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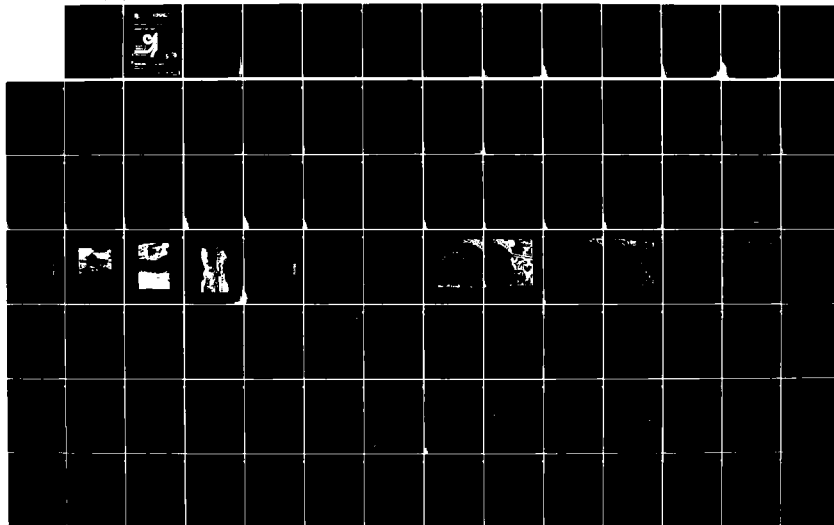
WEST MAGNIESIA CANYON CHANNEL CITY OF RANCHO MIRAGE
RIVERSIDE COUNTY CALIF. (U) ARMY ENGINEER DISTRICT LOS
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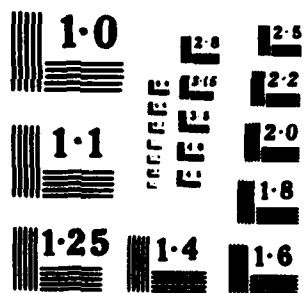
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Research Project Report

AD-A150 016



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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) West Magnesia Spring Canyon Creek, which originates in the Santa Rosa mountains, skirts the western side of Rancho Mirage along the foothills as it leaves the canyon and flows a distance of about 1.5 miles before it empties into the Whitewater River. The drainage basin comprises about 5 square miles. The main objectives of this study are to provide a high degree of flood protection to the residents of Rancho Mirage and to protect the Nation's		

environment.

The Corps recommends that, subject to certain conditions of non-Federal cooperation as outlined in this report, the proposal for flood control be approved for construction. The total cost of the recommended plan is estimated at \$8,279,000. The Federal share of the estimated cost would be \$4,000,000, and the non-Federal share would be \$4,279,000 of which \$3,891,000 is for construction and \$388,000 is for lands, easements, rights-of-way and relocations.

The local sponsor of the project is the Coachella Valley Water District.

WEST MAGNESIA CANYON CHANNEL

RANCHO MIRAGE, CALIFORNIA

FINAL

DETAILED PROJECT REPORT FOR FLOOD CONTROL

AND

ENVIRONMENTAL STATEMENT

December 1983

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SYLLABUS

This study on West Magnesia Spring Canyon is authorized under the continuing authority of Section 205 of the Flood Control Act of 1948, as amended, following a request by the Coachella Valley Water District.

West Magnesia Spring Canyon Creek, which originates in the Santa Rosa mountains, skirts the western side of Rancho Mirage along the foothills as it leaves the canyon and flows a distance of about 1.5 miles before it empties into the Whitewater River. The drainage basin comprises about 5 square miles.

Flooding is the major water resources related problem in the study area. The existing flood control improvements provide only about a 10-year flood protection. Any floodflows exceeding the capacity of the existing channel would inundate primarily residential development as it flows across the alluvial fan to the Whitewater River. Most recent flooding occurred in 1976 and 1979. The 1979 flood caused widespread destruction in the area with damage estimated at \$6,400,000.

The main objectives of this study are to provide a high degree of flood protection to the residents of Rancho Mirage and to protect the Nation's environment.

Alternative plans considered included various debris basins and channels (both concrete and earth-bottom) with different levels of protection, and dams and non-structural measures. Of these alternative plans, nine were selected for further consideration. Plans included a debris basin with rectangular concrete channel; a debris basin with trapezoidal concrete channel; a debris basin with a combination of rectangular and trapezoidal concrete channel; a single rock revetted levee; an earthfill dam; a trapezoidal concrete channel without a debris basin; and flood plain management and flood proofing.

In selecting a plan of improvement, economic justification, degree and completeness of protection, public input, and implementability were considered. The recommended plan (a debris basin and rectangular concrete channel) has net economic benefits, provides standard project flood protection, has minimized impacts on the environment, and has the support of the local sponsor. The plan starts approximately 1,000 feet downstream from the mouth of West Magnesia Spring Canyon with a debris basin that inlets to the channel, which is about 20 feet wide and 1.4 miles long and empties into the Whitewater River. The plan also provides for preservation and enhancement of wildlife habitat values on 20 acres of alluvial cone as mitigation of adverse environmental impacts.

Recreation development was considered with the plans, and could be justified, but the local sponsor does not care to participate in recreation facilities at this time.

The Corps recommends that, subject to certain conditions of non-Federal cooperation as outlined in this report, the proposal for flood control be approved for construction. The total cost of the recommended plan is estimated at \$8,279,000. The Federal share of the estimated cost would be \$4,000,000, and the non-Federal share would be \$4,279,000 of which \$3,891,000 is for construction and \$388,000 is for lands, easements, rights-of-way and relocations.

Annual charges for the recommended plan are estimated at \$725,000. Annual benefits are estimated at \$1,044,000, and the benefit-to-cost ratio is 1.4. Following construction, non-Federal interests would be required to operate and maintain all project features. Included in the annual charges are annual operation and maintenance costs, currently estimated at \$72,000.

The local sponsor of the project is the Coachella Valley Water District.

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INTRODUCTION

The City of Rancho Mirage is in the Whitewater River Basin, Riverside County, California, approximately 7 miles southeast of Palm Springs on the southwest side of the Coachella Valley. Incorporated on 3 August 1973, the City has become a resort and retirement community with no industry. Shopping and recreational facilities are available to the residents of Rancho Mirage as well as to the people in the surrounding communities.

Rancho Mirage has been growing at an accelerated rate. The population in 1980 was 6281, and the Southern California Association of Governments has projected that the 1990 population will be 18,900 in the City and surrounding communities. The median age of residents in the community is 50 years of age and 45 percent of the population are retired or not in the labor force.

Rancho Mirage has developed, in part, on an alluvial fan outwash stemming from Magnesia Spring Canyon. The city is bordered on both sides by the foothills of the Santa Rosa Mountains, from which flows Magnesia Spring Canyon Creek, discharging from a canyon on to a 720 acre alluvial fan.

The Coachella Valley Water District has built a diversion levee and channel to route the water discharging from the head of Magnesia Spring Canyon to the north western side of the City along the foothills. This facility controls the low flow runoff from the basin but when flows are large, the capacity of the levee is exceeded and the uncontrolled flow spreads out onto the alluvial fan, inundating parts of the City of Rancho Mirage. Levee failure has occurred in 1976 and in 1979 with tropical storms Kathleen and Delores. The accompanying damages prompted this report.

This report presents alternative solutions to the flood problem, and recommends a plan that is believed to be the best solution for the area. The recommended plan is one that meets the planning objectives agreed upon by the Federal and non-Federal agencies involved. The report discusses the plan formulation process, impacts, benefits, and costs of the recommended plan. The report describes the engineering details of the preferred plan. The report also describes in detail the necessary coordination and responsibilities to be fulfilled before design and construction of the project may be completed.

STUDY AUTHORITY

The Coachella Valley Water District, local sponsor for the Whitewater River Study, requested that the study of the flood problems along the West Magnesia Canyon Channel in Rancho Mirage be accomplished under the continuing authority of section 205 of the Flood Control Act of 1948, as amended. Under this small project authority, Federal funds of up to \$4 million may be allocated for construction of a flood control project. Such a project can be approved by the Chief of Engineers.

Small projects are subject to the same requirements of feasibility, economic justification, cost sharing, and compliance with national environmental policy as are larger projects that require the specific authorization of Congress; they also must be coordinated with concerned Federal, State and local interests. They are based on favorable reconnaissance investigations and subsequent detailed project reports, which in turn serve as the basis for authorization of projects and preparation of plans and specifications. As with larger projects, the ultimate design must also constitute a complete solution to the problem, and not commit the Federal Government to additional improvements to ensure effective operation.

STUDY PURPOSE AND SCOPE

The purpose of this study is to determine the need for flood damage reduction measures as well as other water resources needs for the City of Rancho Mirage, and to recommend an implementable plan to meet these needs.

The study area encompasses the Magnesia Spring Canyon alluvial cone from the mouth of the canyon to the Whitewater River (see pl. 1). Larger areas are addressed when required for determination of population projections, economic data and water resource needs.

Studies performed for this report were designed to identify water resource problems and needs of the study area, to develop an array of alternative solutions to the problems and needs identified, and eventually to choose the plan providing the best solution to problems and needs within the guidelines established by Federal laws and policies. Economic, engineering, geologic, social, and environmental studies were conducted in sufficient detail to determine the functionality, economic justification, and environmental and social acceptability of the various alternatives in sufficient detail to proceed directly to plans and specifications.

STUDY PARTICIPANTS AND COORDINATION

Public participation has been an important goal throughout this study. A public meeting was held on 17 January 1980, informing the public that Rancho Mirage was one of the areas to be restudied, since further investigation of flood problems and needs seemed warranted.

The methodology for involving the public included data collection, identification of publics, information exchange, creation of appropriate public involvement techniques, and follow up. The data collection phase began by conducting an investigation of the area by interviewing those people connected with the flood problem. A mailing list was developed as an aid in identifying the public. Individuals, groups, and businesses were then invited to a public meeting. A combination Information Brochure and Expression of Interest Card was designed to inform the public of alternative flood control measures, and to determine the interest in conducting future public meetings.

The public expressed interest in a public workshop so meeting notices were sent out and a workshop was held on 16 June 1980. The workshop was informal, and it encouraged participation from the audience. Comments made by the public were recorded and later compiled for review by those attending the meeting.

On 17 June 1980 a meeting was held for agencies involved in the planning process. These agencies included the City of Rancho Mirage, the Coachella Valley Water District, the California Department of Fish and Game, and the United States Fish and Wildlife Service. Several other interagency meetings were conducted to discuss specific problems pertaining to individual agencies. Later, these agencies participated in a series of meetings to develop an implementable environmental mitigation plan.

In addition, throughout the study, a variety of individuals offered input, expressed their concerns, or requested information regarding the study progress.

PRIOR STUDIES AND REPORTS

A Reconnaissance Report completed in June 1978 presented a preliminary evaluation of the flood problems in the Whitewater River Basin. The preliminary studies, prompted by the September 1976 Tropical Storm Kathleen, indicated that flood control measures along Magnesia Spring Canyon in Rancho Mirage could not be economically justified.

In July 1979, the area was again deluged by Tropical Storm Delores. Shortly after the flooding, the Coachella Valley Water District formally requested that the Corps undertake a study under Section 205 of the Flood Control Act of 1948, as amended, and agreed to accept financial responsibility in excess of the Federal limitation. The City of Rancho Mirage also expressed its support for the Corps to expedite the study.

The second Reconnaissance Report identified a great more benefits than the first, based on Tropical Storm Delores, and did recommend further studies. The report was approved on 7 February 1980 to initiate the formulation phase of the Detailed Project Report (DPR).

PROBLEM IDENTIFICATION

EXISTING CONDITIONS

Topography and Drainage

The Magnesia Spring Canyon, a tributary of the Whitewater River, originates in the lower Santa Rosa Mountains in Riverside County (see pl. 1). It is typical of the mountain canyons containing steep walls and bordering a relatively flat floor. The five square mile portion of the basin above the mouth of canyon is about 2.5 miles long, with an average width of about 2 miles. Elevations range from 220 feet at the Whitewater River to 2975 feet in the higher peaks, with an average elevation of 1500 feet.

The average gradient upstream of the canyon head is about 600 ft/mi, decreasing to 190 ft/mi downstream on the Magnesia Spring alluvial fan.

Magnesia Spring Creek flows in a northeasterly direction within the canyon and alternates between surface and subsurface flow depending on the saturation of the stream bed. At an elevation of 600 feet the stream enters a 720 acre alluvial fan where the flow path becomes undefined during large floodflows. Low flows are directed by existing levees to West Magnesia Spring Channel (see pl. 4) which runs from elevation 480 feet to the Whitewater River. Large floodflows breach the levees resulting in flooding of the community.

Existing Water Projects and Planned Improvements

Coachella Valley Water District is planning to construct a levee along the East Magnesia Spring Canyon Creek (see pl. 4). This levee will provide limited flood protection for properties in the alluvial fan inasmuch as most of the floodwaters will not be controlled. The levee is being designed to contain the runoff from the foothills, east of Rancho Mirage. The preliminary design for a revetted levee and channel are near completion and construction will take place as soon as funds become available.

There is an existing unrevetted earth levee which attempts to contain the flows along the east foothills and runs parallel to Magnesia Falls Road to a point approximately two blocks south of Highway 111 (See pl. 4).

Geology and Soils

Magnesia Spring Canyon is composed of hard and well bedded metamorphic schists, gneisses, limestones, and marbles which have been injected by relatively thin quartz veins parallel to bedding. Above 1600 feet the canyon slopes become flatter and are covered with a thin veneer of residual sandy soil.

There are three quaternary sedimentary deposits recognized and mapped in the project area (the older terrace deposits representing relict fan surfaces, undifferentiated slope wash and tributary alluvial fan deposits, and recent deposits on the active Magnesia Spring alluvial fan). The older deposits are moderately cemented while the more recent deposits are uncemented and poorly consolidated. Metamorphic basement rock was determined to be at computed depths of 105 to 120 feet in the main channel.

The soils in the project area are predominantly nonplastic, noncohesive sands, gravelly sands, and silty sands with generally few cobbles and fines.

Groundwater

Magnesia Spring Canyon is within the Thermal Subarea of the Indio Subbasin, one of the four subbasins and subareas in the Coachella Valley. The subarea is bounded on the northeast by the San Andreas and related faults, and on the southwest by the Santa Rosa and San Jacinto Mountains. The overall groundwater gradient is to the southeast towards the Salton Sea, and moves along deeper aquifers which extend farther to the southeast. The Magnesia Spring alluvial fan acts as a small recharge area, but the Palm Springs subarea provides most of the recharge to the basin.

Groundwater at the project area does not appear to be of any consequence during the dry seasons, but during periods of high runoff the alluvium may become entirely saturated due to the narrow confines of the canyon. The water from the perennial Magnesia Springs, located upstream of the canyon mouth, percolates rapidly into the coarse sands of the alluvial fan as it leaves the bedrock at the canyon head, and apparently follows the bedrock/alluvium contact.

Biological Resources

The vegetation of the Magnesia Springs area is dominated by the creosote scrub plant community. The rocky, hillside creosote plant community is characterized by small creosote bushes, brittle bush (*Encelia farinosa*), cacti, and other shrubs and herbs. The alluvial plain creosote scrub tend to be more diverse, and are characterized by larger specimens due to greater soil moisture. Catclaw/smoketree wash vegetation is characteristic of the canyon mouth and some of the larger drainages of the alluvial fan.

The more notable wildlife of the area includes various raptors (prairie falcon, Cooper's hawk, American kestrel, and barn owl) and peninsular bighorn sheep. All four raptors have been retained on the Audubon Society's Blue List, an early warning alert for those species exhibiting population declines throughout much of their range. The bighorn sheep is listed as rare by the California Department of Fish and Game, having been fully protected in California since 1873. The bighorn is also a candidate for Federal endangered species listing. The wildlife is particularly suited to this habitat, with its inaccessible, rocky outcrops and cliffs providing nesting and perching sites for the raptors, and escape terrain for bighorn sheep. Magnesia Spring Canyon is a reliable source of water, except for the driest years, and the alluvial fan and rocky hillsides constitute a good feeding habitat for the raptors and bighorn. The vegetation supports populations of doves, quail, rodents, and lizards, which in turn supply the diet of raptors. The Bureau of Land Management has termed the Santa Rosa Mountains as a raptor concentration area, and the canyon and the surrounding hillsides as a "vital" habitat to bighorn sheep.

Cultural Resources

Human occupation of the project vicinity began about 1000 years ago. These earliest inhabitants were groups of hunters and gatherers, who in later times came to be known as the Cahuilla Indians. It has been postulated that these people emigrated to southern California from Nevada. Once they reached the Colorado Desert, they adapted to life around the extinct freshwater Lake Cahuilla (where the Salton Sea is now located). Lake Cahuilla slowly dried up, requiring these groups to adapt to the drier surroundings. They established a precise seasonal cycle of gathering wild plant foods that necessitated arrival at the right time and place. They also hunted large and small game, and developed a form of agriculture.

A cultural resource survey of the project area identified five cultural resource sites that are remnants of this prehistoric occupation on the steep slopes of the foothills west of the alluvial fan. Three of the sites contain evidence of an aboriginal trail. The remaining two sites are related to food preparation, and are composed of large boulders exhibiting grinding slicks.

Health and Safety

A flood threat exists from West Magnesia Spring Canyon. Residential and commercial developments, highways and roads, as well as utilities located on the alluvial cone are subject to flooding, erosion, and deposition. This threat is significant since these land uses comprise about 75 percent of the flood plain area, with residential use dominant in the flood plain. In addition, a public elementary school is within the flood prone area.

Recent experience and engineering studies indicate that storms in the mountains above Rancho Mirage can produce a flood in 15 minutes. The floodwaters, which cross the alluvial fan with high velocity in an unpredictable path, are capable of knocking down walls and moving heavy items. Erosion created by these flows is capable of undercutting roads and building foundations.

Hydraulic studies have shown the depth of inundation expected from West Magnesia Spring Canyon for variously sized floodflows. Under present conditions of development, the 50-year floodflow of 2,700 cfs would cause depths of inundation averaging 1 foot, the 100-year floodflow of 4,200 cfs would cause depths of inundation averaging 1.5 feet and the SPF floodflow of 6,600 cfs would cause depth of inundation averaging 2.0 feet. Certain localized areas such as between houses or along walls could produce depths of 4 to 6 feet for these floods.

All of these factors present a severe threat to the inhabitants and other users of the flood prone area, if not from the direct impact of the floodwaters, then from the threat that transportation, communication, and utilities to the area could be cut when they were most needed.

Esthetics

The esthetics of the area are a conglomeration of low density, single family housing downstream, and the natural environment upstream. (See first photo).

Housing in the area is typical of middle and upper-middle class neighborhoods, with mostly concrete block and stucco walls, usually one story, and low pitched roofs. Landscaping around the homes varies from green grass and shrubs to natural desert plants.

Esthetics of the undeveloped portion of the cone above development are related to the natural environment. Topography, geology, desert vegetation, and presence of water are contributing factors to the esthetics of the area. Steep, rugged mountains overlook a sandy, desert wash and an alluvial cone. Desert brush sparsely dot both. A flood control project will allow development of the upstream area, and thereby replace some of this natural desert wash environment.

FLOOD HISTORY

The mean annual precipitation is very low on the desert floor, with only 4.5 inches in Rancho Mirage along Highway 111. This increases to about 6 inches in the highest portions of the study area (although there are no rain gages in the upper portions of the drainage). Most of the precipitation falls during the cooler months, November through March, but high-intensity thunderstorms and even tropical storms can occasionally occur between mid-summer and early fall.

Three types of storms can produce precipitation in the study area: general winter storms, general summer storms, and local storms. A brief description of each storm type is given in the following subparagraphs.

(1) General winter storms usually occur during the period from November through March. They originate over the Pacific Ocean and move across the basin generally from west to east. They normally last from one-half day to several days and are accompanied by widespread precipitation. Those storms, which move into the area from out of the subtropical Pacific southwest of southern California, are usually heavier than those which originate in the Gulf of Alaska and approach the region from out of the northwest.

(2) General summer storms are quite rare in the study area and are generally limited to the period of early August through early October. They normally move into the region from out of the south or southeast and are often associated with the remnants of a tropical hurricane from off the west coast of Mexico. In a general summer storm there is often widespread moderate precipitation for durations up to 24 hours, with showers lasting up to 3 days.

(3) Local storms can occur at any time of the year, either during general storms or as isolated phenomena. In the study area the time of the year for the most frequent and potentially heaviest local storms is July through September, but fairly heavy local storms can also occur from December through March. These local storms cover comparatively small areas and frequently result in high-intensity precipitation of short duration. The storms are usually accompanied by considerable lightning and thunder and are often accompanied by strong, gusty winds and/or hail.

Little information is available pertaining to floods in the Magnesia Spring Canyon basin. Only the recent floods of 9-11 September 1976 and 20 July 1979 have historical accounts.

During the period 9-11 September 1976, Tropical Storm Kathleen was steered by atmospheric currents northward from off the west coast of Mexico and into the Imperial and Coachella Valleys of California. The passage of this storm generated very heavy general rainfall over the mountains and deserts of San Bernardino, Riverside, and Imperial Counties. Total storm precipitation in the Rancho Mirage and Palm Desert area was around 3 inches with higher totals in the foothills and up to 14 inches in the high mountains. Most of the precipitation in this storm fell during the morning of 10 September, and the highest intensities occurred during the late morning, when rates of more than 1 inch in 1 hour were recorded.

Despite the fact that the ground was generally dry at the beginning of the storm, the amounts and intensities of rainfall during the earlier hours of the storm easily saturated the ground, so that a large portion of the heavy late-morning rain of 10 September produced heavy runoff flows. The peak discharge at the mouth of Magnesia Spring Canyon was estimated by the Corps of Engineers to be about 800 cfs (15-year frequency).

During the early hours of 20 July 1979 an intense local thunderstorm broke over the foothill areas from Palm Springs to La Quinta. The center of the storm was in the southwestern portions of Rancho Mirage and Cathedral City and in the hills above these communities. Although the very heaviest rainfall in this storm might not have been measured, the gage at the Cathedral City Fire Station recorded a maximum of 1.37 inches in 30 minutes, 2.24 inches in 1 hour, 2.92 inches in 2 hours, 3.19 inches in 3 hours, and 3.68 inches in 6 hours. Because of this extremely high-intensity rainfall over the steep foothill terrain above Rancho Mirage and Cathedral City, very heavy runoff developed in a matter of minutes, and severe flash flooding occurred in these communities. Peak discharge at the mouth of the Magnesia Spring Canyon, about 1.5 miles upstream from the Whitewater River, was estimated by the Corps of Engineers to be between 5,000 cfs (125-year frequency) and 7,000 cfs (225-year frequency).

Floodwaters from Magnesia Spring Canyon broke through the levee above Rancho Mirage near the mouth of the canyon. Most of the water flowed northeast, flooding about 130 homes in the area. Floodwaters from the canyon also caused damage to the Magnesia Springs channel and levee and to the western portion of Mirage Road. Some damage to businesses along Highway 111 was evident. A portion of the Highway 111 bridge over the Magnesia Spring channel near Culver Drive was washed out. One man was killed after his car apparently fell into the channel at the bridge washout. A main telephone trunk line was also cut at this location, inhibiting communication in the entire area. The southern approach to the Bob Hope Drive bridge over the Whitewater River suffered severe damage. Part of the road washed out and much of the earth fill of the south abutment eroded away.

The City of Rancho Mirage estimated that there was \$5,774,000 of residential damage and \$144,000 worth of business damages. The City also estimated about \$280,000 worth of damages to City streets and utilities. The Coachella Valley Water District estimated that channel restoration cost \$200,000 in this area. Based on these estimates, the total damages to the Rancho Mirage area was estimated at \$6,398,000.

HUMAN RESOURCES

Population

Research by the Southern California Association of Governments (SCAG) shows that the population in Rancho Mirage in 1980 was 6281. SCAG projects that the population in 1990 will be 18,900 and the rate of development in the city and the area would tend to support that figure. The Coachella Valley Association of Governments (CVAG) census found that the median age for the city was 50 years, and that 45 percent of the population were retired or not in the labor force.

Economic Resources. In contrast to Indio and Palm Springs, which are the employment centers of the Coachella Valley, Rancho Mirage is primarily a residential community. There are resort and recreational activities available for both residents and visitors. The business community is located on both sides of Highway 111 as it passes through the City.

Social Resources. Rancho Mirage is a resort community that offers the attractions and benefits of country-club living, golf, tennis, and vacation homes in the desert. Rancho Mirage is located in the middle of the upper Coachella Valley resort area which also includes the communities of Palm Springs, Palm Desert, and Indian Wells. This portion of Coachella Valley has plans for major shopping centers which will enhance even further the area's deserved reputation as a year-round shopping mecca.

