive. Based on the "Traffic Study for Mission San Luis Rey" (Darnell & Associates, 2003), the Mission Avenue/Rancho Del Oro Drive intersection would operate at an acceptable LOS C under near-term conditions (Year 2005). Therefore, proposed construction would not significantly impact this intersection.

4.3.1.4 Onsite Circulation

Although proposed waterline construction would not generate significant vehicle trips daily, construction activities could cause confusion for drivers and create additional conflicts in vehicle and pedestrian movements to internal Mission roadways. A traffic-control plan would need to be prepared and implemented during construction.

4.3.1.5 Parking Facilities

The existing parking facility would still be used during construction of the waterline. As the project progresses, however, parking would be routed from one end of the lot to the other. Sufficient parking spaces would still be available to Mission visitors. Therefore, proposed construction would not significantly impact public parking.

4.3.1.6 Public Safety

The project is located in a tourist area, and construction trucks and worker vehicles would be passing through this area during construction. Therefore, it would be important to address pedestrian safety in the traffic-control plan.

4.3.2 Mitigation Measures

A traffic-control plan that considers pedestrian safety should be submitted to and approved by the City before construction activities begin.

4.4 PREHISTORIC, HISTORIC, ARCHITECTURAL, AND CULTURAL SITES

4.4.1 Impacts

Cultural resources listed or considered eligible for listing on the National Register of Historic Places (NRHP) or California Register of Historic Places (CRHP) can be affected adversely by projects in various ways. Direct impacts may include destruction of cultural resources through grading or excavating, or potentially compressing resources if vehicles drive over surface or shallow cultural materials. Indirect impacts may include erosion if the surrounding environment is modified in such a way as to increase water flowing into or over the site. Other indirect impacts include altering the visual landscape of sites eligible for listing on the NRHP or CRHP. In the case of the proposed

action, effects would be considered potentially significant if during trenching for the waterline eligible prehistoric or historic resources are exposed or damaged.

The area of potential effect (APE) for the proposed action is within the 20-foot easement for the proposed waterline and proposed access road. The Mission site was designated a National Historic Landmark in 1970 because of its historical and architectural significance; this is the highest level of cultural significance recognized by the federal government. Previous archaeological studies have established the presence of subsurface cultural features and artifacts within the Mission grounds. The presence of historic artifacts is indicative of the long-term habitation of this site and the known history of the Mission. Based on previous investigations, there is clearly high potential for additional artifacts and features to be found on Mission grounds and the project's APE. Potential artifacts include but are not limited to colonial-era trash, Spanish-era materials, and recent historic trash (Kelsey, 1991; Magalousis et al., 1990a, 1990b; Williams, 2001).

The Mission cemetery is immediately north of the APE. It is likely that at least some graves are outside the adobe wall now surrounding the cemetery. Although no burials were found during recent archaeological investigations (Williams, 2001), the proximity of the cemetery to the APE increases the possibility that human remains may be disturbed by construction activity.

4.4.2 Mitigation Measures

A Memorandum of Agreement (MOA) among the City, EPA, and the California State Historic Preservation Officer (SHPO) that outlines the responsibilities of the signatories will be prepared to ensure compliance with relevant federal laws and regulations, including Section 106 of the National Historic Preservation Act. As indicated in the MOA, qualified archaeological and Native American monitors would be present throughout all ground-disturbing activities for the proposed action to prevent loss of cultural resources from excavation and construction. Ground-disturbing activities include but are not limited to brushing, grading, scarification, and trenching within the APE. The MOA also outlines the need for preparation of a pre-excavation agreement (PEA) and treatment plan prior to project implementation. The specific applications of the PEA and treatment plan are outlined in greater detail below.

A PEA will be developed to provide monitoring guidelines for the archaeologist and Native American monitor, detail lines of communication to be followed in the event of a discovery and describe the authority of the monitors in the event of an inadvertent discovery. Specifically, the PEA will detail the treatment of human remains and associated burial goods that may be disturbed by construction. The PEA will outline all relevant federal, state, County and City guidelines that have been developed to protect human remains and Native American burial goods. The Native American Graves Protection and Repatriation Act (NAGPRA, as amended 1999) and PRC 5097.98 shall provide the overlying legal guidance for the treatment of human remains and burial goods. As the lead agency, the EPA shall provide the overriding authority for the repatriation of remains to the Pechanaga Band of Mission Indians persuant to NAGPRA. Actual actions implemented in the field shall be guided by PRC 5097.98 including contacting the Principal Investigator, City, appropriate tribal representatives, County Medical Examiner and Native American Heritage Commission. The

PEA must be agreed upon by the EPA, City and Pechanga Band of Mission Indians prior to construction. The PEA would be reviewed, approved, and signed by all appropriate government entities, local agencies, and concerned parties according to all applicable legal procedures and policies.