Land Use

The land use in the project area is primarily residential with a strip of commercial development along Highway 111. A large parcel of vacant land remains undeveloped in the upper portion of the project area because of the flood hazard. In the lower part of the area, a number of undeveloped parcels are scattered throughout the development.

FUTURE CONDITIONS

INTRODUCTION

The population of the City and surrounding communities is expected to increase. Thus, future development is expected to occur on vacant lands scattered throughout the developed area even without provision of flood protection. Currently, development is permitted on these scattered parcels without any flood protection requirement, because floodproofing measures would not be effective on the alluvial fan. However, development is not permitted on the large parcel of land on the upper part of the area unless structural flood control measures are provided.

FUTURE FLOODING

Rancho Mirage has been hit with floods which have resulted in the loss of human life. The nature of the watershed produces floods very rapidly. These floods are laden with debris, resulting in the formation of an alluvial fan at the mouth of the canyon. Successive floods can take distinctively different paths to the Whitewater River, due to erosion and deposition that occurs with each flood. The creek's unpredictable behavior is typical of alluvial fan situations. The danger in the case of Rancho Mirage is in relying on the existing channel and flood plain to convey floodwater in an identical manner with each flood, when in reality the configuration of each flood will change. Thus, all areas on the alluvial fan are threatened.

If no flood protection action is taken, the community can expect future flooding, resulting in millions of dollars of damage and possible additional loss of life. Rancho Mirage is presently participating in the Federal Flood Insurance Program as well as a flood plain management effort, which currently prohibits development of the upper portions of the alluvial fan. The Coachella Valley Water District is currently undertaking a program to provide channel improvements on the eastern side of fan. This is not intended to carry floodwaters from the canyon, however, but only small runoffs from the hills on the east side.

To predict the future flood threat from Magnesia Springs Canyon, a regional discharge-frequency analysis has been performed. Relationships between the magnitude of future floods and their probability of occurrence have been determined. In addition, the standard project flood has been developed. The standard project flood is the flood that would result from the most severe combination of meteorological and

hydrological conditions considered reasonably characteristic of the region. It is normally larger than any past recorded flood and can be expected to be exceeded in magnitude only on rare occasions. The SPF thus constitutes a standard for design that will provide a high degree of flood protection. The following table presents the discharge-frequency relationships for selected future floods.

Table 1
Discharge-Frequency Relationship
Magnesia Springs Canyon at the Canyon Mouth

Discharge in cubic feet per second	Frequency of occurrence (exceedance interval in years)
12,000	500
6,600 (standard project flood)	200
4,200	100
2,700	50
570	10

The flood prone area covers about 835 acres between the mouth of Magnesia Spring Canyon and the Whitewater River (pl. 2). Urban development presently occupies 615 acres of this area. The development consists of about 525 single family homes, 400 units of multifamily housing and 71 commercial facilities. Also subject to inundation is the major highway through the city (Hwy 111). Access to Rancho Mirage becomes difficult when this highway is inundated, particularly to that portion of the city on the alluvial cone. Utility service is also subject to disruption.

Although floods on the alluvial fan can take many different paths, the July 1979 flood overflow (pl. 3) was taken as a representative overflow for economic calculations of potential damage by a single large flood to structures, roads and highways, personal property and utilities. It is estimated that about \$8.3 million in damages could be expected to existing development from the occurrence of the standard project flood. Whether or not flood control is provided, more urbanization will take place in the flood plain. Floodproofing measures, normally expected to prevent damages up to the 100-year flood, are not expected to be so effective here, due to the high velocities and variable depths caused by the erosion and deposition created by floods on the alluvial fan. Thus new development would be expected to suffer damages in a manner similar to the existing development. Total damages expected from a standard project flood to both existing and projected development would total about \$20,350,000.

While the 100-year flood would be smaller in magnitude than the standard project flood, the flooded area would be about the same. The 100-year flood would be nearly as disruptive as the standard project flood in terms of cutting off access to Rancho Mirage, damaging

of the City of Rancho Mirage and businesses. Occurrence of a 100-year flood would result in \$5.7 million in damages to existing development and \$8.7 million to projected development for a total of \$14.4 million by the year 2004.

Smaller floods would also present a significant threat to Rancho Mirage. It should be noted that the flood of September 1976, which was only 70% of or about 12 percent of the magnitude of the standard project flood and had a recurrence interval of about 15 years, caused \$15,000 damages.

The analyses of flood magnitude, flood frequency, overflow limits, and estimated damages from each flood has resulted in development of an average annual flood damage amount which represents the flood damage expected to occur annually over the planning horizon. For this study, a planning horizon of 100 years was selected. The average annual damages expected to occur over this planning horizon is \$507,000 without a flood control project.

LIFE, HEALTH AND SAFETY

If no additional flood protection is provided the threat of destruction by flood will remain. Additional construction in the developed area will place some additional structures and people under this threat. The flooding of the area has already taken one life as the result of a bridge collapse during the July 1979 flood. The threat to other lives, health and safety will remain until some additional flood protection is operational.

PROBLEMS AND NEEDS

Most of the drainage area of Maglesia Spring Canyon consists of steep, rugged mountains. During periods of intense rainfall, storm waters concentrate very quickly and produce high flood peaks of relatively short duration. The resultant floods develop destructive power that can knock down walls, erode foundations and roads, severely damage homes and businesses, pose a threat to life, and create unsafe conditions through the disruption of utilities.

Because the capacity of the existing flood control channel is inadequate, a flood threat will continue to exist until additional flood protection is provided. Existing and projected development would continue to be threatened by even minor floods. The capacity of the present channel is about a 10-year flood which is approximately 70 cfs.

Initial analysis has shown that the demand for bicycle and equestrian facilities is not being met by existing trails within the City of Rancho Mirage.

PLANNING CONSTRAINTS

FINANCIAL

In the interest of expediting the implementation of flood control for the City of Rancho Mirage, local interests requested emphasis on developing a project under the Small Project Authority of the 1948 Flood Control Act, as amended. This authority allows the development and construction of small flood control works without the specific authorization of Congress. However, the project is subject to limitations of being complete in itself and not committing the Federal Government to more than \$4 million in construction cost.

The Coachella Valley Water District has agreed to be the local sponsor for the project. They have indicated the willingness and ability to assume all costs above \$4 million, in addition to other specific items of local cooperation.

ENVIRONMENTAL

Certain bird and animal species in the area, including the prairie falcon and peninsular bighorn sheep (Candidate Federal Endangered Species), and cultural resource sites that are potentially eligible for the National Register of Historic Places are of concern to State and Federal environmental agencies and public environmental groups. Placement of project features have attempted to minimize adverse impacts on these resources. The Environmental Impact Statement accompanying this report gives additional information on the biological community, cultural resources, and other significant resources and includes a detailed discussion of the mitigation measures for unavoidable, adverse impacts associated with the recommended plan. The environmental features of the recommended plan are briefly discussed in the main report under the Description of the Recommended Plan.

SAFETY

In urban areas, such as Rancho Mirage, where damage from large floods would result in a catastrophe, the standard project flood is the goal for the level of protection for a project. This is particularly applicable to rapid flow channels.

ENGINEERING

The development of a solution is constrained by (a) the potential for sediment blockage of the inlet (b) steepness of the terrain along the wash resulting in high velocity flows (c) limited rights-of-way, and (d) an existing highway bridge. Any plan developed to solve the flood problem along west Magnesia Spring Canyon need to take all four of these constraints into account.

ALTERNATIVE PLANS

FORMULATION OF ALTERNATIVE PLANS

Management Measures

The objective of this study is to provide a high degree of flood protection. The scope of planning is limited to the study of flood control measures and some environmental mitigation features as they relate to flood control improvements.

Plan Formulation Rationale

In formulating the plan for flood control in Rancho Mirage, the needs and concerns of all affected interest groups and agencies were sought through a series of meetings and public workshops. Those that were principal participants in formulating a plan of improvement were the Coachella Valley Water District, citizens of Rancho Mirage, the United States Fish and Wildlife Service, and the State of California Department of Fish and Game. Heavy emphasis was placed on public participation in the determination of problems and needs, and in the development of the recommended project.

Evaluation Criteria

The Federal Objective of water and related land resources planning is to contribute to national economic development consistent with protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders and other Federal planning requirements.

The Water Resources Council's Principles and Guidelines for Water and Related Land Resources Implementation Studies require that, during plan formulation, a plan can be identified that produces the greatest contribution to the national economic development (NED). This plan, called the NED plan, is defined as the plan providing the greatest net benefits, determined by subtracting annual charges from annual benefits. The NED plan is identified in subsequent sections of this report.

Environmental and Other Criteria

The Principles and Guidelines further provide that environmental quality, social well-being, and regional development should be taken into account, as well as national economic values.

The following environmental criteria and intangible considerations were used to formulate and compare alternatives:

- (1) Protection of ecological resources, especially species of concern, including the peninsular bighorn sheep and various raptors;

- (2) Safeguard cultural resources during construction and maintenance operations;
- (3) Minimize social disruption due to construction activities, especially noise that may disturb residents and operations of the school;
- (4) Assure public access to the Magnesia Springs Ecological Reserve; and
- (5) Minimize loss of esthetic values.

PRELIMINARY PLANS

A wide variety of plans for providing flood protection along West Magnesia Spring Canyon, including both nonstructural and structural methods, were considered.

Nine plans were considered preliminarily during plan formulation studies. The following is a description of each plan.

PLAN 1: Debris Basin and Rectangular Concrete Channel

This plan would provide standard project flood protection through the construction of:

1. A debris basin with an earth-fill embankment approximately 30 feet high and 575 feet long. A 190-foot spillway, designed for probable maximum flood discharge, would act as the main outlet. The basin would be emptied through an inlet tower and outlet works.

2. A rectangular concrete channel 10 feet deep, 20 feet wide and approximately 1.4 miles long from the debris basin to the Whitewater River.

3. An energy dissipator at the outlet transition section.

An additional plan, designated Plan 1A, was also developed. This plan would provide 100-year flood protection throughout with the same three features, except the channel depth would be 8 feet.

PLAN 1A: Debris Basin and Rectangular Concrete Channel

This plan is the same as Plan 1 except that it provides 100-year flood protection.

PLAN 2: Debris Basin and Trapezoidal Concrete Channel

This plan would provide standard project flood protection through the construction of:

1. A debris basin earth-fill embankment 575 feet long and 30 feet high with a 190-foot-wide concrete spillway designed for probable maximum flood discharges. The basin would be emptied through an inlet tower and outlet works.
2. A trapezoidal concrete channel, with 2 on 1 sideslopes, 5 feet deep, with a 10-foot bottom width. The channel would be approximately 1.4 miles long.
3. An energy dissipator at the outlet transition section.

PLAN 2A: Debris Basin with Combination Concrete Channel

The plan is the same as Plan 2, except that the lower 0.55 miles of channel would be rectangular. The energy dissipator at the outlet would be the same.

PLAN 3: Single Levee and Unrevetted Low-Flow Channel

This plan would provide standard project flood protection through the construction of:

1. A single earth-fill levee with grouted rock revetment to contain floodflows along the west foothills. The levee would be protected from erosion at the inlet by a series of groins.
2. An entrenched earth-bottom channel to carry low flows and provide for sediment deposition during high flows.
3. A concrete transition section and diversion levee leading into a drop structure at the outlet.

PLAN 4: Earth-Fill Dam

This plan would provide standard project flood protection through the construction of an earth-fill dam approximately 1,000 feet long and 115 feet high. The dam is designed to contain the standard project flood and the spillway is designed to pass the probable maximum flood. The outflows from the dam would be limited so as to require only minimal improvements to the existing channel.

PLAN 5: Trapezoidal Concrete Channel

This plan would provide standard project flood protection through the construction of a trapezoidal concrete channel, with 2:1 sideslopes, 8 feet deep and 20 feet bottom width. The channel would be approximately 1.4 miles long.

An inlet levee would be necessary to divert flow into the channel. A larger cross sectional area would also be necessary at the outlet into the Whitewater River. This is to accommodate the anticipated sediment deposition. The Highway 111 bridge would need modification because of this deposition. This would involve widening and/or protecting the pilings with sheet metal.

PLAN 6: Flood Plain Management Plan

The nonstructural measures that make up the flood plain management plan consist of a flood warning system, flood plain regulation, and flood insurance. This plan would primarily be the responsibility of the community.

The flood warning system for Magnesia Canyon would be a part of an overall flood warning system for the whole Whitewater River basin. The system would be designed and implemented by the Corps of Engineers. It would be operated and maintained by local agencies with assistance from the National Weather Service.

The flood plain regulation measure will require the city to pass a zoning ordinance prohibiting any further development in the 100-year flood plain. The nature of flooding in this area involves high intensity flooding of alluvial fans. Flooding on alluvial fans tends to be of a highly erosive nature, so that elevation of houses on fill is ineffective. So, rather than requiring new development to be elevated by fill, which is the current zoning ordinance, all future development should be prohibited in the 100-year flood plain.

The flood insurance measure would recommend that all property owners in the flood plain purchase flood insurance. Since the insurance programs are subsidized by the Federal Government, it is relatively cheaper than other forms of insurance. While flood insurance does not reduce the damage of flooding, it enables the property owner to recover from a disastrous event with minimal economic loss. Flood insurance is optional for property owners in the flood plain who have existing mortgages.

PLAN 7: Floodproofing

In general, floodproofing yields benefits in the form of reduced damage to structures and their contents. This alternative does not reduce the occurrence of flooding or the danger to the general public. This alternative involves building floodwalls around existing and future structures to protect the structures from flood damage in the event of a 100-year flood. The floodproofing would be accomplished by constructing flood walls, ring levees, stop logs, and stocking up structures.

SELECTION PROCESS

Of the nine plans originally considered six were removed from consideration because of either engineering inadequacies or the extent of already existing development on the alluvial cone subject to flooding.

Plans 2, 2A, and 5 which consist of a trapezoidal concrete channel, were found undesirable because of the high flow velocities and the number of curves in the channel alignment. High velocities in trapezoidal channels tend to generate waves at curves. These waves carry downstream to the next curve and the wave height is increased. To alleviate this problem would involve numerous transitions to rectangular channel so that in the long run a wholly rectangular channel would be preferred. This type of unstable flow condition is hydraulically undesirable. Plan 5 was also considered undesirable because, without a debris basin, the channel inlet could become blocked by the inflowing sediment load. In addition, such a plan would result in high maintenance cost.

Plan 3, a single levee and unrevetted low-flow channel, was considered undesirable because of the potentially excessive deposition of sediments and scour at various locations in the channel.

Plan 4, an earth-filled dam, was found to be engineeringly feasible but the environmental impacts and the lack of economic justification made the plan unacceptable. The cost of the project could not be justified by the benefits, and the environmental impacts on the bighorn sheep habitat were severe. A summary of the evaluation of Plan 4 can be seen in table 2.

Plan 6, Flood Plain Management, was considered not to be a viable alternative because of the extent of existing development on the alluvial cone subject to damage from the 100-year flood. A flood warning system was also considered but the potential damage to development would not be altered due to the little warning time associated with the flash floods of this area.

Plan 7, Floodproofing, was also found to be unacceptable because the uncertainty of the path of flow would require all structures in the 100-year flood plain to be floodproofed. The cost of this construction would also be prohibitive and would not necessarily prevent all flood damages or the threat to life.

TABLE 2
EVALUATION SUMMARY
(8-1/8% 100 Year Project Life)
(1983 \$1000)

	Plan 1 Debris Basin and Rectangular Channel	Plan 1A Debris Basin and Rectangular Channel	Plan 4 Earthfill Dam
FLOOD CONTROL			
First Cost			
Construction	7,441	6,062	16,033
Interest During Construction--IDC	208	171	1,290
Right-of-Way	<u>388</u>	<u>388</u>	<u>388</u>
Total	8,037	6,621	17,711
ANNUAL CHARGES			
Construction with IDC and Rights-of-Way	653	538	1,440
Operation and Maintenance	<u>72</u>	<u>59</u>	<u>72</u>
Total	725	597	1,512
ANNUAL BENEFITS			
Flood Damages Prevented	432	401	432
Induced Damages	(21)	(41)	(21)
Location	<u>633</u>	<u>633</u>	<u>633</u>
Total Benefits	1,044	993	1,044
NET BENEFITS	319	396	-468
BENEFIT-TO-COST RATIO	1.4	1.7	.7
LEVEL OF PROTECTION	SPF	100-Yr	SPF

A comparison was then made between plans 1 and 1A (see table 2). This comparison process yielded Plan 1, debris basin and SFE capacity rectangular concrete channel, as the selected alternative. Plan 1 would provide total annual benefits of \$1,044,000 and net benefits of \$419,000 and has a benefit-cost ratio of 1.4. Plan 1A would provide maximum net benefits and is therefore considered the NED plan. The net benefit difference between Plan 1A and Plan 1 is \$77,000. Plan 1, however, is the preferred plan. This plan is preferred over Plan 1A (the NED plan) because it would provide a substantially higher degree of flood protection to an urban area and would provide 78 percent of the net benefits of the NED plan. Also, residents of the community and the project sponsor have expressed a desire for a high level of protection—namely, a level of protection that would guard against a recurrence of the 1979 damages. A flood control project at either level of protection would create about the same environmental impact.

Reasons for Not Recommending the (NED) Plan.

The Principles and Guidelines for planning Federal water resources projects require selection of the alternative plan with the greatest net economic benefit consistent with protecting the Nation's environment (the NED plan). As previously noted, Plan 1A is the NED plan for flood control improvements at Rancho Mirage. However, this study has found that Plan 1 should be recommended instead of the NED plan based on the following:

1. Although the recommended plan would not maximize NED it would increase national economic development values significantly by controlling future flood damages, both direct and indirect. Construction of the recommended plan would improve national economic efficiency by \$419,000 (annual flood control benefits minus annual flood control costs).

2. The local sponsor desires a high degree of flood protection. While the NED plan would provide 100-year protection, the recommended plan would provide 200-year protection and meet local needs.

3. Characteristics of flooding on the Magnesia Canyon alluvial cone warrant the high level of protection afforded by the recommended plan. These characteristics are somewhat unique to desert areas, and include floodflows heavily laden with sand and gravel as well as rapid concentration times that result in severe flashfloods within 30 to 60 minutes. Slopes exceeding 4% also add to the high-risk nature of flooding on the cone by increasing flow velocities beyond 25 feet per second. Methods to reduce residual damages associated with the NED level of protection have been analyzed and found to be ineffective due to these characteristics. Floodwalls, floodwarning devices, and structural measures other than those increasing channel capacity do not reduce the risk associated with the rapid debris flows generated in the

study area. The flood of record--considered to be an SPF flood--occurred in 1979 and resulted in loss of life as well as monetary damages that in 1983 dollars come close to the project cost. This flood bears witness to the extensive damage potential of future floods.

4. The area to be protected by the recommended plan contains a public elementary school directly adjacent to the existing channel. Floodflows would imminently endanger this school as well as other public services in the flood plain including areas of community recreational activities, markets, and the main transportation artery between the several communities in this region of the Coachella Valley. Floods also pose an exceptionally high danger to the existing residential community that is directly in the path of debris flows. Further, the residential development that is expected, by virtue of the incidental flood protection inherent in both the NED and recommended plan, would be particularly at risk from residual damages due to the development's proximity to the debris basin.

5. The Federal Government is limited to \$4 million in expenditures for projects recommended under the Section 205 authority. Both the NED and recommended plans exceed this limit. Therefore, all costs over the \$4 million limit, including the additional costs involved in implementing the recommended plan rather than the NED plan (\$8,037,000 - \$6,621,000) = \$1,416,000) would be borne by the local sponsor.

DESCRIPTION OF RECOMMENDED PLAN

PLAN COMPONENTS

The plan recommended for selection consists of a debris basin at the mouth of Magnesia Spring Canyon, a rectangular concrete channel, and an energy dissipator. The debris basin embankment will be 37 feet high and 800 feet long. The material removed from the excavated basin will be used for embankment fill. The design debris volume is 150,000 cubic yards.

The spillway is designed for probable maximum discharges of 44,000 cfs. The spillway crest elevation is at 488 feet National Geodetic Vertical Datum (NGVD). Its rectangular cross-section is designed as a broad crested weir at the crest. The downstream chute will have a divider wall to reduce the length required for the transition into the rectangular concrete channel.

The rectangular concrete channel extends from the spillway to an energy dissipator at the confluence of the Whitewater River. The concrete channel is approximately 1.4 miles in length and the channel cross-section has a 20-foot bottom width and a 10-foot wall height. The channel is designed to convey the standard project flood peak discharges ranging from 6,600 cfs to 6,800 cfs. The channel alignment has 5 curves that have superelevated inverts to reduce the turbulence of flow. The channel discharges its high velocity flow into an energy dissipator at

the confluence of the Whitewater River. The energy dissipator reduces the velocity of flow to prevent any additional turbulence in the Whitewater River flow and to protect the Whitewater River side slopes from erosion. The energy dissipator will also prevent any damages to the Highway 111 bridge which spans West Magnesia Channel.

The selected plan would include acquisition of fee title for right-of-way or permanent easement. Most of the required right-of-way is presently under flood control easement and is privately owned. The Coachella Valley Water District will take necessary action to have the owners transfer fee title or permanent easement. The value of this land is included in the economic analysis.

The recommended plan has a benefit/cost ratio of 1.4. Net annual flood damages of \$411,000 would be prevented by the project. Annual location benefits accruing from the expected change in zoning laws on the cone would equal \$633,000. Annual cost would be \$725,000. Net benefits would amount to \$319,000 annually.

Adverse environmental impacts which require mitigation include the following:

- (1) Loss of wildlife habitat especially important to raptors on the alluvial cone.
- (2) Disturbance of the peninsular bighorn sheep (candidate Federal endangered species); raptors including the prairie falcon, Cooper's hawk, barn owl, and American kestrel (Audubon Society's Blue List); and ringtail and kit fox (fully protected by the State of California) by construction and maintenance noise.
- (3) Disruption of existing public access to the Magnesia Spring's State Ecological Reserve over undeveloped private land.
- (4) Potential creation of a temporary noise disturbance to the Rancho Mirage Elementary School and residences adjacent to the channel alignment as a result of channel construction.
- (5) Loss of open space and esthetic values on the alluvial cone.

A mitigation plan has been developed by the Corps of Engineers in coordination with the Coachella Valley Water District, the City of Rancho Mirage, the U.S. Fish and Wildlife Service, the California Department of Fish and Game and other concerned agencies and public during the planning process for the recommended plan. The plan includes preservation and enhancement of 20 acres of alluvial cone between the toe of the mountains along the east side of the cone and the East Magnesia Stormwater Channel levee to be built by the Coachella Valley Water District, provision of legal public access to the Magnesia

Spring's State Ecological Reserve, and provision of (an) enhanced water source(s) for bighorn sheep in Magnesia Spring Canyon. The details of the plan can be found in the Environmental Impact Statement.

Recreation development, in the form of hiking, bicycling, and equestrian trails, has been investigated and found to be justifiable. The trails would be linked to regional trails extending along the Whitewater River, and in the case of equestrian trails, in the Santa Rosa Mountains. The local sponsor does not want to develop the recreational potentials at this time. The maintenance road will be used to allow public access to the State of California's reserve above the debris basin during appropriate periods of the year.

DEBRIS BASIN SITING CONSIDERATIONS

It was determined early in the formulation process that it is necessary to control the tremendous sediment load washing out of Magnesia Canyon. Uncontrolled sediment would not only block channel and channel inlets, but would also contribute to and aggravate the extent of flood damages by forming debris flows. The debris basin and channel alternative was formulated for this reason.

During the design process, several locations for the basin were considered, ranging from the 800 foot long embankment at the recommended location to a 3/4 mile long embankment to protect only the existing development on the alluvial cone. The recommended location has been found to be the most efficient and economical site for the debris basin. Sites for the basin closer to the existing development would require increasingly longer embankments and increasingly shorter channel lengths. It was found that as the embankment site moves closer to the existing residential development, materials for the embankment increase in cost at a rate faster than the accompanying savings from reduced channel length.

OPERATION AND MAINTENANCE CONSIDERATIONS

The recommended plan is designed to ensure as little operation and maintenance of the facilities as possible under required standards, so that the system will function properly, at the lowest cost. Planned maintenance would include periodic replacement of concrete invert, as needed and periodic debris removal from the debris basin. Following construction by the Corps, maintenance will be the responsibility of the local sponsor.

ENVIRONMENTAL CONSIDERATIONS

Environmental resources were considered in the planning and design of the recommended plan in order to minimize avoidable impacts to those resources. Resources considered include ecological resources; rare, threatened, or endangered species; archaeological sites; existing open

space values and future land use; access to the State Ecological Reserve for bighorn sheep; esthetics; and noise and dust generated during construction and maintenance activities.