A Cultural Resources Treatment Plan (CRTP) shall also be developed prior to project implementation. The CRTP shall outline steps that will be followed if significant cultural resources are encountered during monitoring. The CRTP will detail the types of cultural materials that might be encountered during monitoring, including features, and discuss how these materials would be addressed by the project. Specifically, the CRTP would outline how features such as fire-hearths or linear features would be excavated (sample size versus complete feature), types of materials that might be collected for scientific analyses including artifacts, faunal materials, macrobotanical and palynological samples, and materials for radiocarbon dating. The CRTP would outline how this information would be used to contribute information to our understanding of the regional prehistory and history. The CRTP would also provide a cost estimate for specific types of actions and analyses that might be implemented in the recovery. The CRTP would be developed in consultation with the SHPO, EPA, City and Pechanga Band of Mission Indians.

As part of day-to-day construction monitoring, the archaeologist would prepare detailed field notes about the observed strata and progression of the excavation work. The locations of isolated artifacts and faunal materials would be determined with hand-held GPS units, and they would be collected and bagged for analysis. If a concentration of cultural materials or a feature was discovered, the archaeological monitor would divert, direct, or temporarily halt ground-disturbing activities in the discovery area, which would allow for a preliminary evaluation of potentially significant archaeological resources. The archaeological monitor would notify both the construction supervisor and Archaeological Principal Investigator (PI) of all potentially significant findings. The PI, in consultation with the Native American community, if applicable, would determine the significance of the discovered resources. If significant cultural features or deposits were discovered during the monitoring process, construction within the subject area would be halted, followed by notification of all appropriate concerned parties. In consultation with the City, the PI would determine the need for further studies to assess unexpected cultural materials encountered during monitoring.

If cultural resource investigations were required, they would proceed according to the CRTP. The Data Recovery Plan would be developed specifically to recover the information potential of significant cultural resources encountered by the project. All artifacts found during monitoring or data recovery would be curated in an appropriate manner, agreed to by all interested parties and according to State and federal law. Potential adverse impacts to cultural resources would be mitigated to a level less than significant by following steps outlined in the PEA or CRTP.

Monitoring staff should also be familiar with the three features found by Williams during his 2001 testing of the waterline alignment. The onsite archaeological monitor should be aware of the locations of these features and sensitive areas, giving them special attention during construction and excavation work.

4.5 SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

Although the proposed waterline construction would not generate significant vehicle trips daily, construction activities could cause confusion and create additional conflicts in vehicle and pedestrian movements to internal Mission roadways. A traffic-control plan would be prepared prior to construction and implemented during construction to avoid any potentially significant impacts related to construction traffic.

The proposed action could potentially result in significant impacts to cultural resources if eligible prehistoric or historic resources are exposed or damaged during construction of the proposed waterline. To prevent loss of cultural resources from project excavation and construction, qualified archaeological and Native American monitors would be present throughout all ground-disturbing activities. If significant cultural features, deposits, or human remains were discovered during the monitoring process, construction within the subject area would be halted, followed by notification of all appropriate concerned parties. Prior to construction, a pre-excavation agreement would be executed among the City, Mission, and the Pechanga Band of Mission Indians specifying treatment of human remains and any cultural resources uncovered.

4.6 WATER QUALITY BENEFITS

In addition to providing fire protection to the Mission, the proposed waterline would interconnect dead-end waterlines and prevent potential stagnation of water by allowing the free flow of water through the system.

4.7 SHORT-TERM USE OF THE ENVIRONMENT VERSUS LONG-TERM PRODUCTIVITY

The proposed action would involve construction of a waterline that with proper maintenance would continue to provide fire protection to the Mission over the long term. The availability of water for fire fighting would contribute to protection of existing and long-term productivity of the Mission grounds. The land that would be affected directly by construction of the proposed alignment is already disturbed and unproductive.

4.8 IRREVERSIBLE, IRRETRIEVABLE COMMITMENT OF RESOURCES

The proposed action would make existing City water supply available to the Mission for emergency purposes only and would not have a significant effect on water use or availability. Potentially significant impacts to cultural resources would be avoided through proposed mitigation measures. Construction of the proposed waterline would irreversibly commit a minor amount of energy and materials from non-renewable sources, including fossil fuels.

Under the No Action Alternative, the proposed waterline would not be installed at the Mission. This alternative was rejected because it would not enhance fire protection for the Mission, an important historic resource at a local, state and national level.

5.1 AESTHETIC RESOURCES

Similar to the proposed action, there would be no visual impacts, including obstruction of any scenic vista or public view, under the No Action Alternative.

5.2 TRANSPORTATION AND ACCESS

No potential construction-related traffic delays would occur under the No Action Alternative. Based on the "Traffic Study for Mission San Luis Rey" (Darnell & Associates, 2003), the Mission Avenue/Rancho Del Oro Drive intersection would operate at an acceptable LOS C under near-term conditions (Year 2005).

5.3 PREHISTORIC, HISTORIC, ARCHITECTURAL, AND CULTURAL SITES

Under the No Action Alternative, the proposed water pipeline would not be installed, and there would be no ground disturbance at the Mission. All subsurface cultural deposits would remain undisturbed and intact. The No Action Alternative would retain the integrity and provenance of any unknown cultural resource sites or human burials that may exist within the APE.

6.1 AESTHETIC RESOURCES

The Planned Development Plan for the Mission is designed to enhance aesthetic qualities of Mission facilities. The proposed action was included in future infrastructure improvements proposed in the Plan; therefore, no cumulative impacts from the proposed action are anticipated.

6.2 TRANSPORTATION AND ACCESS

No cumulative impacts to transportation and access are anticipated during construction of the proposed waterline. Based on the "Traffic Study for Mission San Luis Rey" (Darnell & Associates, 2003), the intersection of Mission Avenue and Rancho Del Oro Drive is projected to operate at LOS C during both the A.M. and P.M. peak hours under near-term (Year 2005) cumulative conditions. The minimal vehicle trips generated by construction traffic for the proposed pipeline would not cause this intersection to degrade; therefore, the proposed action would not contribute to a significant cumulative impact.

6.3 PREHISTORIC, HISTORIC, ARCHITECTURAL, AND CULTURAL SITES

The area of potential cumulative impacts to cultural resources at the Mission includes all of the Mission's 55 acres. In an effort to gain more information concerning the Mission's history and archaeology, a number of archaeological investigations have been completed on the property. These projects ranged from isolated digs to full-scale excavations of the Lavanderia and soldiers' barracks. The completeness of historical and archaeological records, however, is now varied. Several important documents tracing the Mission's development and archaeological history before the 1960s have been lost.

In 2001, the Center for Spanish Colonial Research conducted the most recent archaeological investigation at the Mission. The investigation found evidence that impacts from past projects, including the 1892 reconstruction, have disturbed subsurface cultural deposits. Despite the disturbance of past projects, the study showed that there is still high potential for further cultural resource discoveries at the Mission.

In August 2003, the Mission compiled a mixed-use development plan for the Mission and its surrounding property. Future development plans, in addition to the waterline project, include expansion of the cemetery, road improvements and expansions, storm drain installations, expansion of parking lots, relocation of the Friars' Garden, expansion of the maintenance facilities, relocation of the existing pool, and construction of an entry-way monument. This document outlines these and other proposed projects for the Mission but does not include specific project development plans. It also states that, "Due to the potential of the property to have irregularly placed and varied subsurface materials with a wide range of importance, this Plan recommends that further archaeological studies be completed at the time of individual project review." These studies and implementation of recommended mitigation measures would avoid significant cumulative impacts to the Mission's cultural resources.

Affinis, 2001. Biological Resources Report – Mission San Luis Rey , California. January, 2001.

Bean, Lowell J., and Florence C. Shipek, 1978. "Luiseño," in *California*, Robert F. Heizer (ed.), pp. 550-563, Handbook of North American Indians, Vol. 8, W.C. Sturtevant (general editor), Smithsonian Institution, Washington, D.C.

Cheever, Dayle M., 2003. Review of Previously Completed Evaluations for the Proposed Mission San Luis Rey Waterline Construction Project (RECON No. 3813A).

City of Oceanside, 2003. Mitigated Negative Declaration: Mission San Luis Rey Waterline Construction Project.