After careful consideration of a wide range of alternative plans and various plan designs it was determined in accordance with EO 11988 that the recommended plan is the most cost effective plan to protect the existing development on the alluvial cone. Although the recommended plan is expected to result in unavoidable, incidental development, it is the most cost effective and practicable alternative solution that reduces the hazard and risk of flood loss to the existing urban development; minimizes the impacts of floods on human safety, health, and welfare; and recognizes applicable engineering, environmental, and economic constraints.

The recommended plan will have permanent direct and indirect adverse impacts on ecological resources in the project area, but will mitigate for most of the losses by preserving and enhancing wildlife values on a 20-acre parcel of land on the east side of the cone. No endangered species will be impacted. Impacts to raptors (this is a Bureau of Land Management-identified raptor concentration area) and the peninsular bighorn sheep, a candidate for Federal endangered species listing, will be minimized through timing of construction activities to avoid summer months, if possible, and through provision of enhanced water sources and preservation of the 20 acres of habitat on the alluvial cone. None of the five archeological sites identified in the project area will be impacted by the construction or operation of the recommended plan. Open-space values of the alluvial cone will be lost to the construction of the debris basin and to indirectly induced urban development of the 150 acres between the proposed debris basin and the existing development. Consideration has also been given to future development of a new road along side the proposed channel, which would allow additional vehicle access to the presently undeveloped portion of the alluvial cone. Access to the State Ecological Reserve, located upstream and to the east of the project area, will be improved by the recommended plan, because it will become legal, whereas now, access depends upon crossing of undeveloped private property. Construction of the debris basin embankment, fencing and other barriers will limit the destructive and noise producing off road vehicles and other unauthorized modes of access to the upper canyon. Unavoidable impacts to esthetics, which would be caused by the construction of the 37-foot-high embankment, will be mitigated by vegetating the downstream face of the embankment with native plant species. Noise generated during construction activities may adversely impact the residents and the Rancho Mirage Elementary School alongside the existing channel alignment. Construction of the channel will minimize disruption of school activities and of residents adjacent to the channel alignment by avoiding construction adjacent to the school during school hours and during nighttime hours to the greatest extent practicable. Appropriate measures will be taken to minimize dust generation during construction activities. A more detailed discussion of impacts and mitigation measures may be found in the EIS.

OBJECTIVES ACCOMPLISHED

The recommended plan would provide a high level of flood protection to residents of a portion of the City of Rancho Mirage. By providing standard project flood protection, the project would protect existing development valued at about \$56 million. By the year 2014, protection would be afforded to development valued at \$98 million. Without flood protection, equivalent annual probable damages would be \$478,000. With the recommended plan, equivalent annual residual damages would be \$67,000, this shows an equivalent annual amount of \$411,000 in damages prevented.

The recommended project would provide flood protection to a developed urban area. The recommended project would reduce the hazard to life and property from the occurrence of large floods; and would help prevent interruptions to normal community activities, transportation, and communication facilities, as well as helping to prevent the possible isolation of the community due to the interruption of highways, roads, and utilities.

IMPLEMENTATION RESPONSIBILITIES

Legislative and administrative policies have established the basis for the division of Federal and non-Federal responsibilities in the construction and operation and maintenance of Federal water resource projects.

COST ALLOCATION

All costs for this project are allocated to flood control.

Cost Apportionment

Federal legislation pertaining to local protection projects requires that local interests provide all necessary rights-of-way, bear the expense of all relocations, and maintain and operate all features of the project after construction. Also, because the project is being pursued under the Small Project Authority, the Federal share for construction costs, which includes all study costs, cannot exceed the Federal limit of \$4,000,000.

Provision of flood control to the vacant land at the upper end of the alluvial cone will add substantial value to land owned by a few individuals. Federal regulations require special cost sharing when such "windfall" benefits accrue to a few beneficiaries. However, since local interests must bear all costs of the recommend plan in excess of \$4 million, they are already sharing in excess of the amount of the contribution which would be assessed in recognition of special local benefits (\$2.65 million), and no additional contribution is required. Additional information on special local benefits is in Appendix E.

Table 3 shows the apportionment of the first cost between Federal and non-Federal interests for the recommended plan.

Table 3. Cost Apportionment.

Item	First Cost	Total	Federal	Non-Federal
Flood Control				
Construction		\$7,891,000*	\$4,000,000	\$3,891,000
Relocations & utilities		0	0	0
Rights-of-way		388,000	0	388,000
Total		\$8,279,000	\$4,000,000	\$4,279,000

*Includes \$450,000. For Detailed Project Report.

FEDERAL RESPONSIBILITIES

The estimated Federal share of the total cost of the project is \$4,000,000.

As part of its financial responsibility, the Federal Government would design and prepare detailed plans and administer contracts for the construction of the project.

NON-FEDERAL RESPONSIBILITIES

The estimated non-Federal share of total first cost of the project is \$4,279,000 which includes \$3,891,000 of the construction cost because of Small Project Authority limitations; and \$388,000 for rights-of-way.

In addition, maintenance and operation of the project would cost the local interests an estimated \$72,000 annually.

The local sponsor for the project is the Coachella Valley Water District.

Requirements of local cooperation are:

1. Provide, without cost to the United States, all lands, easements, and rights-of-way, including suitable borrow and spoil disposal areas and mitigation area necessary for construction of the project.

2. Contribute a cash contribution for all funds in excess of Federal limitations expressed in Section 205 of the 1948 Flood Control Act (PL 80-858) and its amendments or for funds required by special cost sharing due to windfall benefits, whichever is greater.
3. As made necessary by construction, accomplish, without cost to the United States, all alterations and relocations of buildings, transportation facilities, storm drains, utilities, and other structures and improvements. This excludes facilities necessary for the normal interception and disposal of local interior drainage at the line of protection.
4. Maintain and operate all the works including the mitigation features after completion in accordance with regulations prescribed by the Secretary of the Army and as outlined in the Environmental Impact Statement, at an annual cost now estimated at \$72,000.
5. Hold and save the United States free from water rights claims caused by the construction and operation of the project.
6. Prescribe and enforce regulations to prevent obstruction or encroachment on flood control works that would reduce their flood-carrying capacity or hinder maintenance and operation, and control development in the project area to prevent an undue increase in the flood damage potential.
7. Publicize flood plain information in the areas concerned and provide this information to zoning and other regulatory agencies for their guidance and leadership in preventing unwise future development in the flood plain.
8. Hold and save the United States free from damages caused by construction, operation, and maintenance of the project, excluding damages that are due to the fault or negligence of the United States or its contractors.

Prior to start of construction, Coachella Valley Water District would be required to enter into an agreement with the Federal Government to comply with Section 221 of the Flood Control Act of 1970, Public Law 91-611. A draft of the 221 agreement is inclosed in the Public Involvement Appendix.

PLAN IMPLEMENTATION

The steps that would need to be followed in constructing the recommended plan of improvement are summarized as follows:

This report will be forwarded to the Office of the Chief of Engineers, through the U.S. Army Corps of Engineers South Pacific Division, for approval.

After a preliminary meeting, preparation of plans and specifications would then be completed by the Los Angeles District, bids invited, and a contract awarded. At that time, implementation of the necessary local actions, including the execution of the JLI Agreement, would be required.

Following completion of the project, local interests would be responsible for operating and maintaining the project.

A schedule for accomplishing the preparation of plans and specifications and project construction is shown in Figure 1.

CONCLUSIONS

This study was prepared under the continuing authority of Section 200 of the 1948 Flood Control Act as amended.

The study area is about 7 miles southeast of Palm Springs. The drainage basin includes about 5 square miles. West Magnesia Spring Canyon Channel flows through the study area, starting on steep rocky slopes and a deep canyon before reaching existing channel improvements and finally the Whitewater River. The existing channel improvements have an estimated capacity capable of controlling about a 10-year flood.

A variety of plans were considered for flood control improvement for West Magnesia Spring Canyon. These included various structural and non-structural plans including: dams, debris basins and channels (both concrete and earth-bottom), and flood plain management.

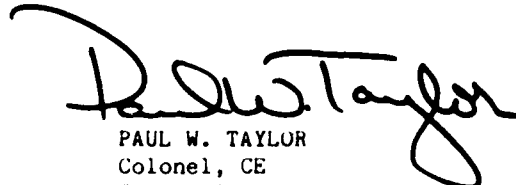
In selecting a plan of improvement, economic justification, environmental quality, social effects, degree and completeness of protection, public input, and implementability were considered. The selected plan has positive net benefits as well as standard project flood protection, and has the support of the sponsor. The selected plan starts just downstream from the mouth of West Magnesia Spring Channel with a debris basin, which inlets to a rectangular concrete channel about 16 feet deep, 20 feet wide and 1.4 miles long. The recommended plan is the most cost effective plan for protecting the existing urban development on the West Magnesia Canyon alluvial cone. Because the recommended plan will provide incidental protection to vacant land now in the floodplain, it is expected that this land will develop as a result. The total cost of the project is estimated at \$8,279,000. The Federal share of the estimated cost would be \$4,000,000 and the non-Federal share would be \$4,279,000, of which \$3,891,000 is for construction and \$388,000 is for easements, rights-of-way and relocations.

Annual charges for the recommended plan are estimated at \$725,000; annual benefits are estimated at \$1,044,000 and the benefits to cost ratio is 1.4. Following construction, non-Federal interests would be required to operate and maintain all project features. Annual operation and maintenance costs are currently estimated at \$72,000.

The local sponsor of the project is the Coachella Valley Water District.

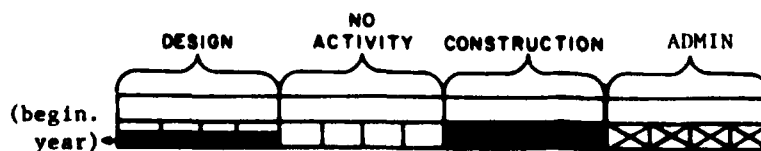
Recommendation

I recommend that the Chief of Engineers approval for construction the recommended plan for flood control described in this report, at a first cost now estimated at \$8,279,000, pursuant to Section 205 of the 1948 Flood Control Act, as amended. The Federal share of the estimated cost would be \$4,000,000.


PAUL W. TAYLOR
Colonel, CE
Commanding

LINE NO	UNIFORM COST CLASSIFICATION	FEATURE ITEM	PROJECT COST ESTIMATE	TOTAL AS OF	FY 19
1					19
2	01	Land easement and right-of-way	388,000		20
3					30
4	02	Fish and wildlife facilities	185,000		
5	03	Permanent operating equipment	1,000		
6	09	Channel construction	6,401,000		
7	30	Engineering and Design ¹	916,000	(FY 1980)	
8	31	Supervision and Administration	388,000		
9					
10		TOTAL	\$8,279,000		
11					
12					
13					
14					
15		TOTAL FIRST COST	\$8,279,000		
16					
17					
18		TOTAL FIRST COST - FEDERAL	\$4,000,000		
19					
20		TOTAL FIRST COST - NON-FEDERAL	\$4,279,000		
21					
22					
23					
24		^{1/} Includes \$450,000 DPR cost			
25					
26					
27					

SPL FORM 1 NOV 72 571



	TOTAL AS OF	FY 1984				FY 1985				FY 1986				FY 19				FY 19				FY 19				BALANCE TO COMPLETE
		10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	10	20	30	40	

DESIGN AND CONSTRUCTION SCHEDULE

U.S. ARMY ENGINEER DISTRICT
LOS ANGELES, CORPS OF ENGINEERS
TO ACCOMPANY DESIGN MEMORANDUM NO.
DATED Dec. 1983 SHEET 1 OF 1

PHOTOS

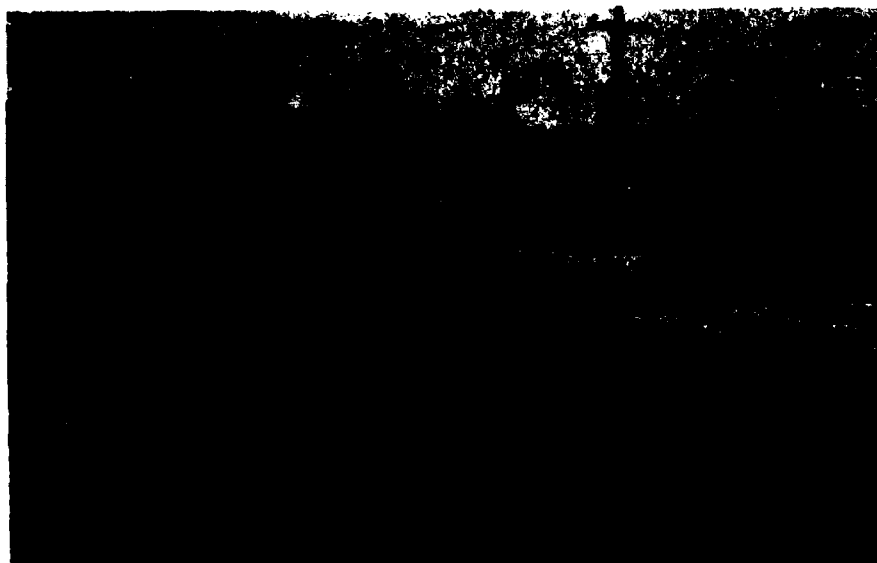


Aerial view of Rancho Mirage after the July 1979 flood.

PHOTOS



Structural damage resulting from the July 1979 floodwaters discharging from Magnesia Springs Canyon.



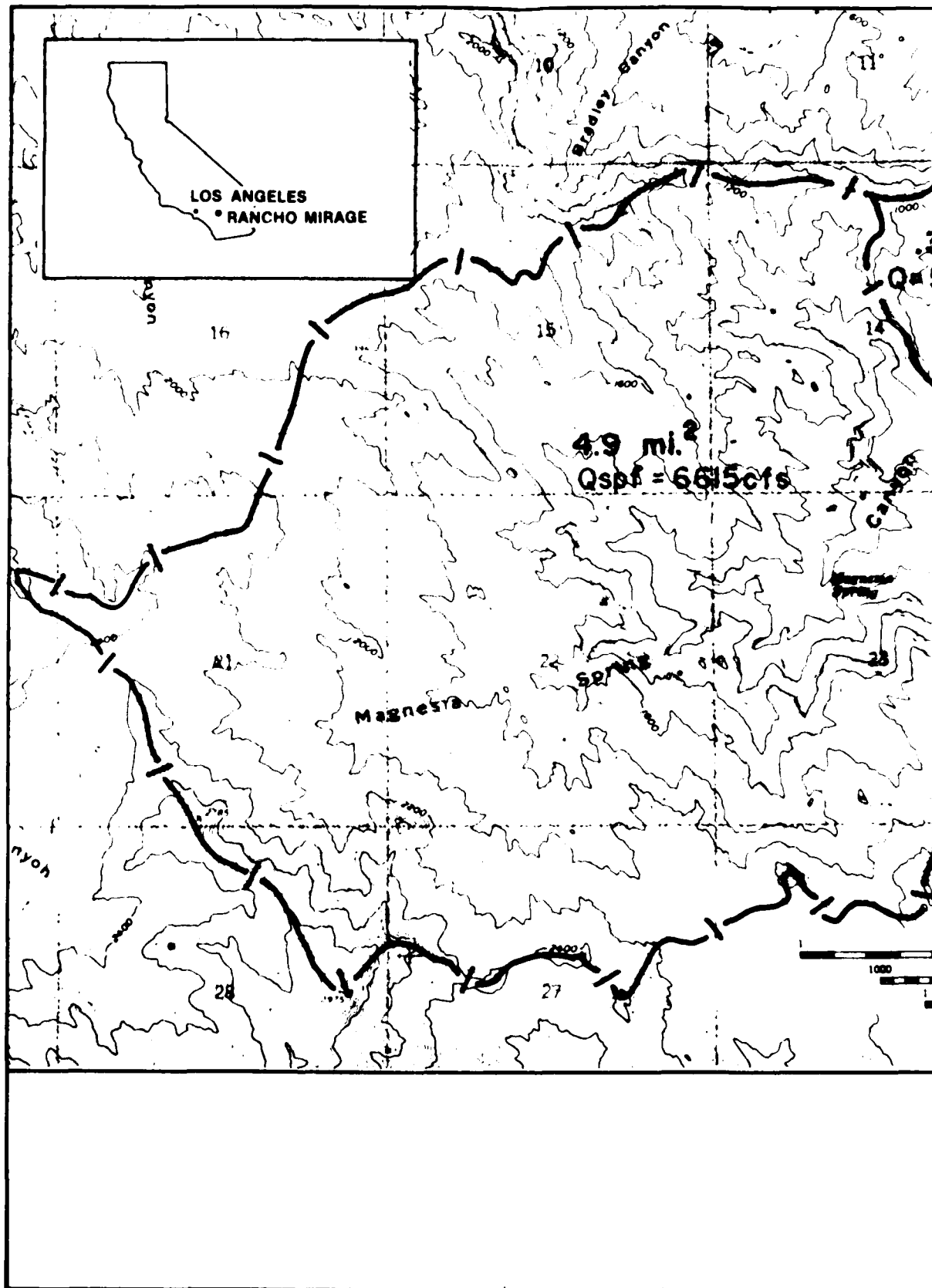
Collapsed bridge on State Highway 111 over Rancho Mirage storm channel near Culver Drive. Bridge collapse resulted from the July 1979 flood. One man was killed when he drove his car over the edge of the collapsed bridge section

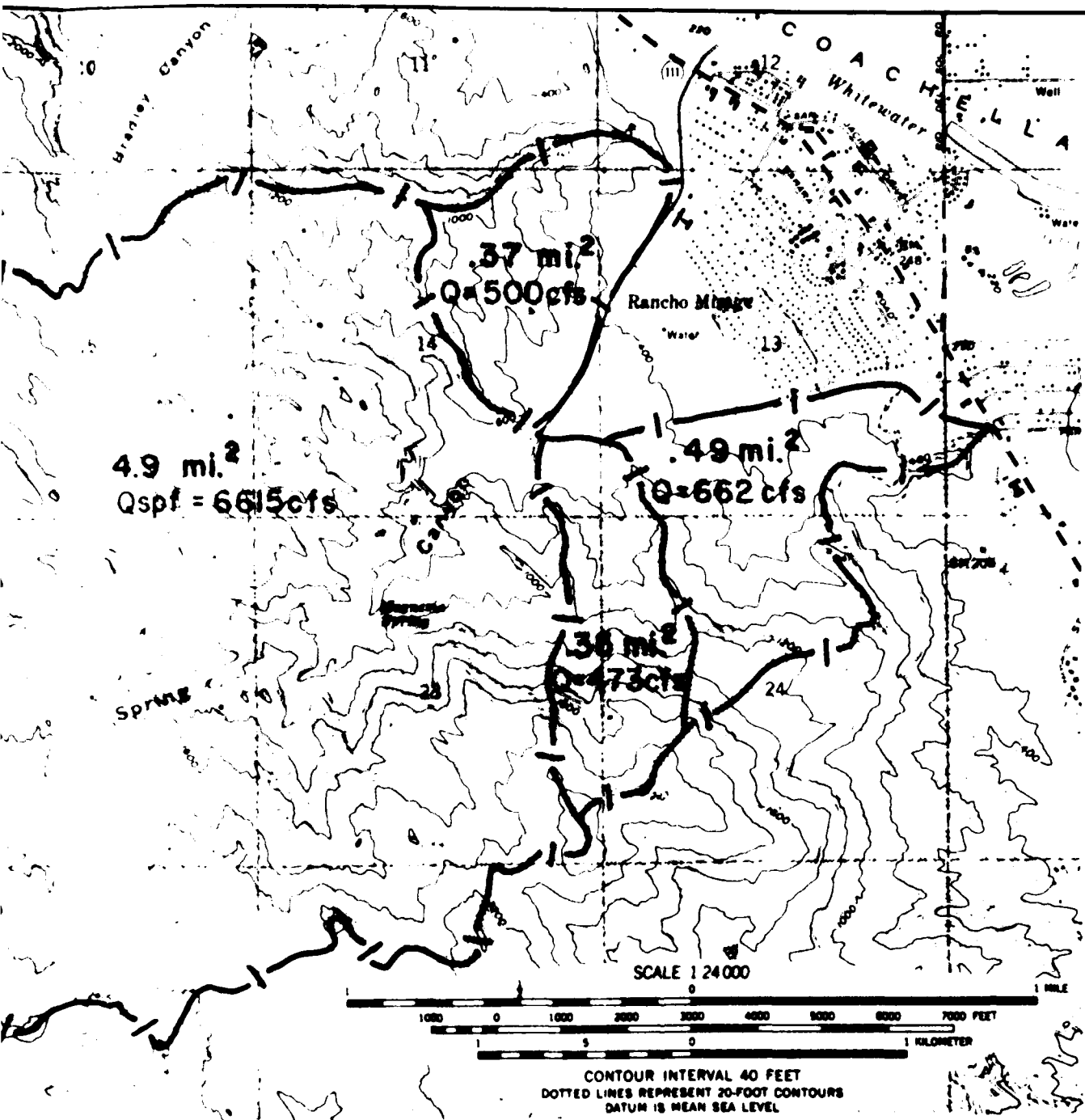
PHOTOS



Washout caused by undercutting of Highway 111 just NW of bridge





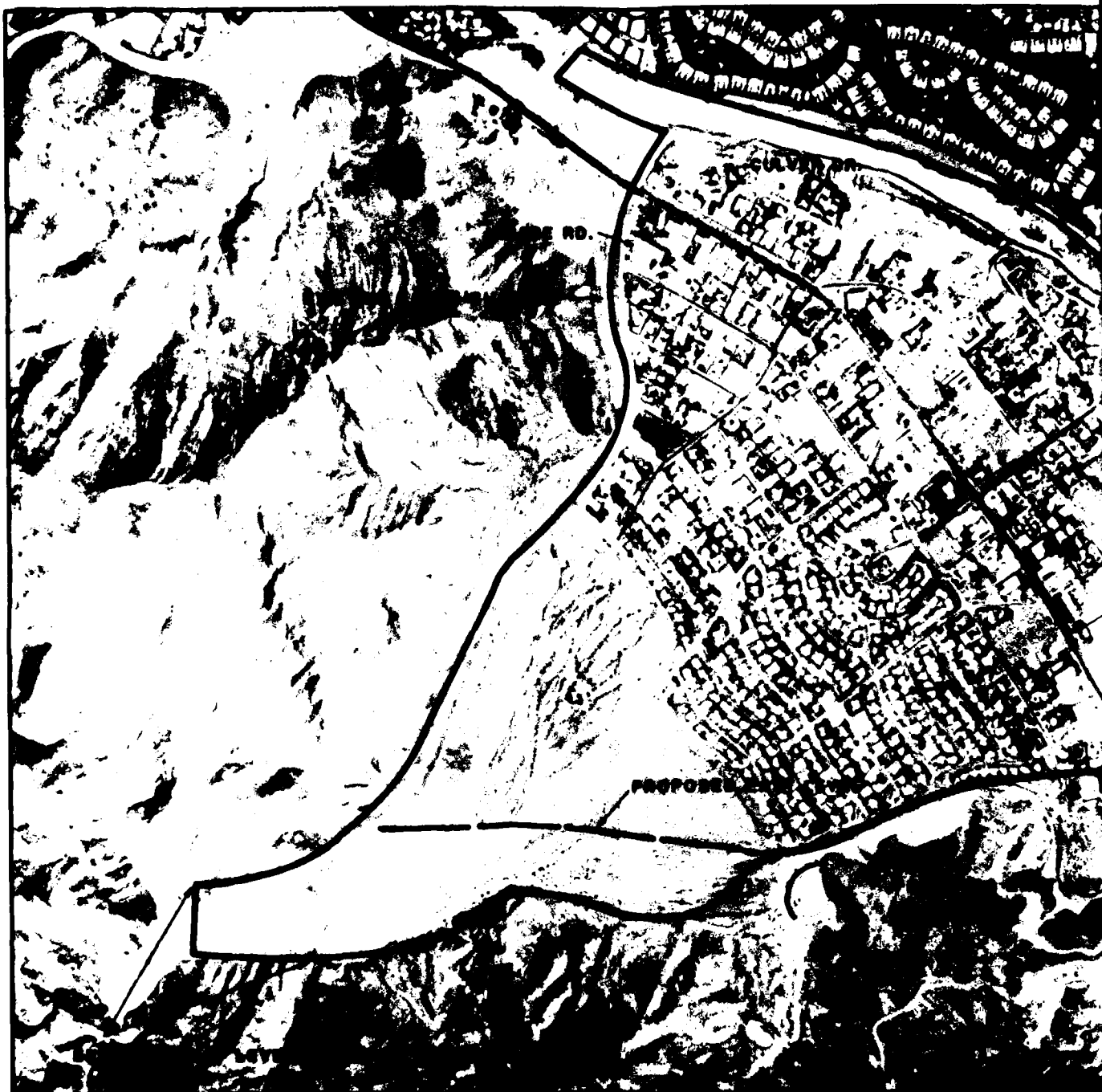


WEST MAGNESIA SPRING CANYON
RANCHO MIRAGE

DRAINAGE AREA

US ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

PLATE 1





WEST MAGNolia SPRING CANYON
RANCHO MIRAGE

AREA SUBJECT TO
INUNDATION

US ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

PLATE 2



OUTLINED AREA REPRESENTS PROBABLE
PATH OF FLOODING USED IN ECONOMIC
STUDIES.

DEPTHS OF FLOODING WILL VARY WITH THE
RARIY OF THE EVENT. DEPTHS WILL BE
MUCH LARGER BEHIND OBSTRUCTIONS TO
FLOW, SUCH AS WALLS.



ED AREA REPRESENTS PROBABLE
OF FLOODING USED IN ECONOMIC
ES.

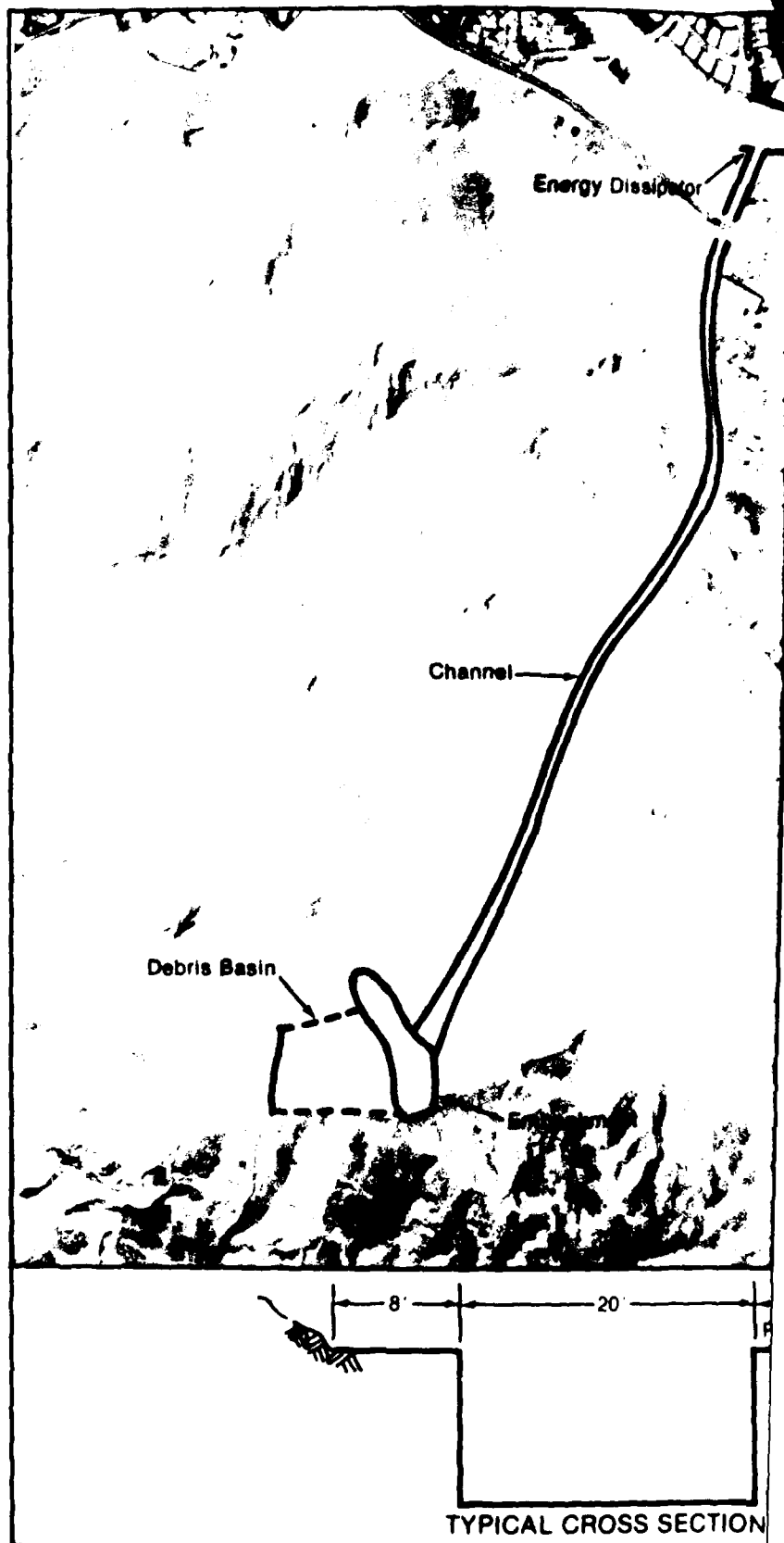
S OF FLOODING WILL VARY WITH THE
OF THE EVENT DEPTHS WILL BE
LARGER BEHIND OBSTRUCTIONS TO
SUCH AS WALLS

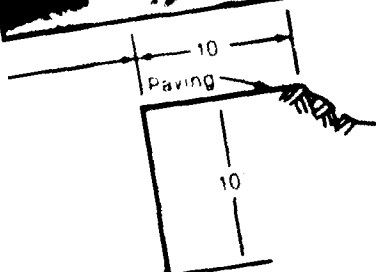
WEST MAGNESIA SPRING CANYON
RANCHO MIRAGE

OVERFLOW AREA

US ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

PLATE 3





S SECTION

WEST MAGNESA SPRING CANYON
RANCH MIRAGE

PREFERRED PLAN

US ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

PLATE 4

PUBLIC INVOLVEMENT APPENDIX

APPENDIX
PUBLIC INVOLVEMENT AND COORDINATION
WITH OTHER AGENCIES

DECEMBER 1983

The Public Involvement Appendix includes:

1. Selected project-related correspondence,
2. A draft of the "Section 221" Agreement between the United States Government and the Coachella Valley Water District, and
3. Responses to agency and public comments on the December 1982 draft report.

The letters of comment and responses to those found in section 3 of this appendix are arranged in order of Federal agencies, State agencies, local agencies, public organizations, and individuals. The number in the left margin of the letters of comment correspond to the responses for each comment that follow. The letters received by the Corps of Engineers not requiring response come last.

Selected Correspondence



ESTABLISHED IN 1916 AS A PUBLIC AGENCY

COACHELLA VALLEY WATER DISTRICT

POST OFFICE BOX 1058 • COACHELLA, CALIFORNIA 92236 • TELEPHONE (714) 398-2651

DIRECTORS
RAYMOND R. RUMMONDS, PRESIDENT
TELLIS CODEKAS, VICE PRESIDENT
C. J. FROST
PAUL W. NICHOLS
STEVE D. BUXTON

OFFICERS
LOWELL O. WEEKS, GENERAL MANAGER-CHIEF ENGINEER
BERNARDINE BUTTON, SECRETARY
DENNIS M. MACKETT, AUDITOR
REDWINE AND SMERRILL, ATTORNEYS

December 26, 1980

File: 0121.3061
0106.111

Norman Arno
Chief, Engineering Division
Corps of Engineers
P. O. Box 2711
Los Angeles, California 90053

Dear Mr. Arno:

Re: West Magnesia Canyon Channel

Section 205 of the Flood Control Act of 1948, as amended, provides for the Corps of Engineers, with the approval of the Chief of Engineers, to undertake the construction of small flood control projects without the specific authorization of Congress.

We request the Corps to pursue the implementation of a flood control program for the West Magnesia Canyon Channel under the Corps' Small Project Authority.

The District is prepared to assume responsibility for the local share in excess of the Federal limitation.

We understand that, if, at a later date, we should decide not to proceed with the project under the Small Project Authority because the costs exceed the District's financial capabilities, the report would have to be processed through the Corps' normal survey route. We assume from this that if this decision were made, the District would not be responsible for costs incurred to that date.

If our understanding of the process is correct, we request the Corps to pursue the flood control program in the Magnesia Canyon area under the Small Project Authority.

Very truly yours,

Lowell O. Weeks
General Manager-Chief Engineer

WHL:dg



City of RANCHO MIRAGE

89 825 HIGHWAY 111 RANCHO MIRAGE CALIFORNIA 92270 TELEPHONE (714) 324-4511

August 10, 1981

Remailed August 31, 1981

Mr. Ira Arzt
Corps of Engineers
Los Angeles District
P. O. Box 2711
Los Angeles, CA 90053

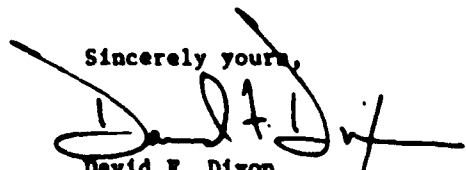
Dear Mr. Arzt:

On behalf of the City Council and the citizens of Rancho Mirage I once again write to you and encourage the Corps of Engineers to proceed with the detailed project report and other necessary items to expedite the building of flood control facilities in the Magnesia Falls area.

It has come to my attention that the Corps may be studying other alternatives with respect to the solving of the flood problem in the Magnesia Falls area, namely, a non-structural approach. I want to make it perfectly clear that in all the discussions that have been held, publicly and otherwise, that the improvements that will safeguard life and property must take the form of improved channel walls and a debris basin. Anything less than substantial physical improvements will not resolve the flooding problem in this area of Rancho Mirage.

If you have any questions relative to this letter, please do not hesitate to call me.

Sincerely yours,


David F. Dixon
City Manager

DFD:bd

DEPARTMENT OF FISH AND GAME

350 Golden Shore
Long Beach, CA 90802
(213) 590-5113



June 22, 1982

Mr. Carl F. Enson
Acting Chief, Planning Division
Los Angeles District, Corps of Engineers
P.O. Box 2711
Los Angeles, CA 90053

Dear Mr. Enson:

This is in response to your May 28, 1982, letter regarding proposed project mitigation for the Rancho Mirage flood control measures. Department concerns regarding the project have primarily involved potential impacts to the Magnesia Springs State Ecological Reserve. Previous meetings with your staff have identified the following project considerations for inclusion in the draft EIS.

The construction of the proposed debris basin at the mouth of Magnesia Canyon would preclude public access to Magnesia Spring Ecological Reserve. Department personnel have recommended that the Corps project include provisions for public access to the reserve. We believe all parties concerned are in agreement that public access to the reserve would best be accomplished using the service road associated with the debris basin outlet channel. It should also be noted that this access should include provision for public ingress beyond the proposed debris basin into the wash adjacent to the reserve.

During a coordination meeting, representatives of the City of Rancho Mirage and the Coachella Valley Water District expressed concern regarding private vehicle use of the access route. These agencies have recommended that existing parking facilities at the Rancho Mirage Elementary School be utilized and that non-supervised public use of the access route be restricted to foot traffic only. In addition, the City of Rancho Mirage has indicated that a public park site is proposed on land adjacent to the school site and that the eventual development of the park would also serve to facilitate public access to the reserve.

The Department recognizes the concerns of the City and Water District and can concur with the above recommendations. We believe, however, that provisions for public access to the reserve should be fully discussed in the draft EIS, and a public access easement be completed prior to project construction. In addition, we recommend that the easement allow for Department and private vehicle use when under the supervision of the Department of Fish and Game. We believe this approach would also serve to provide for reasonable public use of the reserve by conservation and educational groups as well as other interested parties.

The Department has also provided recommendations regarding the disposition of lands upstream of the proposed debris basin. These lands constitute habitat for peninsular bighorn sheep and are considered to be of vital importance for the continued use of the summer water source located on the reserve. The reserve is closed to all public access from June 15 to September 30, to allow bighorn use of this watersource. It is our understanding that the upstream wash area adjacent to the reserve will be purchased by the Corps of Engineers and turned over to the Coachella Valley Water District on completion of the flood control project.

Recognizing the importance of the upstream lands for bighorn within the reserve, the Department has recommended that all land acquired by the Corps above the debris basin dam be placed under terms of a wildlife easement. The easement would prohibit use of these lands for purposes other than flood control. In addition, the easement would prohibit, except under emergency conditions, debris removal and the use of heavy equipment behind the debris dam during the period June 15 - September 30.

The Department would concur also with the recommendation that debris basin excavation, embankment and spillway construction be timed to avoid the critical dry period for bighorn sheep (June 15 - September 30). The Corps has recommended that improvements to the water source at Magnesia Springs be implemented prior to construction activities to reduce the potential for detrimental impact to bighorn sheep. We concur with this recommendation; however, we request that improvements to the water source be the responsibility of the Department upon receipt of the appropriate mitigation funding.

We appreciate the efforts of your staff in the resolution of impacts associated with the subject flood control improvements. The Department looks forward to reviewing the draft EIS. Thank you for your consideration.

If you have any questions, please contact Tom Paulek at 714-659-4944.

Sincerely,


Fred A. Worthley Jr.
Regional Manager
Region 5

TF:lt



ESTABLISHED IN 1918 AS A PUBLIC AGENCY

COACHELLA VALLEY WATER DISTRICT

COACHELLA, CALIFORNIA 92236 • TELEPHONE 398 2651
(619)

DIRECTORS
RAYMOND R. RUMMONDS, PRESIDENT
TELLIS CODEKAS, VICE PRESIDENT
JOHN P. POWELL
PAUL W. NICHOLS
STEVE BURTON

March 10, 1983

OFFICERS
LOWELL O. WEEKS, GENERAL MANAGER - CHIEF ENGINEER
BERNARDINE SUTTON, SECRETARY
VICTOR B. HARDY, AUDITOR
REDWINE AND SHERRILL, ATTORNEYS

File: 0121.3061
0121.3062

Col. Paul W. Taylor
Commander, Los Angeles District
U.S. Army Corps of Engineers
Post Office Box 2711
Los Angeles, California 90053

Re: East and West Magnesia Canyon Channels

Dear Col. Taylor:

On March 8, 1983, the Board of Directors of the Coachella Valley Water District (CVWD) adopted Resolution No. 83-36 recommending that the U.S. Army Corps of Engineers approve the Draft Detailed Project Report for the West Magnesia Canyon Channel Project.

At that same meeting the Board adopted Resolution No. 83-37, authorizing the General Manager-Chief Engineer to execute on behalf of the CVWD the Mitigation Agreement for the West Magnesia Canyon Channel.

The CVWD Engineering Staff has been working with the Corps of Engineers, U.S. Fish and Wildlife Service, California Department of Fish and Game, and the City of Rancho Mirage to develop a Mitigation Agreement for the West Magnesia Canyon Channel.

The Mitigation Agreement substantially consists of the preservation and enhancement of approximately 20 acres on the east side of the alluvial cone between the proposed levee for the East Magnesia Canyon Project and the toe of the mountains, a 300 foot easement to prevent development in the mountains, an easement for wildlife in the debris basin, and enhancement of the natural water supply above Magnesia Springs. In order for the Corps to move ahead with the construction of the West Magnesia Project, the Mitigation Agreement was necessary, therefore the Board approved its execution.

TRUE CONSERVATION
USE WATER WISELY

Col. Paul W. Taylor

-2-

March 10, 1983

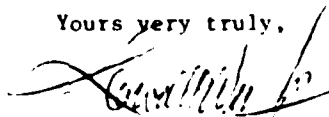
As the local sponsoring agency the CVWD is responsible for acquiring the rights of way for the West Magnesia Canyon Project. Concurrently we will be acquiring the rights of way for the East Magnesia Canyon Project. This latter project is being prepared to go out to prospective bidders sometime after the first of April.

In order to acquire the rights of way for both projects we need alignment information for the West Magnesia Canyon Channel in such detail that we can prepare legal descriptions. We have requested verbally this information from your staff.

Since the West Magnesia Canyon Project seems nearer to fruition after many years of planning and studying, the City of Rancho Mirage and the CVWD are especially interested in completing the East Magnesia Canyon Project. Therefore, it is extremely important that we get the alignment information as soon as possible.

Please call me if there is any additional information you need.

Yours very truly,



Lowell O. Weeks
General Manager-Chief Engineer

WHL:dlb

cc: Les Crist, City Manager
City of Rancho Mirage
69-825 Highway 111
Rancho Mirage, California 92270



ESTABLISHED IN 1918 AS A PUBLIC AGENCY

COACHELLA VALLEY WATER DISTRICT

POST OFFICE BOX 100 • COACHELLA, CALIFORNIA 92236 • TELEPHONE 398-265

(619)

DIRECTOR
RAYMOND R. RUMM, NOS. PRESIDENT
TELLUS CODERAS, VICE PRESIDENT
JOHN P. POWELL
PAUL W. NICHOLS
STEVE BURTON

October 7, 1983

OFFICERS
LOWELL O. WEEKS, GENERAL MANAGER - CHIEF ENGINEER
BERNARDINE SUTTON, SECRETARY
VICTOR B. HARDY, AUDITOR
REDWINE AND SHERILL, ATTORNEYS

File: 0121.3062

Carl F. Enson
Chief, Planning Division
Corps of Engineers
Post Office Box 2711
Los Angeles, California 90053

Dear Mr. Enson:

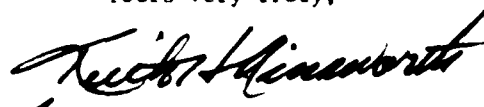
Subject: West Magnesia Springs Canyon Channel
Flood Control Project SPLPD-WA

We have reviewed the Draft "Section 221" Agreement, acknowledge the requirements except as noted below and are willing and able to sign the final contract prior to construction.

Paragraph 1.1. of the Draft "Section 221" Agreement makes reference to "the mitigation agreement as described in the EIS."

Corps and CVWD personnel met on October 6, 1983, to discuss the terms of that mitigation agreement. We are optimistic that mutually acceptable terms can be agreed to.

Yours very truly,


Lowell O. Weeks
General Manager-Chief Engineer

WHL:dib

cc: City of Rancho Mirage
89-825 Highway 111
Rancho Mirage, California 92270

TRUE CONSERVATION
USE WATER WISELY

Draft "Section 221" Agreement

DRAFT "SECTION 221" AGREEMENT

THIS AGREEMENT entered into this _____ day of _____ 19____, by and between the UNITED STATES OF AMERICA (hereinafter called the "Government"), represented by the Contracting Officer executing this Agreement, and the Coachella Valley Water District Board of Directors (hereinafter called the "District"),

WITNESSETH THAT:

WHEREAS, construction of the West Magnesia Springs Canyon Channel Flood Control Project (hereinafter called the "Project") was authorized by the Chief of Engineers, U.S. Army on the _____ day of _____ 19____; and in accordance with Section 205 of the 1948 Flood Control Act (PL 80-858) and its amendments; and

WHEREAS, the District hereby represents that it has the authority and capability to furnish the non-Federal cooperation required by applicable law.

NOW, THEREFORE, the parties agree as follows:

1. The District agrees that, if the Government shall commence construction of the West Magnesia Springs Canyon Channel Flood Control Project under the authority of Section 205 of the 1948 Flood Control Act and its amendments and substantially in accordance with the Detailed Project Report authorizing such work, the District shall, in consideration of the Government commencing construction of such Project, fulfill the requirements of non-Federal cooperation specified in applicable law, to wit:

a. Provide without cost to the United States all lands, easements, and rights-of-way, including suitable borrow and spoil disposal areas, necessary for construction of the project.

b. Contribute a cash contribution for all funds in excess of Federal limitations expressed in Section 205 of the 1948 Flood Control Act (PL 80-858) and its amendments or for funds required by special cost sharing due to windfall benefits, whichever is greater.

c. As made necessary by construction, accomplish, without cost to the United States, all alterations and relocations of buildings, transportation facilities, storm drains, utilities, and other structures and improvements. This provision excludes railroad bridges and approaches, and facilities necessary for the normal interception and disposal of local interior drainage at the line of protection.

d. Maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army and the mitigation package outlined in the Detailed Project Report and the Environmental Impact Statement.

e. Prescribe and enforce regulations to prevent obstruction or encroachment on flood control works which would reduce their flood-carrying capacity or hinder maintenance and operation, and control development in the project area to prevent an undue increase in the flood control damage potential.

f. Publicize flood plain information in the areas concerned and provide this information to zoning and other regulatory agencies for their guidance and leadership in preventing unwise future development in the flood plain.

g. Hold and save the United States free from water rights claims caused by the construction and operation of the project.

h. Hold and save the United States free from damages due to the construction, operation, and maintenance of the project, excluding damages due to the fault or negligence of the United States or its contractors.

i. The District hereby gives the Government a right to enter upon, at reasonable times and in a reasonable manner, lands which the District owns or controls, for access to the Project for the purpose of inspection, and for the purpose of repairing and maintaining the Project, if such inspection shows that the District for any reason is failing to repair and maintain the Project in accordance with the assurances hereunder and has persisted in such failure after a reasonable notice in writing by the Government delivered to the District official. No repair or maintenance by the Government in such event shall operate to relieve the District of responsibility to meet its obligations as set forth in Paragraph 1 of this Agreement, or to preclude the Government from pursuing any other remedy by law or equity.

j. This agreement is subject to the approval of the Chief of Engineers, U.S. Army.

IN WITNESS WHEREOF, the parties hereto have executed this contract
as of the day and year first above written.

APPROVED AS REQUIRED UNDER SECTION
221 OF PUBLIC LAW 91-611, AS TO
FORM AND AS TO LEGAL SUFFICIENCY:

COUNTY OF RIVERSIDE

By _____
President, Board of Directors

DATE: _____

ATTEST:

By _____
Secretary, Board of Directors

DATE _____

Counsel
Coachella Valley Water District

DATE: _____

THE UNITED STATES

By _____
Colonel, Corps of Engineers
District Commander
Contracting Officer

DATE: _____

APPROVED:

FOR THE CHIEF OF ENGINEERS

Response to Comments



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

215 Fremont Street
San Francisco, CA 94105

MAR 25 1983

Carl F. Baker
Air Quality Planning Division
Department of the Army
1155 Angel Island Drive
P.O. Box 4211
Los Angeles, CA 90044

Dear Mr. Baker:

The draft impact statement for the proposed action is being reviewed by the Air Quality Planning Division. The draft impact statement is being reviewed by the Air Quality Planning Division. The draft impact statement is being reviewed by the Air Quality Planning Division.

We have classified this draft impact statement as Category 1. The draft impact statement is being reviewed by the Air Quality Planning Division. The draft impact statement is being reviewed by the Air Quality Planning Division.

We appreciate the opportunity to review this draft impact statement. Please send three copies of the final impact statement to this office at the same time it is officially filed with our Washington, D.C. office. If you have any questions, please contact Mr. Paul Hoffman, Acting Chief, Air Quality Planning Division, at (415) 744-8141 or (202) 456-8141.

Sincerely yours,
Charles W. Murray, Jr.
Charles W. Murray, Jr.
Assistant Regional Administrator
for Policy, Technical and
Resource Management

Enclosures (2)

EIS COMMENTARY

Environmental Impact of the Action

Lack of Objections

EPA has no objection to the proposed action as described in the draft impact statement or supports only minor changes in the proposed action.

EPA-Environmental Reservations

EPA has reservations concerning the environmental effects of certain aspects of the proposed action. EPA believes that further study of supposed alternatives or modifications is required and has asked the originating Federal Agency to measure these aspects.

EPA-Environmentally Unsatisfactory

EPA believes that the proposed action is unsatisfactory because of its potentially harmful effects on the environment. Furthermore, the Agency believes that the environmental information which has been provided is not adequate to permit the development of an alternative from which to choose. The Agency believes that alternative actions to the action are being analyzed further, including the possibility of no action at all.

Adequacy of the Impact Statement

Category 1--Adequate

The draft impact statement adequately sets forth the environmental impact of the proposed project or action as well as alternatives reasonably available to the project or action.

Category 2--Insufficient Information

EPA believes that the draft impact statement does not contain sufficient information to assess fully the environmental impact of the proposed project or action. However, from the information submitted, the Agency is able to make a preliminary determination of the impact on the environment. EPA has requested that the originator provide the information that was not included in the draft statement.

Category 3--Inadequate

EPA believes that the draft impact statement does not adequately assess the environmental impact of the proposed project or action, or that the statement inadequately analyzes reasonably available alternatives. The Agency has requested more information and analysis concerning the potential environmental hazards and has asked that substantial revision be made to the impact statement.

If a draft impact statement is assigned a Category 3, no rating will be made of the project or action, since a basis does not generally exist on which to make such a determination.