Darnell & Associates, Inc., 2003. Traffic Study for Mission San Luis Rey in the City of Oceanside, May.

Engelhardt, Zephyrin, 1921. Mission San Luis Rey: King of the Missions, James H. Barry Company, San Francisco, CA.

Jennings, Charles W., 1992. Preliminary Fault Activity Map of California.

Kelsey, Harry, and Nicholas Magalousis, 1991. Archaeological and Historical Investigations at Mission San Luis Rey, California, CA-Sdi-241, Sector C, for the Peyri Road Water Line Project (711-85-7850) of the City of Oceanside Water Utilities Department, Interdisciplinary Research, Laguna Beach.

Magalousis, Nicolas, and Harry Kelsey, 1990a. Preliminary Archaeological and Historical Investigations at Mission San Luis Rey, California, CA-Sdi-241, Sectors A and B, Volumes 1-3, Interdisciplinary Research, Laguna Beach.

1990b. Preliminary Archaeological and Historical Investigations at Mission San Luis Rey, California, CA-Sdi-241, Sector D: Phase I Report. Vol. V: San Luis Rey: Friary and Cemetery, Interdisciplinary Research, Laguna Beach.

Meighan, Clement W., 1959. "California Cultures and the Concept of an Archaic Stage," in *American Antiquity*, 24:289-305.

Mission San Luis Rey de Francia Board of Directors, 2003. Mission San Luis Rey De Francia Planned Development Plan, August.

Moratto, M.J., 1984. *California Archaeology*, Academic Press, New York, NY.

Moriarty, James R. III, 1966. "Cultural Phase Divisions Suggested by Typological Change Coordinated with Stratigraphically Controlled Radiocarbon Dating and San Diego," in *Anthropological Journal of Canada*, 4:20-30.

Rogers, Malcolm, J., 1939. Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas, San Diego Museum Papers No. 3.

San Diego Air Pollution Control District, 2001. The San Diego 2001 Triennial Regional Air Quality Strategy Revision, August.

Soto, Anthony, 1960. Recent Excavations at San Luis Rey Mission: The Sunken Gardens, Provincial Annals, Province of Santa Barbara, Order of Friars Minor (April) 22:205-21, 247-49.

Strudwick, Ivan H., and Dennis R. Gallegos, 1994. *The Archaeological Investigation of CA-SCLI-847, San Clemente Island, California*, Gallegos & Associates, Ms. On file, South Coastal Information Center, San Diego State University, San Diego, CA.

Strudwick, Ivan H., William McCawley, Brad Sturm, et al., LSA Associates, Inc., Irvine, CA, 1995. Results of Archaeological Significance Testing at Site CA-SDI-10156/SDI-12599/H MCAS Camp Pendleton, San Diego County, California, report prepared for Department of the Navy, Commander, Marine Corps Aviation Bases, West Marine Corps Air Station, El Toro, Santa Ana, CA.

True, Delbert L., 1970. *Investigations of Late Prehistoric Complex in Cuyamaca Rancho State Park, San Diego County, California.* Department of Anthropology Publications, University of California, Los Angeles.

1966. *Archaeological Differentiation of Shoshonean and Yuman Speaking Groups in Southern California.* Doctoral dissertation, University of California, Los Angeles. University Microfilms, Ann Arbor, Michigan.

1958. An Early Complex in San Diego County, California. *American Antiquity* 23(3):255-263.

U.S. Census Bureau, 2000. http://factfinder.census.gov

Wallace, William J., 1978. Post-Pleistocene Archaeology, 9000 to 2000 B.C. In *Handbook of North American Indians,* Volume 9: California. Smithsonian Institution, Washington, D.C.