Air Quality Comments

The Draft EIS does not include air quality among the environmental impacts of the proposed project. The Final EIS should:

1. State that western Riverside County, including the Coachella Valley, has been designated as a Nonattainment Area for ozone.
2. Provide the results of recent ambient air monitoring in the Coachella Valley, for all pollutants as monitored. Contact the South Coast Air Quality Management District for this information.
3. Describe the impact on ambient air quality of the full development of the flood plain between the proposed Delta Basin and the Whitewater River, including the presently undeveloped alluvial cone as well as infill within each acreage. (The Detailed Project Report and the Draft EIS indicate that full development is anticipated as a consequence of the flood control to be provided by the project.)

The air quality impact analysis should include consideration of all emissions resulting from such development, including construction, space heating and cooling, and all development-associated vehicular travel. Pollutants of particular concern are hydrocarbons, nitrogen oxides, carbon monoxide, and particulates.
4. Document contact with the Southern California Association of Governments (SCAG) regarding:
 - a. Whether project emissions have been considered in formulating the Nonattainment Area Plan (NAP), and are consistent with emission reduction requirements of the State Implementation Plan (SIP).
 - b. Whether project associated population growth is consistent with the population projections in the NAP.

Since conformity procedures (under Section 176(c) of the Clean Air Act) have been adopted by SCAG, the conformity finding should be presented in the Final EIS.

Water Quality Comments

1. Impacts to the alluvial cone from loss of wet weather surface water under alternatives 1, 1A, and 2A should be addressed in the Final EIS. Impacts to vegetation and groundwater recharge should be included in this discussion.
2. Impacts to water quality from construction activities should be included in the Final EIS. Information concerning construction scheduling, practices, equipment and access roads should be included. The Final EIS should present monitoring and mitigation plans to avoid any adverse water quality impacts.
3. The water quality impacts associated with project related population growth have not been addressed in the Draft EIS. The Final EIS should include information regarding the capacity of sewage treatment and water supply systems in the area.
4. The Colorado River Basin Regional Water Quality Control Board should be contacted regarding water quality issues.

Response to Comments from EPA, Region IX.

1. A brief description of the air quality in the general project area is included in FEIS paragraphs 3.20 through 3.31. FEIS paragraphs 4.24 through 4.29 provide a brief discussion of anticipated direct impacts of the project alternatives on air quality.

Air pollutant emissions associated with a possible future development of undetermined type and size cannot be estimated. These impacts are appropriately assessed by the City of Rancho Mirage when development plans are presented to the City for approval. At that time, the nature and size of any proposed development will be better defined and these impacts may be reasonably addressed.

2. The existing earthen levee at the upper end of alluvial cone prevents floodflows from washing across the cone. Occasionally, the levee is breached and floodflows inundate the cone. The recommended debris basin will allow floodwaters and allow increased recharge within the basin. The recommended 1.4-mile-long concrete channel will reduce recharge in the channel during storms; there are no surface baseflows. Diversion of up to 50 cubic feet per second from the debris basin to the mitigation area during storms will also provide for additional recharge on the cone. The effects of the recommended debris basin and channel on groundwater recharge and native vegetation not removed by induced development are not anticipated to be significant. Paragraph 4.20 of the EIS has been added to present this discussion.

Regular irrigation of any landscaping associated with a proposed future development may compensate for recharge lost to additional impervious surfaces on the alluvial cone.

3. Any impacts to water quality resulting from construction activities are expected to be insignificant. Construction activities would be conducted during dry periods and would avoid the winter rainy season and the summer thunderstorms as discussed in EIS paragraph 4.07. Surface water will not be present and the water table will not be intercepted; surface base flows are non-existent during the dry seasons due to very rapid percolation rates and the depth of the alluvium is great. No monitoring or mitigation plans are required. This discussion has been added to the FEIS in paragraph 4.22.

4. Impacts of new developments on the capacity of sewage treatment and water supply systems are appropriately addressed by the agency responsible for reviewing and approving development plans. Without knowledge of the type and size of any proposed development these impacts cannot be reasonably evaluated.

5. The Colorado River Basin Regional Water Quality Control Board received a copy of the DEIS for review and comment; no comments were received from the board.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Center for Disease Control

Atlanta, GA 30333

(404) 452-4045

March 23, 1983

Mr. Carl P. Pason
Acting Chief, Planning Division
Corps of Engineers
P.O. Box 2711
Los Angeles, California 90053

Dear Mr. Pason:

We have reviewed the Draft Environmental Impact Statement (EIS) and Detailed Project Report for West Nagsena Canyon Channel, City of Rancho Mirage, Riverside County, California. We are responding on behalf of the Public Health Service.

We note that Rio Mirage is presently participating in the Federal Flood Insurance Program as well as a floodplain management effort, which currently prohibits development of the upper portions of the alluvial fan. While it may be beneficial to provide protection to those developers and residents who, subsidized by Federal flood insurance, knowingly located in an area subject to flooding, completion of this project will permit additional development in the alluvial fan unless restrictions are adopted to prohibit expansion with completion of the project. Developers will seek to obtain removal of current development restrictions. This project appears to violate the spirit and intent of Executive Order 11980 Floodplain Management which states "...in order to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains development...." Implementation of controls to prohibit future land development in the boundaries of the presently existing floodplain should be made a condition for participation in this project.

The Draft EIS does not address mosquito or other vector populations and their potential effect on human populations. The Final EIS should address these potential mosquito problems that may occur during low water flow in the drainage ditch or the debris basin. Statements should be made about present and/or anticipated potential health effects, as well as, present or anticipated control measures, including types, amounts, and application rates and procedures for insecticides that may be used.

Page 2 Mr. Carl P. Pason

Thank you for the opportunity of reviewing this EIS. We would appreciate receiving a copy of the Final EIS when it becomes available. If you should have any questions concerning our comments, please contact Mr. Leo Tate of our staff at PPH 234-6666.

Sincerely yours,

Frank S. Lucella, Ph.D.

Frank S. Lucella, Ph.D.
Chief, Environmental Affairs Group
Environmental Health Services Division
Center for Environmental Health

Response to the Comments from the U.S. Department of Health and Human Services.

1. The Corps' recommended project is designed to protect existing development on the floodplain. Most of this development occurred prior to recognition of the flood threat and without subsidized flood insurance. Good engineering design dictates that the flood waters be intercepted at the narrow upstream portion of the alluvial cone before they have spread out over the cone. As a result, the project will also provide flood protection to about 150 acres of undeveloped land thus removing a major constraint to development.
2. No significant mosquito problems are expected to be associated with the proposed project. The debris basin drain and the highly pervious, deep alluvial soils of the cone will allow the debris basin to drain completely within approximately 5 hours once inflow to the basin has ceased. In addition, the Coachella Valley Water District, who will operate and maintain the project, is experienced with mosquito abatement procedures and will initiate steps to control mosquitoes should it ever become necessary. Paragraph 4.21 of the FWS presents this discussion.



UNITED STATES
DEPARTMENT OF THE INTERIOR

OFFICE OF THE SECRETARY

PACIFIC SOUTHWEST REGION
BOX 30000 • 480 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102
(415) 884-0000

ER 83/225

Colonel Paul M. Taylor
District Engineer, Los Angeles District
U.S. Army Corps of Engineers
P. O. Box 2711
Los Angeles, California 90053

MAR 25 1983

Dear Colonel Taylor:

The Department of the Interior has reviewed the draft environmental statement and draft Detailed Project Report, Flood Control for the City of Rancho Mirage, Riverside County, California. The following comments are provided for your use and consideration.

Water Resources

The Geological Survey (GS) reports the statement should evaluate more thoroughly, the impacts of the loss of recharge to alluvial fan aquifers that would result from the construction of a concrete-lined channel from the proposed debris basin to the Whitewater River (Report, page 9-10; page E15-6). Water from the perennial Naposie Springs now rapidly percolates into the coarse channel sands. The statement should indicate whether the flow of the springs will continue to infiltrate into these sands above the embankment that will form the debris basin or whether provision is to be made in designing the lining for the channel below the embankment to allow seepage of the flow from the springs.

It would be useful to indicate whether any existing wells would be affected by the proposed action.

Thank you for the opportunity to review and comment on this project report.

Sincerely,

Patricia Sanderson Port
Patricia Sanderson Port
Regional Environmental Officer

cc: Director, DEPR (w/copy incoming)
Director, Geological Survey
Reg. Dir., RMS

Mr. Dave Olson
City Manager
City of Rancho Mirage
69-825 Highway 111
Rancho Mirage, California 92270

Mr. Lowell O. Weeks
General Manager - Chief Engineer
Coachella Valley Water District
P.O. Box 1058
Coachella, California 92236

Response to Comments from the U.S. Department of the Interior, Geological Survey.

1. Groundwater recharge in the alluvial cone is not expected to be greatly altered by the recommended project. Flood flows will be shifted by the debris basin and sedimentation should increase here. In addition, a portion of the flood flows will be diverted to a 30-acre alluvial area where it will percolate. Recharge lost to the recommended concrete channel should be made up in these ways. Flood flows leaving the concrete channel may percolate into the soft-bottom of the Whitewater river. See paragraph 2.30 of the report for this discussion.
2. The percolation of spring flows will not be affected by the proposed project. Water from the perennial Magnessia Springs percolates into the sands of the alluvial cone upstream of the recommended debris basin. This point has been clarified in the PEIS; see paragraphs 2.27 and 2.28.
3. There are no wells on the Magnessia Spring alluvial cone. See report paragraph 2.24.



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

P. O. BOX 2245
441 S. Calle Encille, Suite 40
Palm Springs, CA 92262

(714) 325-2086

March 1, 1983

NEW RANCHO

Superintendent, Southern California Agency
Riverside, California
Attn: Environmental Specialist

FROM: Acting Director
Palm Springs Office

SUBJECT: Draft Detailed Project Report - West Magnesia
Spring Canyon Channel, City of Rancho Mirage, Calif.

Please find attached the Draft Detailed Project Report for the
West Magnesia Spring Canyon Channel, City of Rancho Mirage, including the
Draft Environmental Impact Statement and accompanying
appendices.

The Agua Caliente Reservation is several miles upstream from the
proposed project and will not be affected by the proposed project. However,
flow of the Whitewater River may be affected by the project. The
Cibola Reservation appears to be located adjacent to the
downstream channel of the Whitewater River.

Should you have any questions, as it regards the above, please
contact James T. McCallum, of this office, at (619) 325-2086.

Roberta Dyer

Attachments

cc: asf
IA Tisd.



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

P. O. BOX 2245
441 S. Calle Encille, Suite 40
Palm Springs, CA 92262

(714) 325-2086

March 1, 1983

Department of the Army
Los Angeles District, Corps of Engineers
P. O. Box 2711
Los Angeles, California 90053

Attn: Carl F. Enson, Acting Chief
Planning Division

Re: SPLPD-WA

Gentlemen:

This is with reference to your correspondence of January 11, 1983
along with the Draft Detailed Project Report for the West
Magnesia Spring Canyon Channel, City of Rancho Mirage, including
the Draft Environmental Impact Statement and accompanying appendices.

The nearest Agua Caliente Reservation land, the tribe under the
jurisdiction of this office, is approximately three and one-half
miles northeast and 2 to 3 miles upstream by the Whitewater
River channel of the project area. Any project construction or
change in flow of the Whitewater River Channel, according to your
report, will have no effect on the Agua Caliente Reservation.
However, the flow of the Whitewater River Channel appears to head
in the direction of areas in or near the Cabazon Indian Reservation.
Any improvement in the flow of run off could possibly - remotely
affect the Cabazon Reservation. The Cabazon Reservation is under
the jurisdiction of the Southern California Agency, Bureau of Indian
Affairs, 5750 Division Street, Suite 201, Riverside, California
92506.

We are sending your report to the Agency named above for their
review. Should you have any questions regarding this matter,
please contact James T. McCallum, of this office, at (619)
325-2086.

Sincerely yours,

Roberta Dyer
Roberta Dyer
Acting Director

Response to Comments from the U.S. Department of Interior, Bureau of Indian Affairs.

No comments were received from the Southern California Agency in Riverside, California.



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
California-Nevada River Forecast Center
1416 9th St., Box 1631, Sacramento, CA 95814

March 20, 1983

Carl F. Enson, Acting Chief
Planning Division
Los Angeles District, Corps of Engineers
Department of the Army
Post Office Box 2711
Los Angeles, California 90053

Reply to the Attention of SPLPD-MA

Dear Mr. Enson:

The Draft Detailed Project Report (DPR), Rancho Mirage Flood Control, December 1982, does not adequately address the subject of a flood warning system.

The report recognizes the necessity of a flood warning system for Rancho Mirage but then relegates it to be included in a future Whitewater River flood warning system. Federal funding for the Whitewater flood warning system does not appear imminent.

A preliminary analysis indicates that the National Weather Service ALERT flood warning system could be implemented in Magnesia Spring Canyon for approximately \$25,000. This represents less than four-tenths of one percent of the cost of the West Magnesia Spring Creek Channel Project.

The ALERT flood warning system has already demonstrated its ability to save lives and reduce damage to relocatable property, and its use is spreading throughout Southern California.

Given these facts, we feel inclusion of the ALERT flood warning system in the proposed Rancho Mirage project is a highly desirable approach.

Sincerely,

Robert J. C. Burnash

Robert J. C. Burnash
Hydrologist in Charge

Enclosure (ALERT Bulletin)
cc LAI, MJC
W/MRZ



Response to comments from the U.S. Department of Commerce, National Weather Service.

A flood warning system for West Magnesia Spring Canyon seems to be of little value to the residents of Rancho Mirage. Our studies indicate that the warning time provided by such a system would be as little as 15 minutes which is inadequate time for evacuation or securing of property. In designing the project to Standard Project Flood design criteria, we believe any need for such a system is eliminated.

Figure 1

He has reviewed the first Detailed Project Report for West Bengal relating to a "Rural Health Project, Phase I" and has approved the planning and research programme of the project. This phase will comprise a study of the health status, morbidity, and mortality and the social and economic conditions of the rural population in the project area. The project will also include a study of the health status and mortality of the urban population in the project area. The project will also include a study of the health status and mortality of the urban population in the project area. The project will also include a study of the health status and mortality of the urban population in the project area.

1. The author of the book is a well-known expert in the field of...

Section 205 of the Federal Land Control Act of 1938, as amended, limits the Federal Government's contribution for each of the Federal projects to \$1 million. The remainder of the project cost must be provided by the sponsoring agency.

the same the magnitude of the proposed project will provide a measurable degree of a protection to the development and the ability of each owner to diligently enforce its right to the proposed project. It is concluded further that the benefit from the 100-year flood plain, because of the high vulnerability to flooding, is strong and raises the Corps recommendation that all property owners purchase flood insurance.

There is an area of about one-third square mile in the alluvial area directly above the community that is not drained by the present drain feature. Therefore, it appears prudent for the City to provide a buffer zone or open space strip free of any development that would direct floodwaters to existing residences.

As an alternative to this idea, if development is allowed, the developer should be directed to convey local drainage to the proposed channel planned under this project. The disposition of local drainage should not aggravate the flooding threat to citizens already residing in the flood plain.

1990

[illegible][illegible]

The Department has been advised by the Attorney General's Office that the proposed rulemaking process is being initiated. The Department is currently reviewing the proposed rulemaking process and will advise the public of the results of its review.

• • • • •

1. The first two. The third sentence must read, "The new water would require the painting of a red line between the water and the plants such as alfalfa and clover. This would provide food cover for wildlife, and the plants would be used for other purposes."

Page 100-11, 231. The second sentence should read, "The design and placement of the enhanced water source(s) could be determined by the California Department of Fish and Game in cooperation with the Fish and Wildlife Service and the Corps of Engineers."

Page 11-14, 0.36. The selection of another access strategy that would replace access features and facilities described in 0.33 should be coordinated with, and approved by DPA and the Fish, Wildlife and Wildlife Service. The replacement access strategy should provide all the features described in 0.33.

14. Page 110-14, 2-35. The second sentence should read, "The utilization assessment would limit these lands to uses for flood control, access to the ecological reserve, and production of wildlife habitat."

USFWS looks forward to meeting with the project sponsor and the Corps to complete the necessary agreements and assessments for public access, land use, and wildlife-related project planning. These actions should be completed before construction begins.

Response to Comments from the Resource Agency of California.

1. The Coachella Valley Water District and the City of Rancho Mirage are currently working to build a levee along the east side of this upper portion of the alluvial cone. Local drainage may be diverted to either the East or West Magnesia channels.
2. The recommended plan proposes to control the flow of floodwaters over an alluvial cone; it does not propose to divert water to lands not normally subject to flooding. The recommended plan does not propose to store surface water seasonally; floodflows will be impounded in a debris basin for approximately 5 hours in order to cause the flows to drop their sediment load. In addition, the Coachella Valley Water District, the project's local sponsor, owns all water rights on the affected alluvial cone. A water rights permit should not be required.
3. The project was designed so as to not require disturbance of State Highway 111 or modification of that bridge. A copy of this Final Detailed Project Report has been sent to Caltrans District 8 in San Bernardino. We will coordinate with that office during the development of plans and specifications for our project.
4. The Corps of Engineers will continue to coordinate with the California Department of Fish and Game in order to obtain the Department's input during detailed design and mitigation features.
5. Native plant species valuable for wildlife habitat will be planted within the 20-acre mitigation area. The primary purpose of the 50-foot-wide buffer is to provide an open-space corridor at the base of the Water District's proposed levee that would help to minimize impacts of any future development on the mitigation area.
6. The Corps of Engineers must take final responsibility for the design and implementation of project features. The Corps will continue to coordinate closely with the California Department of Fish and Game to determine the best design and specific location for the enhanced water source(s).
7. F&IS paragraph 2.26 point 'i' (F&IS paragraph 2.34) has been expanded as requested.
8. F&IS paragraph 2.26 point 'a' has been changed to read, "The wildlife easement will limit the use of these lands to purposes of flood control, wildlife management, and access to the ecological reserve."
9. As discussed with the Wildlife Conservation Board of the California Department of Fish and Game, the terms of the wildlife easement will be agreed to and signed by the Coachella Valley Water District and the Department of Fish and Game prior to initiation of construction by the Corps of Engineers. The easement, itself, will be finalized once the Water District has obtained fee title to these lands. F&IS paragraph 2.26 point 'a' has been modified to reflect this discussion.

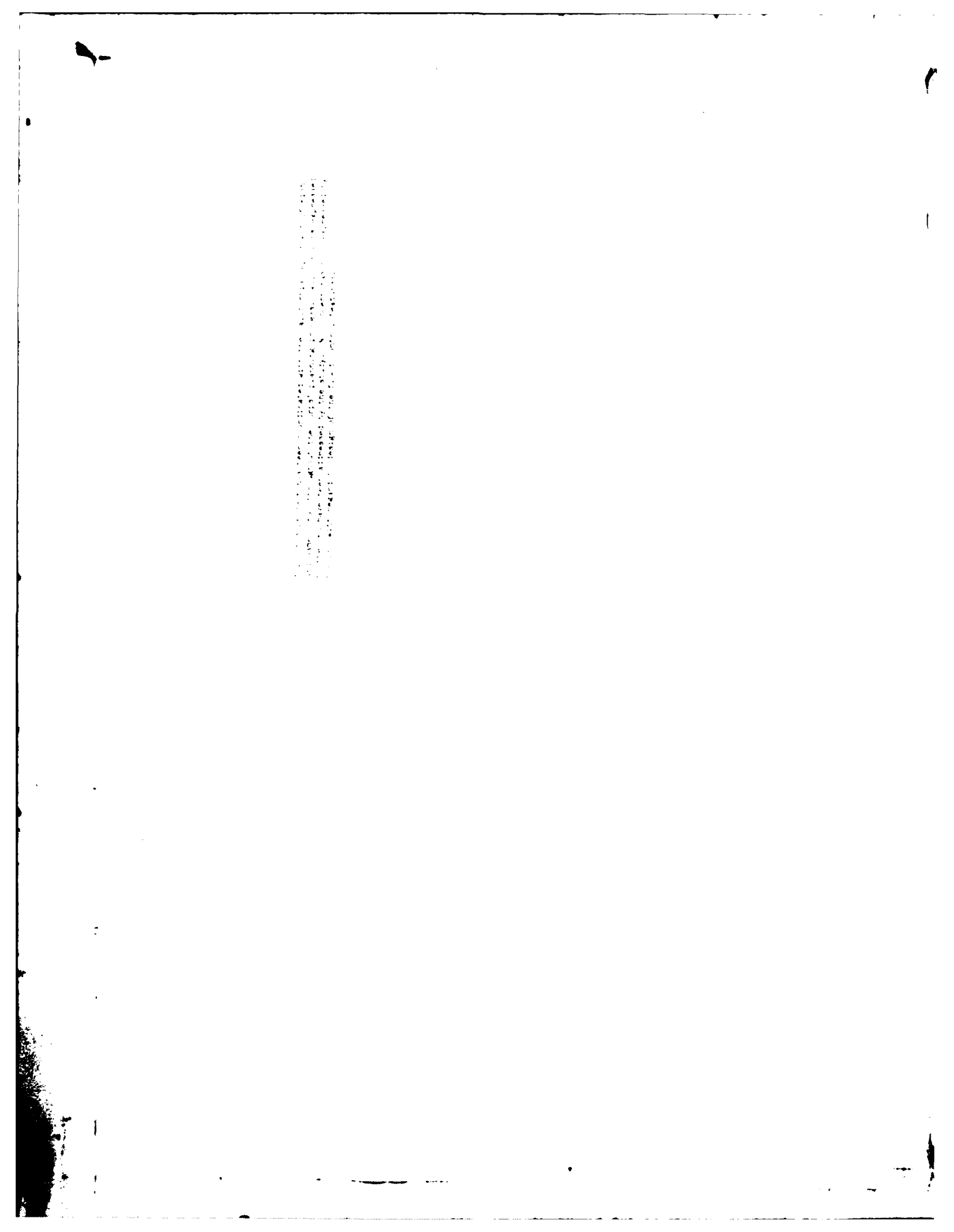
Page 10 of 10

The project sponsor should be the lead agency for the project. The project sponsor should be the lead agency for the project. The project sponsor should be the lead agency for the project.

The project sponsor should be the lead agency for the project. The project sponsor should be the lead agency for the project. The project sponsor should be the lead agency for the project.

Charles K. [Signature]
[Signature]
[Signature]

Office of Planning and Research
1200 Broadway Street
Sacramento, CA 95814
(916) 227-0070





Office of Cultural Resources
Conservation Office
National American Heritage
Commission



DEPARTMENT OF THE ARMY
Cultural Resources Conservation Office
Washington, D.C. 20315

March 14, 1983

SP10 BP

February 24, 1983

Mr. William J. Pink
Executive Secretary
Native American Heritage Commission
1441 Tenth Street
Sacramento, California 95814

Dear Mr. Pink:

We have reviewed the cultural resource section of the Environmental Impact Statement for the Agua Caliente Band of Yuma Indians, and we are pleased to advise you that the findings of our review are as follows:

The project is within the area designated as a National Historic Landmark, and it is located within the boundaries of the National Monument. The project is also located within the boundaries of the National Monument. The project is also located within the boundaries of the National Monument.

Enclosed for your information are:
1. A copy of the National Historic Landmark nomination for the Agua Caliente Band of Yuma Indians.
2. A copy of the National Monument nomination for the Agua Caliente Band of Yuma Indians.

If you have any questions regarding this, please feel free to contact me at 316 322-3391.

I have enclosed a copy of Senate Bill 271, Chapter 199, for your review which pertains to Native American burial and accidents.

If you have any questions regarding this, please feel free to contact me at 316 322-3391.

Sincerely,

William J. Pink
William J. Pink
Executive Secretary

WJP:sm

Enclosure: SB-297

cc: Agua Caliente Band of Yuma Indians

1441 Tenth Street, Sacramento 95814 (UDC 583 770)

Mr. William J. Pink
Executive Secretary
Native American Heritage Commission
1441 Tenth Street
Sacramento, California 95814

Dear Mr. Pink:

In reference to your letter of February 24, 1983, enclosure 1, we agree with your suggestion that the Agua Caliente Band of Yuma Indians be included in the project. The project is located within the boundaries of the National Monument. The project is also located within the boundaries of the National Monument. The project is also located within the boundaries of the National Monument.

We are happy, however, to make another attempt to coordinate with the Agua Caliente Band of Yuma Indians and have mailed a copy of the document containing the draft detailed project report and draft EIS to Ms. Barbara Gonzales Young for review and comment.

Sincerely,

PAUL W. TAYLOR
Colonel, Corps of Engineers
District Engineers

Enclosures

Response to Comments from State of California Native American Heritage Commission.

No comments were received from the Agua Caliente Band of Cahuilla Indians.