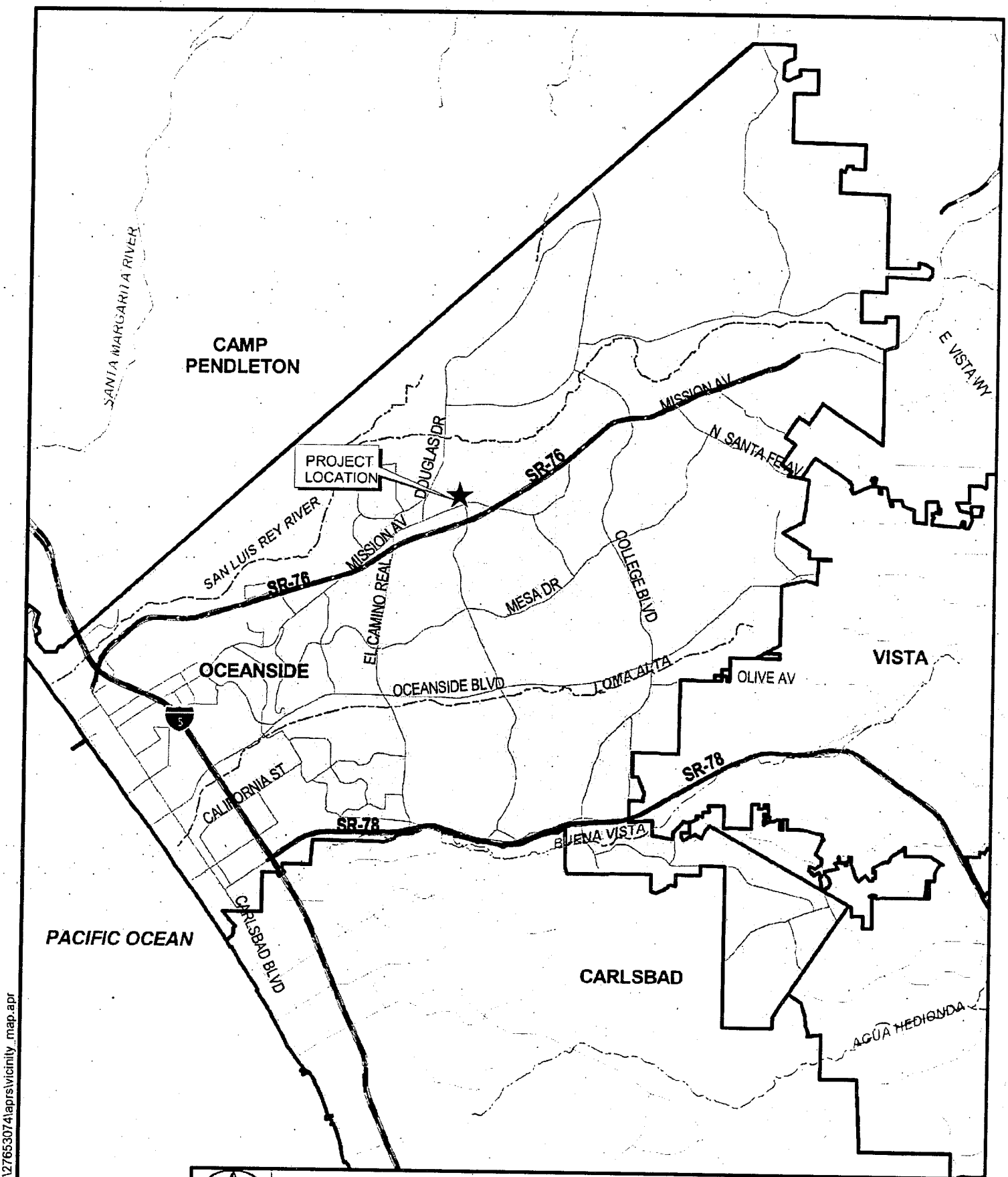
1955. A Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Anthropology* 11(3):214-230.

Weber, F. Harold, 1982. Recent Slope Failures, Ancient Landslides, and Related Geology of the North-Central Coastal Area, San Diego County, California. California Department of Conservation, Division of Mines and Geology, Open-File Report 82-12 LA.

Western Regional Climate Center, 2003. Climate Data Summary, Oceanside Marina, http://www.wrcc.dri.edu, March.

Williams, Jack S., 2001. San Luis Rey Archaeology – Water Pipe Project – CA-Sdi-241 Preliminary Findings, Oceanside, CA.

2000. The Franciscan Experience in Alta California and the Pimería Alta of Sonora: A Comparison and Archaeological Analysis. The Franciscans Experience in the Americas November, 2000. The Center for Spanish Colonial Research.



SOURCE: SanGIS (basemap features).