4400 Crestmore Road, P.O. Box 3507, Riverside, CA 92519, (714) 787-2551

March 22, 1983

Department of the Army
Los Angeles District
Corps of Engineers
Post Office Box 2711
Los Angeles, CA 90053

Attention SPLD-WA

Gentlemen:

West Magnesia Spring Canyon Channel
DPR and DEIS

Having reviewed your documents for the above referenced project, we have the following comments:

Recreation Trails

1. The documentation of planned County riding and hiking trails in the area proposed improvements was omitted from the study. Attached is a copy of the existing general plan of trails for this area. Two trails are affected by this study: The Whitewater River Trail, a primary trail, and 2) The Magnesia Canyon Trail, a secondary trail connecting the Art Smith Trail to the Whitewater River Trail. The Magnesia Canyon Trail would also serve as a feeder from the Rancho Mirage community.
2. We respectfully request that trail design, use and accessibility be provided for in the final design of flood control improvements in Magnesia Springs Canyon. (Many other projects have successfully done this, as incorporating trails along or on top of levees or diversion structures.)
3. The final DPR and DEIS should address these aforementioned trails and provide appropriate mitigation.

Department of the Army
Los Angeles District
Corps of Engineers

March 22, 1983
page 2

Should you have any questions regarding this matter, Mr. George Baller, 1 of our Planning Division can assist you further

Sincerely,

/s/ Paul Romero

Paul Romero
Deputy Paras Director

PS/GB mg/mlm

cc City of Rancho Mirage
Attn: Ron Eggertsen
Desert Riders
c/o City of Palm Springs
Attn: Bill Vasquez

Attachments

Response to Comments from the Riverside County Parks Department.

1. Corps channel projects frequently feature trails that may be used for riding, biking, or jogging; the inclusion of trails as part of this project was discussed during planning. The City of Coach Valley and the Coachella Valley Water District have continually expressed their willingness to participate in such an effort. However, the design of the channel and service road is such that future development of trails along this corridor may be easily accomplished.

UNIVERSITY OF CALIFORNIA RIVERVIEW

UNIVERSITY OF CALIFORNIA RIVERVIEW, SAN DIEGO, CALIFORNIA 92161



Mr. Carl F. Enson
Department of the Army
Corps of Engineers
P.O. Box 2711
Los Angeles, CA 90053

Dear Mr. Enson:

Thank you for the opportunity to review the Draft Project Report for the Rancho Mirage Flood Control Project. There is no question that the City of Rancho Mirage needs flood protection. However, there are unresolved issues of compensation for adverse environmental impacts. My comments will be directed toward mitigation of environmental issues.

I am concerned about the cumulative loss of flood plain habitat for wildlife in the upper Coachella Valley. This project will continue the erosion of habitat and open space as a direct result of construction and the induced impact of development. Hence, I agree with USFWS that the mitigation of 20 acres in the East Magnesia Spring Channel is less than adequate compensation for the loss of 130 acres of habitat that includes the enriched creosote scrub habitat of the flood plain.

All of the residents of Rancho Mirage will benefit from flood protection, but the windfall beneficiary will be the developer that owns the 130 acres of land. The present value of the land is unknown to me, but rough calculations based on information on page 45 of the DPR indicate a post-project value of about \$415,400/acre. The City of Rancho Mirage has planned for development in that area and will probably file a negative declaration of environmental impact. Thus, there will be no further compensation for the habitat and open space that is lost. I recommend that as part of the mitigation agreement, the City of Rancho Mirage agree to seek compensation from the developer for an additional 17.5 acres of creosote scrub habitat, the difference in area between the USFWS and CE mitigation recommendations. Since the developer was not forced to participate in cost sharing because of a quirk in the cost sharing formula and the windfall nature of the developer's benefit, it is not unreasonable to seek further compensation. Replacement habitat could be purchased in the California Department of Fish and Game's Coachella Valley Ecological Reserve area. Land in the Reserve area costs about \$4,000/acre. The developer could replace the entire 17.5 acres for about 17% of the post-project value of one acre of land.

The construction and maintenance activities for the East Magnesia Spring Channel are of concern to USFWS. I agree with USFWS for the need to clearly define the area that will be disturbed during construction and maintenance. The mission of the Coachella Valley Water District is clearly

Page 1

expressed in the January 11, 1982 letter from Mr. Lowell Meeks to USFWS. Environmental issues that pertain to wildlife are not included within the scope of their concerns. Given the attitude of the WWD, there is no reason to trust that construction and maintenance will be accomplished with due concern for the vegetation and wildlife within the 20-acre mitigation area. I recommend that CE adopt USFWS proposals a and e (Page 43-44) as part of the mitigation agreement.

Fencing will be required for public safety and exclusion of vehicles from Magnesia Spring Canyon as discussed in the DPR. However, there are provisions to exclude vehicles from the 20-acre mitigation area. Fencing should be considered and at the very least the area should be posted as closed to vehicles.

Who is responsible for maintaining the fencing along the canal and embankment? If this is the responsibility of the WWD, what assurance is there that the fence will be maintained? The Memo for Record, November 18, 1981, by Mr. Kathleen Kunyer indicates that CWD opposes fencing projects. An explicit agreement regarding the responsibility for maintenance of fencing should be included in the mitigation agreement and the Section 121 Agreement such that there is no question of responsibility.

I look forward to continuing participation in the environmental review process for this project and others in this geographic area.

Sincerely,

Allen M. H.

Allen Muth, Ph.D.
Resident Director
Philip L. Boyd Deep Canyon
Desert Research Center

AM:rc

Response to Comments from University of California, Riverside, Boyl Deep River
Desert Research Center.

1. The Corps feels that our plan which includes an area of mitigation is actually superior to the USFWS plan which includes 7.5 acres. The 20 acres in our plan will receive runoff from the mountain slopes, should support some vegetation, will act as a wildlife corridor, and should attract additional wildlife.
2. The Corps mitigation plan is intended to mitigate for the direct impacts of construction of the recommended flood control project as well as the secondary impact of increased urbanization. In no way do we intend this to preclude the requirement of additional mitigation appropriate to the specific development that actually occurs. However, such a requirement at this time is not within the authority of the Corps nor would it be appropriate. Local authorities should consider the issue as the development occurs.
3. A mutual cost apportionment is being discussed between the Coachella Valley Water District, the City of San Jacinto, and the adjacent landowner. Any assumption that the landowner will not participate in project cost-sharing is very premature. Corps of Engineers Regulation 100-2-20 says, in part: "Projects providing windfall-type benefits of 'unconscionable' magnitude to a few beneficiaries are considered 'a warrant special and equitable cost-sharing, usually as a cash contribution, from the responsible local entity, in addition to other requirements of cooperation. Substantial portion of this added cost is the responsibility of the local entity.'"
4. FEIS paragraph 2.26, point 'b' states that "any unavoidable disturbance of the vegetation of this (mitigation) area during construction of the levee will be repaired by the Corps of Engineers as a project cost during its construction activities on the West Magnesia Canyon Channel project if the vegetation has failed to reestablish on its own." Point 'c' of FEIS paragraph 2.26 requires that "any necessary maintenance of the East Magnesia Channel by the Water District will minimize disturbance of vegetation, especially clumps of shrub vegetation within the mitigation area, to the maximum extent practicable."
5. One barrier gate will be placed across the East Magnesia levee access road by the Coachella Valley Water District to restrict unauthorized vehicle access to the mitigation area. No trespassing signs designating the area as protected wildlife habitat will be posted along the top of the levee. See FEIS paragraph 2.26, point 'c' for this discussion.
6. Item 'j' of the Section 221 Agreement requires the Coachella Valley Water District to operate and maintain all project-related works in accordance with regulations prescribed by the Secretary of the Army and the mitigation section for the West Magnesia Canyon Channel discussed in the Main Report and EIS. Point 'n' of the mitigation package (see EIS para. 2.26) requires the Water District to maintain all project fencing. A draft of the Section 221 Agreement is included in the Public Involvement Appendix.

2

DESERT BIGHORN RESEARCH INSTITUTE

P O BOX 262 • PALM DESERT, CA 92261-0262
(714) 346-7334

2000 Palmdale, CA 93550

MARCH 17, 1983

WILLIAM D. GIBSON
Commander, 1st Cavalry Division

WILLIAM D. GIBSON
Commander, 1st Cavalry Division

WILLIAM D. GIBSON
Commander, 1st Cavalry Division

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Commander, 1st Cavalry Division

WILLIAM D. GIBSON
Commander, 1st Cavalry Division

2

1. The water source at Magnesia Spring will be protected by a fence of the type that is unlikely to catch the hooves of bighorn sheep.

2. Both sides of the channel will be fenced, with the fencing on the west side of the channel of a type that is unlikely to catch the hooves of bighorn sheep.

3. Fencing and locking gates will be installed so as to restrict motorized vehicles, including motorized two-wheeled vehicles, beyond the embankment at all times of the year, and foot access beyond the embankment during the critical dry period (See "A" below).

4. Debris removal and use of heavy equipment behind the debris basin embankment will be prohibited during the critical dry period (See "A" below), except under extreme emergency conditions.

In addition, we recommend the following changes in the preferred plan.

A. Our studies show the bighorn to be highly dependent on the semi-permanent spring water in Magnesia Canyon from May 1 to September 1. We would recommend that construction and maintenance of the embankment and debris basin and all work in the area behind the proposed embankment be restricted to avoid this entire critical time period.

B. We recommend that the California Department of Fish and Game close the Magnesia Springs State Ecological Reserve to public foot access from May 1 to September 30, for the above stated reason.

C. The preferred plan calls for construction and maintenance of the debris basin and embankment to be timed to avoid the critical dry period to the maximum extent practicable. We feel this should be changed to read "to avoid the critical dry period except under extreme emergency conditions". (See "A" above for time period.)

D. Since development of the cone is expected following flood control protection from this plan, the implementation of this plan will indirectly allow further encroachment onto the native bighorn habitat. Due to this fact, we recommend no development be allowed in Section 13 above the 400 foot elevation. It has been stated in the report that any development occurring on the slope above the 400 foot elevation area will insure no net impact on bighorn sheep. This can only be insured by development of this area. We recommend that this area be acquired or preserved through a wildlife easement prior to acceptance of this plan. It is our understanding that the current "Open Space" zoning of this area is in agreement with the General Plan for the City of Rancho Mirage. Acquisition of the land or preservation through a wildlife easement will insure that the General Plan and zoning will not change in the future.

3

The Desert Bighorn Research Institute has been studying the population of peninsular bighorn sheep in the north end of the Santa Rosa Mountains for the last two years. We have 14 animals radio-collared in this herd of bighorn. Our field researchers are in the field on a daily basis monitoring this population, noting movements, lamb survival, nutrition, behavior, and effects of human impact, etc.

Magnesia Spring Canyon is vital habitat to this bighorn population. We therefore appreciate the opportunity to comment on the Draft Detailed Project Report for the West Magnesia Spring Canyon Channel.

Our studies indicate that a herd of 60-70 bighorn live in Magnesia Canyon regularly as a part of their home range. During spring and summer the canyon is used extensively for both watering and foraging on riparian and wash vegetation. We have even documented one of our collared ewes lambing within 100 m of the proposed debris basin in both 1982 and 1983. Any construction in this area should be carefully evaluated as to its effects on the bighorn population.

The following points, as we understand, are incorporated into the preferred plan and required mitigation. We feel these points are vital to the protection of this habitat for bighorn.

1. All lands above the debris basin embankment will be acquired by the Corps and placed under a wildlife easement that would prohibit use of these lands except for flood control.

1000 Palmdale, CA 93550

1

the fact that the Government has not been able to secure the necessary funds to carry out its policy of development. The Government has been unable to secure the necessary funds to carry out its policy of development. The Government has been unable to secure the necessary funds to carry out its policy of development.

James L. Thompson

- 1. Bick - COPS
- 2. Mortimer - COPS
- 3. Ellsberg - COPS
- 4. Weaver - COPS

CITY OF SANCHO MARRAS - Planning Dept.

- 5. Pisapia - USFWS
- 6. Davis - ERM

1. The first step in the process of identifying a problem is to recognize that a problem exists. This is often done by comparing current performance with a desired state or goal. For example, if a company's sales are declining, it may indicate a problem with its marketing strategy or product quality.

the 1950s, the 1960s, and the 1970s. The 1950s were a period of relative stability and growth, with the economy expanding and the population increasing. The 1960s were a period of rapid growth and development, with the economy expanding and the population increasing. The 1970s were a period of economic crisis and stagnation, with the economy contracting and the population increasing.

The California Department of Fish and Game and the California Wildlife Commission have identified the period from 1 June through 1 September as the critical period for sheep grazing on public lands. The critical period was determined by the Department of Fish and Game, based on the period from 1 May through 1 September for which the Wildlife Commission has identified the period for construction and maintenance work on the grazing the sheep.

Construction and maintenance of fish control works must be accelerated between the winter rainy season generally occurring during the months of September through March and the period of summer thunderstorms during the months of May through September.

The vacation contract will prohibit any work on the terms that the other 300 fear of the best channel to the military. The contract will prohibit any work on the terms that the other 300 fear of the best channel to the military. The contract will prohibit any work on the terms that the other 300 fear of the best channel to the military.

The recommended project will provide flood protection to the downstream portion of the alluvial cone and will encourage urban growth. Acquisition of land on the cone for mitigation will protect them from project-induced development pressures. The developability of the mountain slopes in either the life of the cone will not be affected by the project. The purpose of the mitigation on the mountain slopes above the mitigation area is to ensure that the life values of the mountain area are not diminished by any future development on the slopes. We do not feel that acquisition of this latter area is warranted.

The California Department of Fish and Game will be free to post signs at the gates explaining their management policies to the public.

Mar-28-1961

... ..

60

THE UNIVERSITY OF CHICAGO

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific information required.

Abstract

1. The first of these is the fact that the majority of the population of the United States is now living in urban areas. This is a result of the process of urbanization, which has been going on since the beginning of the 20th century. The population of the United States has increased from about 100 million in 1900 to over 200 million in 1960. At the same time, the population of rural areas has decreased from about 100 million in 1900 to about 50 million in 1960. This has led to a concentration of the population in urban areas, which has had a number of important consequences for the development of the United States.

It is to be stated that the first parcel at the location of the proposed "Lambert" and "Wright" freeways in New York City was taken into the main tract of acres of the site, and we are in fact of the installation of the Mass Wastewater Flood Control Authority, the U.S. Corps of Engineers in partnership with the Federal Public Participation, under Section 205 of the 1944 Flood Control Act as amended. We understand this participation amount to now a maximum of \$4,000,000. However, we do not necessarily agree with all of the established criteria and procedures for the acquisition of the site. We are of the opinion that the acquisition of the site were limited to those that may be used in addition to a necessary acquisition of the site, and that some of our concerns are: the quantity of acres and location of the Wastewater area, Channel Alignment, location of the proposed freeways, roads, methods and procedures for the acquisition of the site, and the correct quantity of the river, and the river affected by the installation of the freeways.

Y. M. 1971-1972: 1971-1972

It is not clear what areas fall into this category. However, it appears that only 30 acres have been specifically and consistently outlined in the report as designated in the Mitigation area even though in other parts of the report and appendices reference is made to different quantity of acres. There appears to be discrepancies throughout the report and appendices with regard to the description of categories that are lumped into the Mitigation area. We feel there is actually more land that would fall into this Mitigation category such as the land required for open space, and stream with life reserves, etc. Because of the discrepancy in the quantity of acres and also the method of determining value, we therefore take exception to the amount of money allocated to this category. Independent appraisals were obtained and that value of the development land was obtained from Comparable Sales. However, independent appraisals used in the report for the allocation of \$30,000 for all specified categories within the Mitigation area has no rights of way, relocation, easements and the existing 300 acres, is substantially understated and far below fair market value. If true comparables were obtained and audited, this would have become obvious. It is possible to provide us with the Comparable sales and actual costs used.

After receiving a letter from the FBI, showing the proposed alignment of the East-West Channel, the Corps was asked for the Corps' views on the proposed alignment. The Corps' comments are attached hereto. The Corps' comments are attached hereto. The Corps' comments are attached hereto.

if used as indicated, is substantially in excess of any amount specified in the reports, partly because much of the land was not identified even though it is required for alternate uses.

E. Benefit & Cost Sharing:

It is our belief that the proposed West Channel installation not only benefits this landowner, but also benefits all other landowners within the Flood Hazard area as designated by the U.S. Corps of Engineers, and to some degree, all property owners within the City of Rancho Mirage because of the benefit to the Public areas. This benefit is derived whether the property is improved or unimproved. The preservation of existing improved property and life is a primary concern and responsibility, therefore, the immediate primary benefit from the Channel installation is for the immediate property owners. We feel it would be unequitable for this landowner to be disproportionately charged or damaged beyond that of all other property owners within such designated Flood Hazard area and the City of Rancho Mirage. Therefore, the total excess cost of the West Channel over the entire City of Rancho Mirage should be borne by the entire City of Rancho Mirage proportionately.

F. Excavation of Material:

EIS paragraph 2.13:

Any excess excavated material should not be placed on this landowner's property unless it is compacted according to City of Rancho Mirage specifications. The recompacted material should be suitable for normal load factors consistent with existing undisturbed soil. Any debris should be removed from this landowner's property unless alternate arrangements are agreed upon.

G. Land Use & Acreage Calculations:

Page EIS-32, Paragraph 4.15:

The quantity of acres specified appear to be inaccurate. The following corrections will more accurately reflect the existing condition. The language in the fifth sentence should read as follows:

"The approximate 183 acre cove downstream from the proposed debris basin currently provides open space and wild life habitat. Of this, approximately 135 acres are expected to be replaced with the urban land uses after the provision of flood protection. (The remaining 48 acres would be used for Flood Control and Mitigation: 13 acres for concrete Channel and service road, and 20 acres on the East side of the East Channel plus approximately 15 acres on the West side of the West Channel for Mitigation area.)"

In addition to the 135 remaining acres of developable land, there is approximately 15 acres of developable land that may become useless after the West Channel is installed because of the proposed Channel alignment, future restricted access, loss of continuity and increased development cost burden.

II. Technical Appendices:

A. Real Estate Requirements - Page D-12:

We feel that the quantity of acres referred to in the Mitigation areas appear to be inaccurate for all the reasons specified elsewhere in this letter.

Colonel Paul W. Taylor
U.S. Army Corps of Engineers

March 24, 1981
Page 8

We feel the project land values and quantities of acres specified appear to be inaccurate and inconsistent with other statements listed elsewhere in the reports. We have specified these values to the statement that the project beneficiaries are sensitive to land costs. From the landowner viewpoint, land values, land quantities, alternate land uses and excess project costs all relate to land costs. If values and acre of project beneficiaries and values have been discussed elsewhere.

B. Location Benefits - Page 8:

The 100 acres referred to here and elsewhere appears to be inaccurate and should be changed to reflect the accurate amounts and terminology.

We do not understand the background leading to the conclusion that the land flood for residential development after the flood project is completed, is valued at \$150,000 per acre when the same type of land has been valued elsewhere in the report at \$10,000 just prior to the start of the project. We do not understand the wide difference in values and do not agree with either conclusion.

It is our contention, that gross unimproved acreage would not increase in value by any appreciable amount greater than the net cost to free it for development but prior to the installation of further improvements, such as grading, utilities and streets.

Example: If the supply and demand value of comparable gross unimproved and otherwise developable acreage without any flood control requirements is \$10,000 per acre, then an adjoining comparable piece of property with flood control requirements estimated to be \$4,000 per acre should have a value of approximately \$6,000 per acre before the Flood Channel is installed.

Colonel Paul W. Taylor
U.S. Army Corps of Engineers

March 24, 1981
Page 8

less any minor amount for risk and contingencies, etc.

We assure these responses will be reviewed and analyzed with serious consideration. This letter is intended to bring to light our more obvious concerns; however, there are numerous other specific areas of inconsistencies. Therefore we request a meeting to go over all of them before any of your reports and documentation are finalized.

Sincerely,

DARFIELD ENTERPRISES


Donald Appel

DARFIELD

cc: Mr. Les Crist, City Manager, Rancho Mirage
Mr. Lowell Weeks, General Manager and Chief Engineer,
Coachella Valley Water District

EXHIBIT "A"

The Pancho Muttac Properties, Inc. land affected by installation of the West and East Flood Channels, City Park, and requirements for other rights of way, easements or open areas are approximately as follows:

	A - RES
1. West Flood Channel in easement below debris basin (six) 6 acre fee requirement for concrete Channel and service roads and (fourteen) 14 acres remaining in easements)	20
2. Debris basin (thirteen) 13 acres and upstream wild life easement (sixteen) 16 acres.	29
3. East Flood Channel	5
4. Wild life reserve	20
5. 100 foot open space East of 20 acre wild life reserve	24
6. 50 foot open space West of the East Channel	5
7. City Park	20
SUBTOTAL:	108

The additional useable land on the West side of the proposed West Channel, even though it is not specifically identified as being required for contribution in connection with the above) may not be developable because of the proposed Channel alignment, loss of continuity, restricted access, and extra development costs. This situation could have been eliminated if the rip and flood Channel were relocated in a more westerly and circular pattern at that location.

TOTAL:

124

Response to Comments from Garfield Enterprises.

1. FLS paragraph 2.26 describes the mitigation package developed as part of the recommended plan. The points of this paragraph describe a number of items that are part of the package; the 20-acre mitigation area is one of them.

We believe, however, that 20 acres is the correct number of acres required specifically for mitigation beyond those required by this project for flood control. The Coachella Valley Water District currently has a permanent easement for flood control on the other acreage under question. Truly comparable sales do not seem to exist because of the unique location that gives the land value coupled with the severe flood hazard. However, we feel that the estimate used for economic purposes for the 20 acres of mitigation is reasonable because this land appears to suffer from a flood threat even with construction of the project.

2. The East Magnesia levee alignment has been modified in response to the Anderson's concerns. Further shifting of the mitigation lands to the downstream end of the alluvial cone would be undesirable; greater density and diversity of vegetation important to wildlife is presently found within the downstream half of the mitigation area.

3. The State of California Department of Fish and Game is concerned that continued access (both by foot and vehicle) to the State Magnesia Springs Ecological Reserve be ensured by this project. The terms of this access have been coordinated with the Coachella Valley Water District and the City of Rancho Mirage and are described in points 'a' and 'b' of FLS paragraph 2.26. We feel that public access will be sufficiently controlled so as to minimize disturbance to future development of the alluvial cone. Point 'c' allows for provision of another comparable access route that may be more compatible with future development subject to approval by the California Department of Fish and Game.

4. A maintenance access road on the west side of the West Magnesia Canyon Channel would be more expensive to provide due to the manner that the debris basin embankment abuts the mountain on the left. To keep the grades reasonable for loaded trucks, extensive earthwork would be required.

5. Again, we believe that we have correctly estimated the amount and value of the additional real estate requirements associated with this project. Specific comments regarding the acreage shown on your Exhibit A follow.

Exhibit A

1. West Flood Control Channel - Channel is within current, permanent, flood control easement. Construction of the channel will actually relieve some land of flood control burden.

2. Debris Basin - Most of the debris basin is within a flood control easement. The remainder is extremely flood prone and has little value.

AD-A150 016

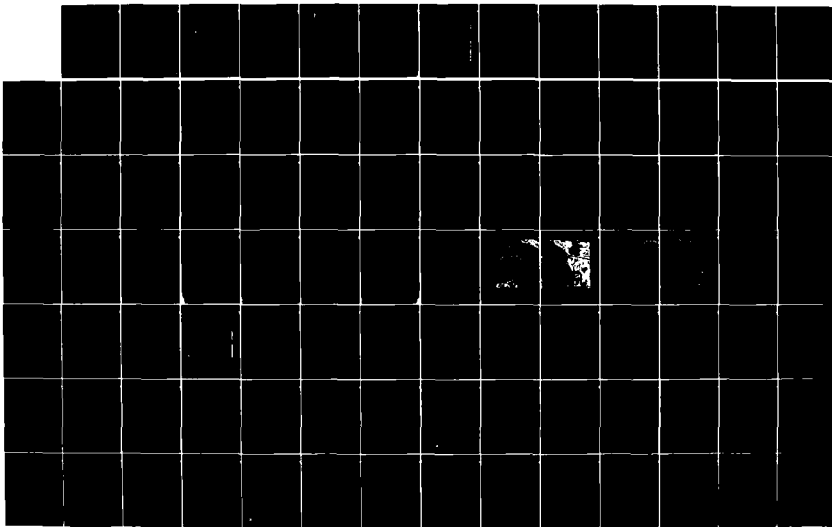
WEST MAGNIESIA CANYON CHANNEL CITY OF RANCHO MIRAGE
RIVERSIDE COUNTY CALIF. U.S. ARMY ENGINEER DISTRICT LOS
ANGELES CA DEC 83

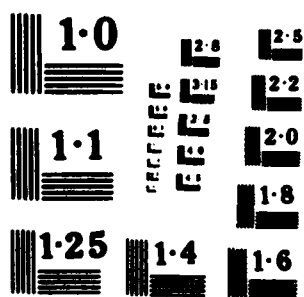
2/3

UNCLASSIFIED

F/G 13/2

NL





The following letters of comment require no response.