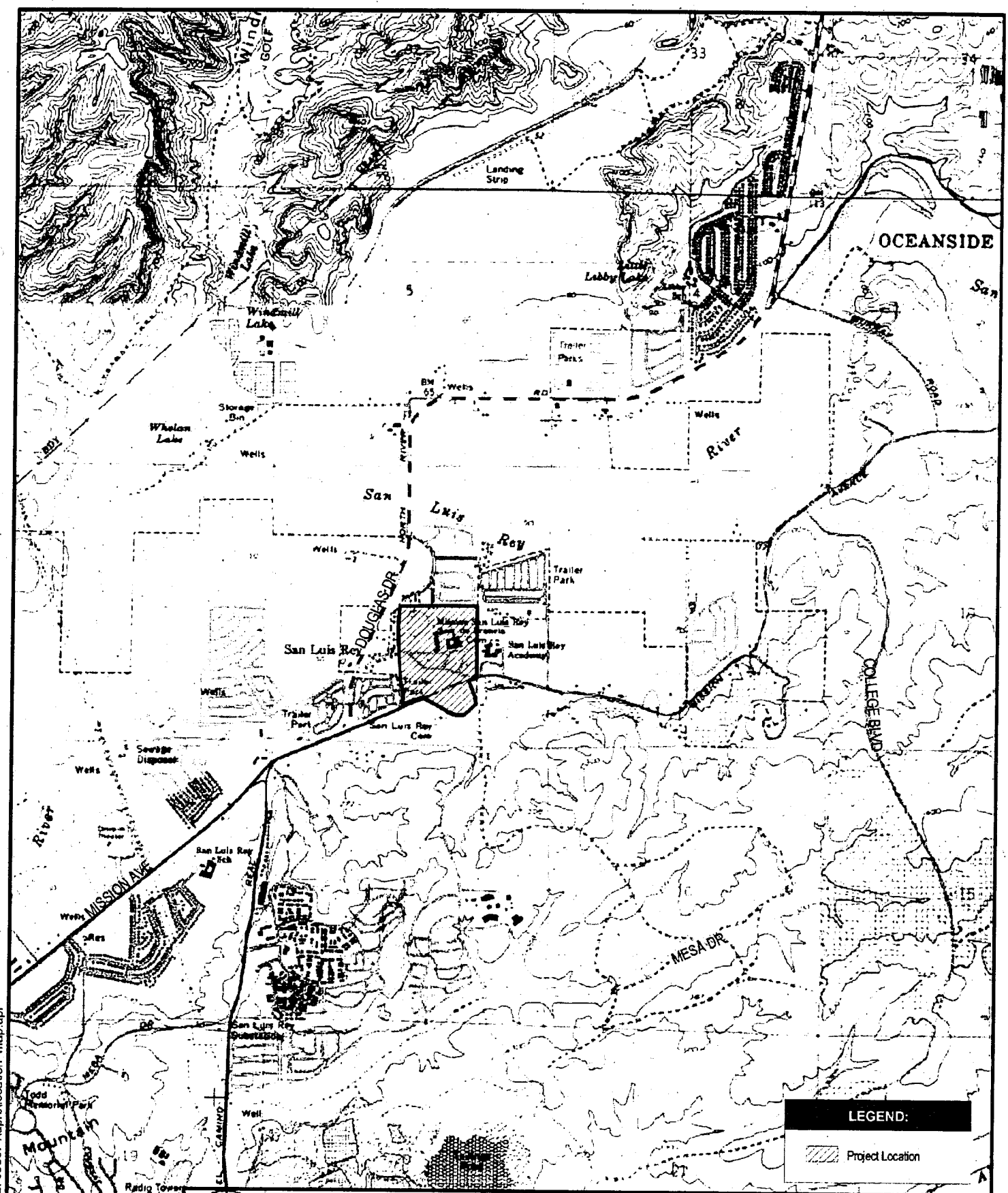
VICINITY MAP
MISSION SAN LUIS REY WATERLINE

URS

3500 0 3500 7000 Feet
SCALE: 1" = 7,000' (1:84,000)

CHECKED BY: TM	DATE: 10-09-03	FIG. NO:
PM: DS	PROJ. NO: 27653074.01000	1

G:\gis\projects\1577\27653074\aprs\vicinity_map.apr



SOURCES: SANDAG (roads)
National Geographic (USGS quad base).

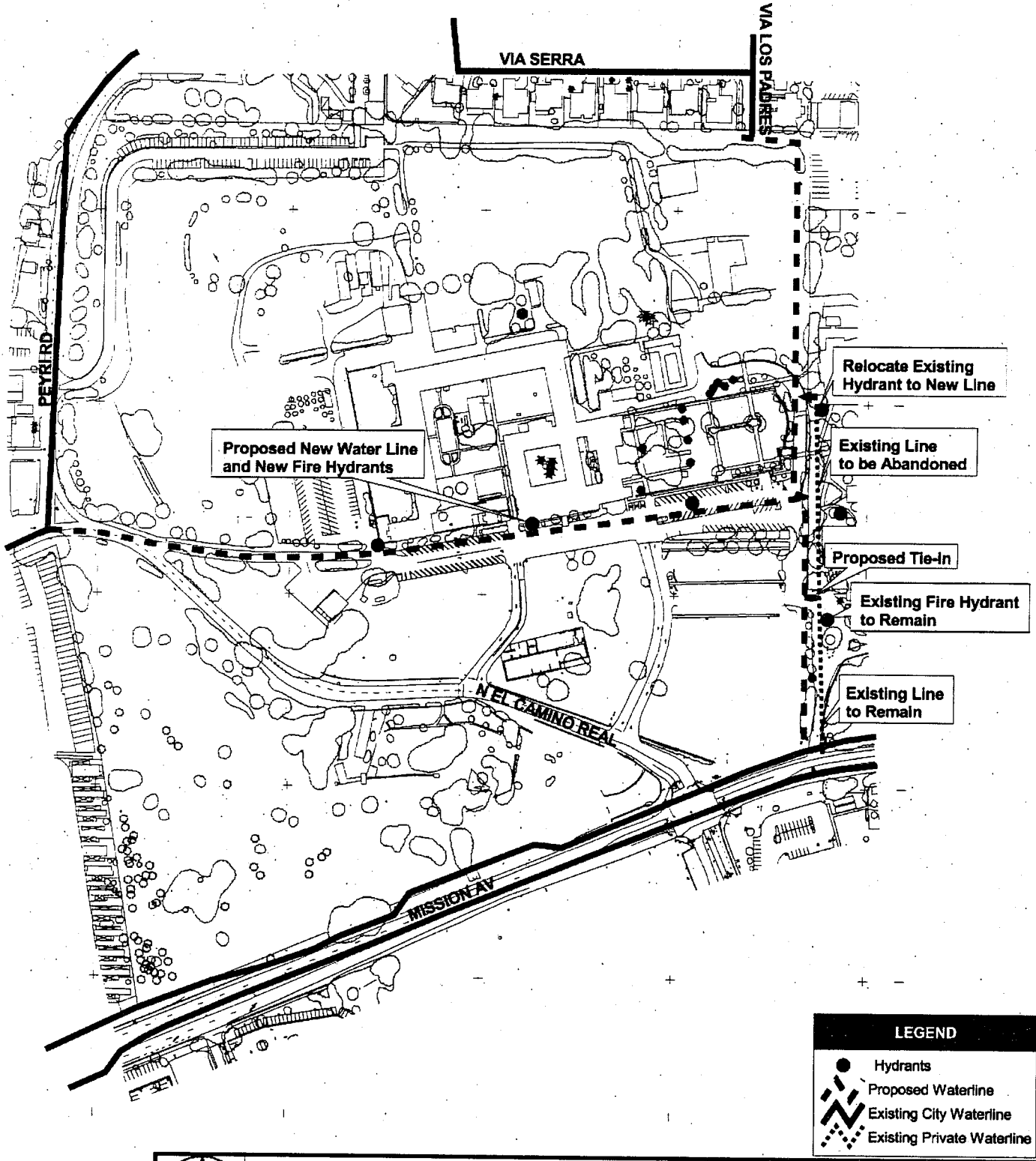
PROJECT LOCATION
MISSION SAN LUIS REY WATERLINE

URS

1250 0 1250 2500 Feet
SCALE: 1" = 2,500' (1:30,000)

CHECKED BY: TM | DATE: 10-09-03 | FIG. NO: 2
PM: DS | PROJ. NO: 27653074.01000

G:\gis\projects\1577\27653074\aprs\location map.apr



SOURCES: SanGIS (roads), Lightfoot Planning Group (site plan and waterlines).

PROPOSED WATERLINE ALIGNMENT
MISSION SAN LUIS REY WATERLINE

URS

150 0 150 300 Feet

SCALE: 1" = 300' (1:3,600)

CHECKED BY: LG	DATE: 2-24-04	FIG. NO: 3
PM: DS	PROJ. NO: 27653074.02000	

G:\gis\projects\1577\27653074\aprs\site_plan.apr