Soil Conservation Service

2828 Chiles Road
Davis, CA 95616
(916) 58-2200



US Department of Transportation
United States Coast Guard

March 11, 1983
2:26 PM
1810

March 11, 1983

Carl F. Eason
Acting Chief, Planning Division
ATTN: SPLPD-DA
Department of Army
Los Angeles District, Corps of Engineers
P.O. Box 2711
Los Angeles, CA 90053

Dear Mr. Eason:

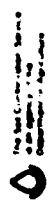
We acknowledge receipt of the draft environmental impact for the March, Mirage Flood Control in Riverside County, California.

We have reviewed the above document and find that there are no controversial items within the realm of the Soil Conservation Service's expertise and responsibilities. We find no conflict with any SCS on-going or planned projects. As we noted in a letter to you dated January 23, 1981, there are no prime lands involved in the project.

We appreciate the opportunity to review and comment on this proposed project.

Sincerely,

For Indurcetti
ROBERT E. ANDREUCCI
State Conservationist



Mr. Carl F. Eason
Acting Chief, Planning Division
Department of the Army
Los Angeles District, Corps of Engineers
P.O. Box 2711
Los Angeles, CA 90053

Dear Mr. Eason:

The concerned operating administrations and staff of the Department of Transportation have reviewed the Draft Detailed Project Report and EIS for the West Magnesia Spring Canyon Channel, City of Rancho Mirage. We have no comments to make nor do we have any objections to the Project Report or Draft EIS.

The opportunity to review the above project is appreciated.

Sincerely,

W. B. RIEDEL
W. B. RIEDEL
Chief, Planning, Coordination
and Analysis Staff
By direction of the Commandant



General Services Administration
100 Market Street
San Francisco, CA 94102

MAR 1, 1983

Mr. Carl F. Enson
Acting Chief, Planning Division
Attention: SPLPD-BA
U. S. Army Engineer District, Los Angeles
Corps of Engineers
Post Office Box 2711
Los Angeles, CA 90053

Dear Mr. Enson:

This is in response to your January 31 letter requesting comments on the Draft Detailed Project Report (DPR) for the West Magnesia Spring Canyon Channel, City of Rancho Mirage, California.

I have reviewed the report and find the proposal does not significantly affect any ESA controlled property. The opportunity to comment on the proposed action is appreciated. We have no further comment on the project.

If you have any questions, please contact me at FTS 454-7645.

Sincerely,

John Scales

JOHN S. SCALES
Environmental Coordinator
Real Estate Division
Public Buildings and Real Property

FEDERAL ENERGY REGULATORY COMMISSION
533 MARKET STREET, 8th FLOOR
SAN FRANCISCO, CA 94102

March 10, 1983

Mr. Carl F. Enson
Acting Chief, Planning Division
Los Angeles District, Corps of Engineers
P.O. Box 2711
Los Angeles, California 90053

Dear Mr. Enson:

This is in response to your request. FERCMAA for comments on the project's Draft Detailed Project Report (DPR) for the West Magnesia Spring Canyon Channel, City of Rancho Mirage. The report includes a Draft Environmental Impact Statement dated December 1982.

These comments of the San Francisco Regional Office of the Federal Energy Regulatory Commission's Office of Electric and Gas Regulation are being submitted in accordance with the National Environmental Policy Act of 1969 and the August 11, 1973, guidelines of the Council on Environmental Quality. The principal concern with proposals affecting land and water resources involves the Commission's responsibilities under the Federal Power Act and the National Gas Act. These responsibilities relate to the possible effect of such proposals on bulk electric power facilities, including potential hydroelectric development, and on natural gas pipeline facilities.

The selected plan shown in your DPR, which consists of a debris retention basin at the mouth of the West Magnesia Spring Canyon, a rectangular concrete channel 1.4 miles in length, and an energy dissipater at the confluence of the Whitewater River, does not appear to have any effect on matters of concern to the Federal Energy Regulatory Commission.

Sincerely,

Joseph E. Enson

JOSEPH E. ENSON
Regional Engineer



U.S. Department of Housing and Urban Development
Los Angeles Area Office Region 11
2500 Wilshire Boulevard
Los Angeles, California 90057

February 27, 1983

Mr. Carl F. Enson
Acting Chief, Planning Division
U.S. Department of the Army
Los Angeles District Corps of Engineers
P. O. Box 2711
Los Angeles, California 90053

Dear Mr. Enson:

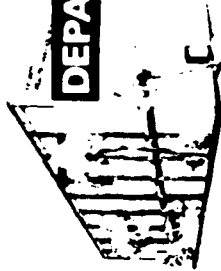
SUBJECT: Draft Environmental Impact Statement
West Magnesia Canyon Channel Flood Control Project
City of Rancho Mirage, California

This is in response to your letter of January 27, 1983, requesting comments on a Draft EIS for the West Magnesia Canyon Channel flood control improvements.

We appreciate being informed of this project. Although we have no comments on the subject EIS, the information provided will prove of value to HUD in reviewing potential flooding problems in the area covered.

Sincerely,

Celestin Almet
Celestin Almet
Environmental Clearance Officer, USNS



DEPARTMENT OF HEALTH RIVERSIDE COUNTY

Jordan L. Burt, P.E.
Senior Public Health Engineer
Division of Environmental Health
Phone 951-251-4141

March 15, 1983

Mr. Carl F. Enson
Acting Chief, Planning Division
Department of the Army
Los Angeles District, Corps of Engineers
P. O. Box 2711
Los Angeles, CA 90053

Dear Mr. Enson:

This is in reply to your letter of January 27, 1983 which carries a notation "Reply to Attention of S. M.A."

We have reviewed the drafted project report for the West Magnesia Canyon Channel, City of Rancho Mirage, and find it to be appropriate and entirely satisfactory from the public health viewpoint.

Yours very truly,

JOHN W. FANNING, R.S., M.D.A.
Acting Deputy Director of Health
for Environmental Health

Jordan L. Burt
Jordan L. Burt, P.E.
Senior Public Health Engineer

GLB:lm

cc Don Park
Kirk Campbell



OFFICE OF
DISASTER PREPAREDNESS
4000 LAMAR STREET, S.W.
WASHINGTON, D.C. 20004
TELEPHONE: (202) 344-2400

February 3, 1983

Mr. Earl F. Larson
Acting Chief, Planning Division
Federal Emergency Management Agency
4000 LAMAR STREET, S.W.
WASHINGTON, D.C. 20004

RE: SFUJ-0-74

Dear Mr. Larson:

This is in reference to your letter of January 11, 1983, and the draft west Virginia chapter entitled "West Virginia". I have no comments to make relative to the information or environmental aspects of the report. I was in the Disaster Preparedness Division of the Agency from 1974 to 1977. I support the project in the planning of the State of West Virginia. I have indicated the fee, therefore.

Sincerely,

Robert J. Harrison
ROBERT J. HARRISON
DIRECTOR

RJH:ll



ENVIRONMENTAL IMPACT STATEMENT

FINAL
ENVIRONMENTAL IMPACT STATEMENT

PLAN FOR FLOOD PROTECTION

WEST MAGNESIA CANYON CHANNEL,
CITY OF RANCHO MIRAGE
RIVERSIDE COUNTY, CALIFORNIA

U. S. ARMY ENGINEER DISTRICT
LOS ANGELES, CALIFORNIA
DECEMBER 1983

FINAL
ENVIRONMENTAL IMPACT STATEMENT

Plan for Flood Protection
West Magnesia Canyon Channel,
City of Rancho Mirage,
Riverside County, California

Responsible Lead Agency: U.S. Army Engineer District, Los Angeles.
Responsible Cooperating Agency: Coachella Valley Water District.

Abstract: The City of Rancho Mirage is located in the Coachella Valley, about 10 miles southeast of Palm Springs, California. Situated on the alluvial cone of Magnesia Spring Creek, the community is subject to high velocity floodflows and associated debris deposition. The Los Angeles District Corps of Engineers has studied the flood problem, investigating nine possible flood protection solutions. Of these, four were selected for detailed study: alternatives 1 (Recommended Plan), 1A, and 2A propose to provide flood protection to the City of Rancho Mirage by means of a debris basin and concrete channel; alternative 6 proposes flood plain management.

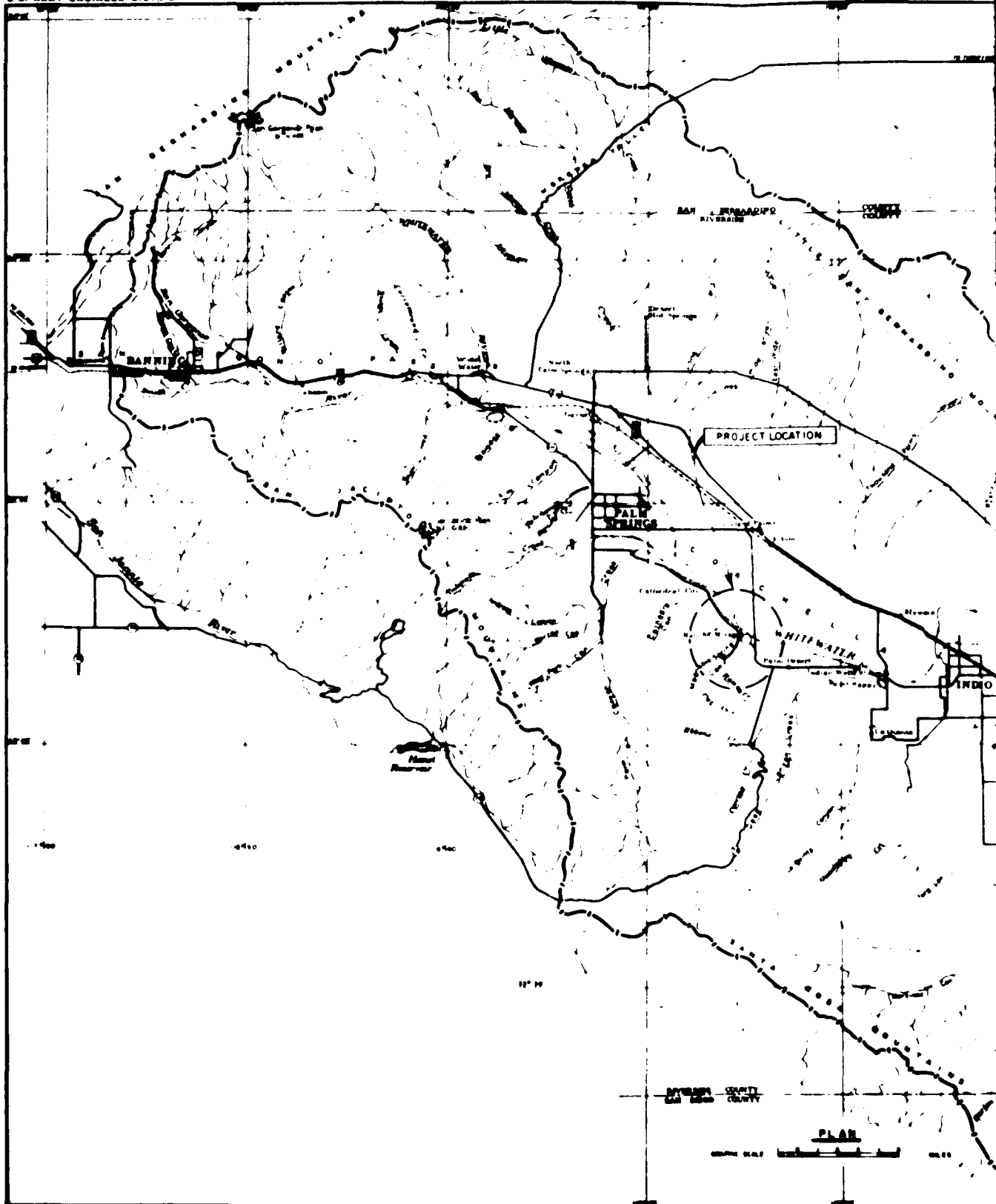
Environmental impacts associated with alternatives 1, 1A, and 2A include possible disturbance of bighorn sheep, loss of raptor foraging habitat due to anticipated induced urbanization of 117 acres of alluvial cone, and interruption of access to the Magnesia Springs State Ecological Reserve. Planned mitigation for these impacts includes preservation and enhancement of wildlife habitat values on 20 acres of alluvial cone, enhancement of water source(s) for bighorn sheep, and provision of legal access to the State reserve.

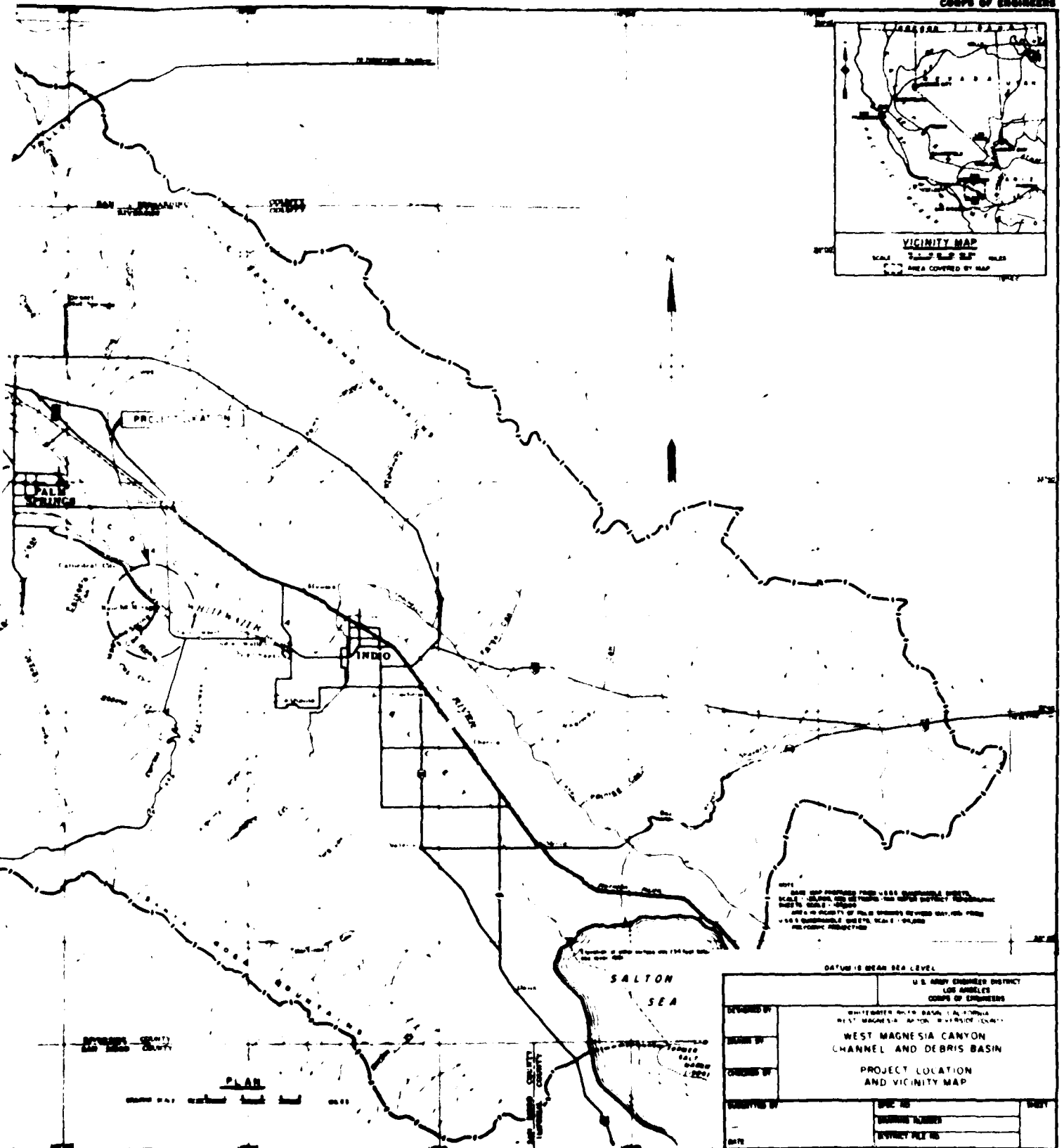
If you would like further information on this statement, please contact:

Mr. John Kennedy, Chief, Environmental Planning Section
U.S. Army Engineer District, Los Angeles
P.O. Box 2711
Los Angeles, California 90053
Commercial Telephone: (213) 688-5421
FTS Telephone: 798-5421

Note: Information discussed in the West Magnesia Canyon Channel, Rancho Mirage, California, Detailed Project Report for Flood Control (hereafter called 'Main Report') is incorporated by reference in this Final Environmental Impact Statement (FEIS).

U.S. ARMY ENGINEER DISTRICT





SUMMARY

The major factors which were considered during the planning process and which have influenced planning-related decisions are discussed in the following paragraphs.

MAJOR CONCLUSIONS AND FINDINGS.

A wide variety of structural and nonstructural solutions to the serious flood threat to the City of Rancho Mirage have been considered during the planning process. Nine alternatives have been studied (1, 1A, 2, 2A, 3, 4, 5, 6, and 7); six of these were eliminated from the array of alternatives (2, 3, 4, 5, 6, and 7) because they were determined to be unacceptable in terms of engineering, economics, or safety. Three of the four remaining alternatives (1, 1A, and 2A) each propose the construction of a debris basin and a concrete channel extending from the debris basin to the Whitewater River. Each proposes a 12.5-acre debris basin; an earthfill embankment that would be 800 feet long, 250 feet wide, and 36 feet high; and a 1.4-mile-long concrete channel that would follow the alignment of the existing earthen channel. The dimensions and design of the concrete channels and the level of protection provided by the three alternatives vary. Alternatives 1 and 2A would provide Standard Project Flood (SPF) protection and alternative 1A would provide 100-year flood protection. Alternative 6, the environmentally preferable plan, proposes a flood plain management program, consisting of a warning system, flood plain regulation, and flood insurance. This alternative would not provide flood protection to existing developments; human safety and property would continue to be threatened and this planning objective would not be met. The alternatives are described further in Chapter 3 of the FEIS.

Alternative 1A has been identified as the National Economic Development (NED) plan because it would yield maximum net dollar benefits by providing flood protection just adequate to allow the remainder of the alluvial cone to develop, thereby obtaining location benefits at the lowest cost. The SPF protection provided by alternatives 1 and 2A would not increase location benefits and would be more expensive; as a result, SPF-level protection would not maximize the net dollar benefits.

Although alternative 1 is not the NED plan, it has been identified as the recommended plan in accordance with Corps policy for SPF protection for urban areas subject to catastrophic damages as a result of rapid-flow channels. Rancho Mirage has been identified as such an area, and alternative 1, which provides SPF protection, has therefore been identified as the recommended plan.

No section 404(b)(1) evaluation under the Clean Water Act, as amended, is required for this proposed project. No wetlands will be affected by the recommended plan. There is no effective alternative to construction of a structural flood-control plan in the flood plain.

AREAS OF CONTROVERSY.

Issues that were the subject of major disagreement among public interests during the course of the study involve environmental impacts and measures proposed to mitigate those impacts. Two significant concerns that surfaced during the course of this study are (a) the location and size of the area to be preserved and enhanced as wildlife habitat to mitigate for habitat losses, and (b) guarantee of continued public access to the Magnesia Spring State Ecological Reserve for bighorn sheep.

a. Habitat Preservation and Enhancement. A mitigation proposal was developed by the U.S. Fish and Wildlife Service (USFWS), Laguna Niguel Field Office, and originally presented in their June 1981 draft Fish and Wildlife Coordination Act (FWCA) Report. The final FWCA report dated September 1982 contains the mitigation proposal presented in their draft report and is included in the environmental appendix. The mitigation proposal presented therein is briefly summarized in paragraph 2.24 of this FEIS. The Coachella Valley Water District, the local sponsor, and the City of Rancho Mirage, the affected local municipality, believe that the mitigation proposed in the FWCA Report is excessive and not consistent with future development plans. The mitigation proposed by USFWS would require acquisition of a 37.5-acre parcel of land downstream from the proposed debris basin that would otherwise become developable with implementation of the flood control plan. Corps staff believe significant enhancement of wildlife values would be difficult to achieve downstream from the debris basin embankment in the area proposed by the USFWS.

The mitigation plan incorporated as part of the recommended plan has been developed by the Corps of Engineers in coordination with the USFWS, the California Department of Fish and Game (CDFG), the Coachella Valley Water District, and the City of Rancho Mirage. The area to be preserved and enhanced for wildlife has been shifted to the east edge of the alluvial cone where existing habitat values are greater and enhancement efforts are likely to be more successful and where conflicts with future development plans are likely to be minimized. The acreage of the mitigation area on the alluvial cone is significantly less than that proposed by the USFWS in their FWCA Report. The USFWS believes that adverse impacts to wildlife resources will not be completely mitigated by the Corps' mitigation plan. In the transmittal letter accompanying the FWCA Report, the USFWS has agreed not to oppose the recommended plan if a number of recommendations are incorporated into the plan. The mitigation plan and the USFWS recommendations are discussed in detail in paragraphs 2.26 through 2.28 of this FEIS and in the Main Report (Description of Recommended Plan).

b. Access to the Magnesia Springs State Ecological Reserve. The California Department of Fish and Game has expressed concern that public access to the State Ecological Reserve will be interrupted by the embankment and debris basin proposed by the recommended plan. The project plan provides for maintenance of public access and states what the terms of that access will be (points 'k' and 'l' of paragraph 2.26 of the FEIS discuss the provisions for public access). Access to the reserve will be improved by the recommended plan in that a legal easement will be provided where access is now dependent

upon the ability to cross undeveloped private property. The CDFG concurred with the provision for public access in a letter to the Corps of Engineers dated 22 June 1982 (see environmental appendix).

UNRESOLVED ISSUES.

The mitigation package includes a provision for planting of the 20-acre mitigation area with native vegetation for repair and enhancement purposes. The appropriate numbers and size of plants to be used, planting design and techniques, and irrigation methods and duration have not been determined and agreed upon. These details will be examined by desert plant expert(s) during the Corps' development of plans and specifications.

RELATIONSHIP TO ENVIRONMENTAL PROTECTION STATUTES AND OTHER ENVIRONMENTAL REQUIREMENTS.

Consideration of environmental laws and executive orders during the planning process is noted as follows:

National Environmental Policy Act of 1969, as amended. This FEIS has been prepared in accordance with the requirements of Section 102 of this Act and with Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act.

Fish and Wildlife Coordination Act, as amended. Coordination with the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) was initiated during early stages of planning and is continuing. A planning aid report dated 11 September 1980, a draft Fish and Wildlife Coordination Act (FWCA) Report dated June 1981, and a final FWCA Report dated September 1982 were prepared by USFWS. The planning aid report and final FWCA Report are included in the appendix to this FEIS. Numerous meetings were held with the USFWS and the CDFG in order to develop the mitigation package incorporated into the recommended plan and discussed in paragraph 2.26 of this FEIS. The transmittal letter accompanying the final FWCA Report presents the USFWS position on project mitigation developed in coordination with wildlife and other agencies. Copies of pertinent correspondence with the USFWS and CDFG are included in the appendix to this FEIS.

Endangered Species Act of 1973, as amended. The Los Angeles District requested a list of the federally-listed threatened and endangered species, including those proposed for listing, from the USFWS in a 22 December 1980 letter. The USFWS reply (file SESU #1-1-81-SP-82) stated that there are no listed or proposed threatened or endangered species currently known to exist within the project area (the USFWS response is included in the appendix to the FEIS). However, two Federal candidate endangered species were reported in the reply: giant red velvet mite (Dinothrombium pandorae) and peninsular bighorn sheep (Ovis canadensis cremnobates). The Fish and Wildlife Coordination Act Report states that sand dune habitat suitable for the giant red velvet mite was not observed in the project area. The peninsular bighorn sheep are known

to frequent the project area. Protection of bighorn sheep and their habitat is an issue that has been considered carefully in coordination with the USFWS and the CDFG, and in design of the recommended project. Coordination regarding protection of bighorn sheep habitat is continuing with the USFWS and CDFG.

National Historic Preservation Act of 1966, as amended. A cultural resources reconnaissance report was prepared for the project area by the Archaeological Resource Management Corporation in November 1980. The scope of this report has been updated by surveys conducted by Corps archeological staff. Corps staff have determined that no sites on or eligible for inclusion to the National Register of Historic Places are found in the project area. The State Historic Preservation Office concurred with the Corps' no effect determination in an 18 October 1982 notice. Pertinent reports, memorandums, and correspondence are included in the appendix to the FEIS.

Clean Water Act of 1977. The District has considered the need to prepare a water quality evaluation pursuant to section 404(b)(1) of the Clean Water Act, and has concluded that an evaluation is not necessary since no wetlands would be affected and neither Magnesia Spring Creek nor the Whitewater River to which it is a tributary are subject to jurisdiction under this section of the Act.

Wild and Scenic Rivers Act, as amended. The recommended project would affect Magnesia Spring Creek which is a tributary to the Whitewater River. Neither the creek nor the river has been designated as a wild and scenic river nor as a potential addition to the system (16 U.S.C. 1271 et seq.).

Executive Memorandum, Analysis of Impacts on Prime and Unique Farmlands in EIS, CEQ Memorandum, August 11, 1980. In a 23 January 1981 letter, the U.S. Soil Conservation Service indicated that prime and unique farmland would not be affected by the recommended project. This letter is included in the appendix to the FEIS.

Executive Order 11988, Flood Plain Management, 24 May 1977. Construction of alternatives 1, 1A, or 2A would result in a direct modification of the base flood plain with a debris basin and concrete channel. The base flood plain cannot be avoided by a structural alternative and nonstructural alternatives were determined to be ineffective. Construction of any of the three plans would reduce the hazard and risk of flood loss and minimize the impacts of floods on human safety, health, and welfare in accordance with the goals of this executive order. At the same time, however, the plans would allow development of the natural flood plain. Alternative 6 would not encourage development of the flood plain but would not reduce the hazard to existing development.

Executive Order 11990, Protection of Wetlands, 24 May 1977. No wetlands would be affected by the recommended plan or the other considered plans.

FINAL
ENVIRONMENTAL IMPACT STATEMENT
West Magnesia Canyon Channel
City of Rancho Mirage,
Riverside County, California

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APPENDIX

1. NEED FOR AND OBJECTIVES OF ACTION.

STUDY AUTHORITY.

1.01 The Detailed Project Report (DPR) for Flood Control, West Magnesia Canyon Channel, Rancho Mirage, California, is prepared under the continuing authority of Section 205 of the Flood Control Act of 1948, as amended. This FEIS accompanies the DPR.

PUBLIC CONCERNS.

1.02 Public comments were solicited during the planning process through public and agency meetings and workshops. The public expressed a need for prompt provision of flood protection. A concern was also expressed over possible disturbance of the bighorn sheep utilizing the Santa Rosa Mountains. (Rancho Mirage is located along the east flank of the Santa Rosa Mountains).

1.03 The wildlife agencies, specifically the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG), have expressed concern regarding protection of the bighorn sheep and its habitat. Noise from construction and maintenance operations at the mouth of the alluvial cone may discourage the sheep from using the watering hole located where the canyon and alluvial cone meet. The wildlife agencies have also expressed concern over the diminishing foraging opportunities in the Santa Rosa Mountains raptor concentration area. The California Department of Fish and Game is also concerned about the potential modification of access to the Magnesia Springs State Ecological Reserve that the project may pose.

PLANNING OBJECTIVES.

1.04 The planning objectives for the project are twofold. The primary purpose is to provide flood protection to the City of Rancho Mirage. Second, environmental concerns are to be considered in order to minimize adverse impacts to the environment.

2. ALTERNATIVES.

ALTERNATIVES ELIMINATED FROM FURTHER STUDY.

2.01 Eight (1, 2, 2A, 3, 4, 5, 6, and 7) alternatives were identified in the Stage II Detailed Project Report. Another alternative (1A) was added during this study, bringing the total to nine. Five (2, 3, 4, 5, and 7) of these have been eliminated from further study due to engineering, safety, and/or economic constraints and are discussed below.

2.02 ALTERNATIVE 2. This alternative, formerly identified as the National Economic Development plan during Stage II studies, proposes to provide Standard Project Flood protection by means of a debris basin and embankment (identical to that proposed by the recommended plan) and a trapezoidal concrete channel. The channel would extend 1.4 miles from the debris basin to the Whitewater River and would follow the alignment of the existing earthen channel along the west edge of the alluvial cone. This alternative has been eliminated from further consideration because studies have shown that high velocity flow in trapezoidal channels with curves will set up undesirable, unstable flow conditions.

2.03. ALTERNATIVE 3. Alternative 3 would provide for a single levee and an unvetted low-flow channel. The earthfill levee would feature grouted rock revetment and would contain Standard Project floodflows along the western slopes of the cone. An entrenched earth-bottom channel extending from the upper portion of the alluvial cone to the Whitewater River would carry low flows and provide for sediment deposition during high flows. This alternative was deleted from further consideration due to the potential for levee failure as a result of excessive deposition and scour at various locations within the channel.

2.04 ALTERNATIVE 4. Alternative 4 proposes the construction of an earthfill dam without any associated channel work. The proposed dam would be 1,000 feet long and 115 feet high and would extend across the upstream end of the alluvial cone, connecting with the slopes on either side. The dam would contain the Standard Project Flood and limit discharges so as to require minimal improvements to the existing earthen channel. This alternative was eliminated from the array of alternatives because it was not cost-effective. The benefit/cost ratio was reported as 0.8 to 1 in the Stage II Detailed Project Report dated February 1981.

2.05 ALTERNATIVE 5. Alternative 5 proposes the construction of a trapezoidal concrete channel along the western edge of the cone from the upper portion of the alluvial cone to the Whitewater River, a distance of 1.4 miles. An inlet levee extending across the upstream end of the cone would be required to divert flows into the channel. Recent studies have shown that, due to sediment deposition, there are no feasible combinations of channel dimensions that could safely contain Standard Project Flood flows. Sediment deposited in the channel may form sand bars resulting in wave action that may not be contained within the channel regardless of the depth or width of the channel. This alternative has been deleted from further consideration for this reason.

2.06 ALTERNATIVE 7. Alternative 7 proposes floodproofing of existing and future structures located within the 100-year flood plain. Floodproofing would be accomplished by constructing floodwalls around structures. This proposal was found to be economically unjustified. A benefit/cost ratio of 0.2 was reported in the February 1981 Stage II Detailed Project Report.

WITHOUT CONDITIONS (NO ACTION).

2.07 A description of the future conditions expected to occur in the absence of a Federal action is presented in the following paragraphs.

2.08 The flood threat to the City of Rancho Mirage and to the undeveloped portion of the alluvial cone of Magnesia Spring Creek is not expected to change. The currently undeveloped cone is not anticipated to be developed in the absence of a Federal project and its wildlife habitat and open space values are expected to persist. Unauthorized off-road vehicle use of the cone is expected to continue. Maintenance of the existing earth levee and earth channel by the Coachella Valley Water District is also expected to continue. Noise from both of these activities will continue to pose the possibility of disturbance to bighorn sheep in adjacent areas.

2.09 With or without a Federal project, the Coachella Valley Water District intends to continue with its plans to construct a levee along the east side of the undeveloped cone. This levee is being designed to collect flows from small side drainages and thereby slightly reduce the flood threat to existing development on the eastern half of the cone. A small amount of residential construction is expected in the city in the vicinity of Highway 111 where there are a few remaining vacant lots.

ALTERNATIVES CONSIDERED IN DETAIL.

2.10 Of the nine alternatives identified above, four have been carried forward for detailed consideration in the Detailed Project Report.

2.11 ALTERNATIVE 1. Alternative 1, the recommended plan, will provide Standard Project Flood protection to the City of Rancho Mirage through the construction of a debris basin at the upstream end of the Magnesia Spring Creek alluvial cone and a rectangular concrete channel extending 1.4 miles from the debris basin to the Whitewater River.

2.12 The earthfill embankment for the debris basin will be 800 feet long, 250 feet wide, and 37 feet high with a 190-foot-wide concrete spillway designed for probable maximum discharges. An area of approximately 12.5 acres will be excavated behind the embankment. The rectangular concrete channel will be 20 feet wide and 10 feet deep and will follow the alignment of the existing earthen channel.

2.13 Excavation for the debris basin and the channel will produce approximately 300,000 cubic yards of soil material. Much of this material will be utilized in the construction of the project. About 200,000 cubic yards will be used to construct the embankment and backfill along the channel. The remainder will be placed in miscellaneous fill areas designated by the

local sponsor adjacent to the construction area (such as along the east side of the channel). No borrow or disposal activities related to construction will be conducted off-site.

2.14 Maintenance of the debris basin by the Coachella Valley Water District will entail removal of debris approximately every 3 to 5 years. An average of approximately 4,000 cubic yards of sediment is expected to accumulate in the debris basin each year. This material will be transported to an off-site disposal area. The Coachella Valley Water District has identified several possible sites for the material (letter dated 17 May 1982 in appendix to FEIS). Material will be used as construction fill for planned developments in the Rancho Mirage and Palm Desert areas (planning process would require environmental review by local city and/or county governments); at the City of Rancho Mirage Whitewater River Park site; or at a 165-acre site at Cook Street and Whitewater River Stormwater Channel owned by the Water District (see 3 June 1982 Memorandum for Record in appendix to FEIS).

2.15 The major environmental mitigation features of the proposed action include preservation and enhancement of wildlife habitat values on 20 acres of alluvial cone, enhancement of water source(s) for bighorn sheep in the vicinity of Magnesia Spring Canyon, and provision for public access to the Magnesia Springs State Ecological Reserve. The mitigation features are discussed in greater detail in paragraph 2.26 of this FEIS.

2.16 ALTERNATIVE 1A. This alternative, the NED plan, proposes to provide 100-year protection by means of a debris basin and embankment identical to that proposed by alternative 1 and a rectangular concrete channel. The channel would be 15 feet wide and 9 feet deep and would extend 1.4 miles from the debris basin to the Whitewater River along the alignment of the existing earthen channel.

2.17 ALTERNATIVE 2A. Some of the features of alternatives 1 and 2 have been combined to form alternative 2A. Alternative 2A features a debris basin and embankment identical to that proposed by alternative 1 and proposes to provide SPF protection. The channel features a combination of trapezoidal and rectangular design. The channel would be 1.4 miles long and follow the alignment of the existing channel. The upstream .85 miles of the channel would be trapezoidal, 20 feet wide at the bottom, and 8 feet deep. The downstream .55 miles of the channel would be rectangular, 30 feet wide, and 8 feet deep.

2.18 For all three of the above alternatives, the local sponsor, the Coachella Valley Water District, would provide all lands, easements, and rights-of-way. Construction of project features would be the responsibility of the Corps of Engineers. Operation and maintenance would be the responsibility of the Water District. The California Department of Fish and Game would be responsible for any maintenance of the enhanced water sources. Management of mitigation measures would be implemented by the Coachella Valley Water District, the California Department of Fish and Game, and the City of Rancho Mirage as outlined in the mitigation plan.

2.19 ALTERNATIVE 6. Alternative 6, the environmentally preferable plan, proposes a flood plain management plan which consists of a warning system, flood plain regulation, and flood insurance. The flood warning system includes a flood detection and prediction system and flood warning process. The detection and prediction system utilizes rain and stream gages and local weather predictions to estimate the potential flood threat. The warning process would be initiated if warranted. The flood warning system would be designed and implemented by the Corps of Engineers and would be operated and maintained by local agencies with assistance from the National Weather Service.

2.20 The workability of the system is dependent upon the lead time available for warning the community of an impending flood. The maximum lead time for Magnesia Spring Creek is 10 to 20 minutes. This period is of too short a duration to be very useful to the residents of Rancho Mirage. Human safety and property would not be protected and this planning objective would not be met. However, the system would be utilized as a data input for a warning system on the Whitewater River to which Magnesia Spring Creek is a tributary.

2.21 The flood plain regulation measure would require the City of Rancho Mirage to pass a zoning ordinance restricting any new development of structures in the 100-year flood plain. This flood plain includes the entire undeveloped cone upstream of existing city development. The limitations on development in the flood plain required by this measure of the flood plain management plan are greater than those required by the flood insurance program. The Corps has determined that elevation of buildings on fill as allowed for flood insurance is ineffective on the Magnesia Spring Creek alluvial cone. Elevation of structures above the 100-year flood level by means of columns or piers would be required by the flood plain management plan.

2.22 In addition, the flood plain management plan would require that property owners purchase flood insurance.

MITIGATION.

2.23 Two mitigation proposals have been formulated for the recommended project alternative and are applicable to alternatives 1A and 2A as well. One proposal was presented by the U.S. Fish and Wildlife Service (USFWS) in the June 1981 draft Fish and Wildlife Coordination Act Report (FWCA Report) and September 1982 final FWCA Report. The second proposal was formulated by the Corps of Engineers in coordination with the USFWS, CDFG, Coachella Valley Water District, and City of Rancho Mirage and is included as a feature of the recommended plan. Plates 1 and 2 illustrate the discussion of the two mitigation proposals.

2.24 USFWS PROPOSAL. The major features of the proposal are listed below. Detailed discussion of the USFWS proposal is found in the FWCA Report included in the appendix to the FEIS.

- a. Preservation and three-fold enhancement of habitat values on 37.5 acres on the alluvial cone immediately downstream from the proposed debris basin. Preservation of habitat values on an additional 26 acres of nearby alluvial habitat and on 20 acres of adjacent slopes.
- b. Development of a permanent water source in Magnesia Spring Canyon in addition to the spring.
- c. Scheduling of construction and maintenance activities (which may disturb bighorn sheep and discourage them from using the lower watering pool) associated with the debris basin to avoid the critical dry period for the bighorn sheep from 15 June to 30 September.
- d. Provision of fencing along the west side of the channel to alleviate any potential hazard to wildlife.
- e. Installation of barriers to vehicles and foot traffic to prevent possible disturbance of the bighorn sheep during the summer months.
- f. Maintenance of the debris basin such that any perennial vegetation which establishes on the sides of the basin could remain.

2.25 The USFWS proposal is unacceptable to the Coachella Valley Water District and the City of Rancho Mirage who believe that the number of acres proposed for preservation on the alluvial cone is excessive and that the proposed location of this acreage conflicts with future land use plans. Corps staff believe that enhancement of existing wildlife habitat values would be difficult to achieve at this location. As a result, a second proposal was developed.

2.26 CORPS OF ENGINEERS PROPOSAL. The features of this mitigation package have been developed by the Corps of Engineers in coordination with the Coachella Valley Water District, the City of Rancho Mirage, the U.S. Fish and Wildlife Service, the California Department of Fish and Game and other concerned agencies and public during the planning process for the recommended Corps project. The terms of the package are binding only in the event that the Corps of Engineers constructs the West Magnesia Canyon Channel Project. Any of these mitigation features carried out prior to the construction of this project are understood by all parties to mitigate the impacts of this project.

- a. A mitigation area of not less than 20 acres of alluvial cone will be provided between the toe of the mountains along the east side of the cone and the East Magnesia levee proposed to be built by the Coachella Valley Water District as shown on Plate EIS-4. Wildlife habitat values of the mitigation area will be preserved and enhanced. The area will function as the East Magnesia Stormwater Channel.
- b. During construction of the East Magnesia levee by the Coachella Valley Water District, disturbance of vegetation in the 20-acre mitigation area should be avoided. Any unavoidable disturbance of the vegetation of this area during construction of the levee will be repaired by the Corps of Engineers as a project cost during its

construction activities on the West Magnesia Canyon Channel Project if the vegetation has failed to reestablish on its own. Repair efforts will entail revegetation with native plant species that provide high wildlife habitat values (such as palo verde, mesquite and beloperone). At that time, the Corps will also enhance the existing wildlife habitat values with limited planting of native species beyond that required for revegetation of areas disturbed during construction of the levee. Enhancement planting will increase the habitat values of the mitigation area quickly and will contribute to an increase of the quantity and variety of seed stock available for natural germination. Irrigation of the mitigation area by a Corps contractor will continue for up to 2 years to help ensure success of these efforts.

The appropriate numbers and size of plants to be used, planting design and techniques, and irrigation methods and duration (up to 2 years) will be examined by desert plant expert(s) during the Corps' development of plans and specifications for this project. The study will address revegetation of disturbed areas within the mitigation area and some enhancement planting and will emphasize identification of technically appropriate and cost-effective planting and irrigation methods and planting to provide for future development of a high-quality, self-sustaining wildlife habitat area. The final plan will be developed by the Corps of Engineers and coordinated with the Coachella Valley Water District and the U.S. Fish and Wildlife Service.

- c. Enhancement of wildlife values of the mitigation area is also expected to result from the increased availability of water that would be provided by the levee that will concentrate runoff from the slopes above the mitigation area and by two pipes that would extend from the debris basin to the mitigation area. The pipes would be designed to deliver a total maximum rate of flow of 50 cubic feet per second during periods of maximum runoff. The Coachella Valley Water District will maintain the pipes from the debris basin to the mitigation area so that they function to provide additional water to the mitigation area as designed. The pipe gate will be closed only during maintenance of the pipes.
- d. Material for the East Magnesia levee may be taken from the terrace area set aside for excavation rather than from other portions of the mitigation area. Approximately 2.5 acres will be excavated to the level of the adjacent alluvial cone in order to provide the 20 mitigation acres. Excess rock and man-made debris will not be left on the excavated area or on any other part of the mitigation area. The excavated area will be graded so that runoff over the mitigation area will flow in a reasonably uniform manner.
- e. Any necessary maintenance of the East Magnesia Channel by the Water District will minimize disturbance of vegetation, especially clumps of woody vegetation within the mitigation area, to the maximum extent practicable.

- f. The Coachella Valley Water District will place one or more gates across the East Magnesia levee access road wherever necessary to restrict unauthorized vehicle access to the mitigation area that will be developed within the East Magnesia Stormwater Channel. No-trespassing signs designating the area as protected wildlife habitat will be posted every two hundred feet along the top of the East Magnesia levee by the Corps of Engineers during construction of the West Magnesia Canyon Channel Project. The levee should function as a physical barrier that will help to buffer the mitigation area from disturbances from the nearby urban development. The Coachella Valley Water District will not object to the presence of California Department of Fish and Game enforcement officers and other local law enforcement authorities on the levee or within the East Magnesia Stormwater Channel seeking to remove trespassers.
- g. Buffers will be provided on both sides of the mitigation area to help protect wildlife values. These buffers between the mitigation area and any future development on the slopes and alluvial cone which will be required by the City of Rancho Mirage, will consist of a 300-foot-wide strip of open space along the slopes east of the mitigation area and a 50-foot-wide strip of open space on the alluvial cone west of the levee. Any development occurring on the slopes above the 20-acre mitigation area and 300-foot-wide buffer during the life of the project must ensure no significant impacts on the mitigation area and no significant net impacts on bighorn sheep. Appropriate vegetation for the 50-foot-wide buffer ranges from native plant species to turf grass. Roadways, parking lots, and yards with side-lot-line fences are not suitable land uses in this buffer strip.
- h. Potential adverse impacts to bighorn sheep by this project will be avoided to the maximum extent practicable and otherwise minimized. Construction of the debris basin, embankment, and the upstream 1,000 feet of the West Magnesia channel (including spillway) by the Corps of Engineers and maintenance of those facilities by the Water District will, to the maximum extent practicable, be timed to avoid the critical dry period for bighorn sheep from 15 June through 30 September.
- i. The Corps will enhance water source(s) for bighorn sheep in the vicinity of Magnesia Spring Canyon concurrently with the first item of construction of the West Magnesia Canyon Channel Project. Fifteen thousand dollars (\$15,000) will be available for this purpose. This mitigation feature will be located upstream of the recommended project and is designed to function separately from the debris basin and channel. It will include its own water collection features. The specific design and placement of the enhanced water source(s) will be determined by the Corps of Engineers in cooperation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game. Any maintenance of the water source(s) will be the responsibility of the California Department of Fish and Game.

- j. Potential construction-induced noise disturbance of school activities at the Rancho Mirage Elementary School and of residents living near the west channel alignment will be reduced by avoiding construction activities adjacent to the school during school hours, and during nighttime hours, to the maximum extent reasonable.
- k. Access to the Magnesia Springs State Ecological Reserve for bighorn sheep will be provided by the Coachella Valley Water District to representatives of the California Department of Fish and Game and to the public. Vehicle access from the vicinity of the Rancho Mirage Elementary School to the proposed debris basin embankment will be provided via the channel service road to representatives of the California Department of Fish and Game and to the public under the Department's direct supervision. A turn-around and parking area for several cars will be provided by the Corps of Engineers near the embankment. Foot access will be available to the public along the channel service road (vehicle parking will be available to the public along a public road contiguous to the service road in the vicinity of the Rancho Mirage Elementary School and at a park proposed to be developed by the City of Rancho Mirage adjacent to the school) and across the embankment, debris basin, and upper wash to the mouth of the canyon. Closure of access to the reserve (by locking gates provided as part of the project fencing) during the dry summer months will be the responsibility of the California Department of Fish and Game.
- l. Provision of another access roadway may be more compatible with future development and may be acceptable if equivalent features are provided. These include provision of: (a) access by foot and vehicle between the upstream end of the existing development and the debris basin embankment service road; (b) parking areas at both ends of the roadway; and (c) effective means to limit access, such as gates and fencing or other more appropriate methods. Any such substitution will be coordinated with and subject to the approval of the California Department of Fish and Game.
- m. Land on the alluvial cone upstream from the debris basin embankment will be placed under control of the State of California by means of a wildlife easement provided by the Coachella Valley Water District. The wildlife easement will limit the use of these lands to purposes of flood control, wildlife management, and access to the ecological reserve. The terms of the wildlife easement will be agreed upon by the California Department of Fish and Game and the Coachella Valley Water District and signed by both agencies prior to initiation of the Corps construction. The easement will be finalized once the Water District has obtained fee title to these lands. The Coachella Valley Water District shall not object to the presence of California Department of Fish and Game enforcement officers and other local law enforcement authorities upstream of the debris basin embankment.

- n. The Corps of Engineers will provide fencing on both sides of the channel and along the downstream toe of the debris basin embankment in accordance with Corps regulations, safety requirements, and environmental concerns. Fencing on the west side of the channel will be of a type that is unlikely to catch the hooves of highhorn sheep. The Water District will maintain all project fencing. Native vegetation which will not require long-term irrigation will be planted to improve esthetics on the downstream face of the debris basin embankment where overbuild for the service road permits it.
- o. Disposal of debris from the basin during maintenance activities conducted by the Coachella Valley District will comply with applicable Federal regulations, especially those concerned with the protection of significant plant and animal species.

2.27 The USFWS responded to the mitigation package presented in a 2 August 1982 Corps of Engineers Memorandum for Record in a 29 September 1982 transmittal letter accompanying their Fish and Wildlife Coordination Act Report (see appendix to FEIS). The mitigation package presented above has been slightly revised and clarified since the USFWS responded to the 2 August 1982 Memorandum for Record. The USFWS comments are also pertinent to the mitigation package presented above.

2.28 The USFWS found the mitigation package to be weak in a number of areas and provided recommendations for strengthening it. Many of the recommendations were readily incorporated into the mitigation plan presented above; others were not. The following five recommendations have not been included in the plan:

a. Disturbance of Vegetation During Levee Construction.

(1) The USFWS recommended that levee construction by the Coachella Valley Water District adjacent to the 20-acre mitigation area not affect more than 5 acres of that 20-acre area, and that the existing vegetation on at least 15 acres of the mitigation area not be disturbed.

(2) The Corps of Engineers could not incorporate this recommendation. The Coachella Valley Water District will balance a potential for increased levee construction costs against costs for revegetation of disturbed areas in order to achieve the most reasonable solution. Point 'b' of the mitigation plan (paragraph 2.26 above) states that all areas within the 20-acre mitigation area disturbed during levee construction that fail to reestablish on their own will be revegetated.

b. Planting of Native Plants.

(1) The USFWS recommended that the Corps of Engineers plant native plants in the 20-acre mitigation area and irrigate those plantings for up to two years or until the majority have obviously taken. Plantings would minimally include 20 palo verde trees, 200 beloperone, and 50 catclaw per acre on at least 7 acres. The palo verde trees should be at least 5 gallon size.

(2) The Corps of Engineers did not incorporate this recommendation because the availability of specified plant species is likely to vary from year to year. The Corps will attempt to use this recommendation as a guideline but cannot commit itself to strict adherence to the numbers and plant species enumerated in the recommendation because future availability of species and quantities is uncertain. During development of plans and specifications by the Corps of Engineers, desert plant expert(s) will be retained to develop a vegetation plan. This plan will be finalized by the Corps of Engineers in coordination with the U.S. Fish and Wildlife Service and the Coachella Valley Water District.

c. Timing of Project Construction.

(1) The USFWS recommended that construction of the debris basin embankment and construction activities upstream of the embankment be timed to avoid the period from June 15 through September 30.

(2) The Corps of Engineers has incorporated this recommendation to the maximum extent practicable. No commitments can be made since timing of construction must attempt to avoid winter and summer storm seasons occurring from November through March and July through September, respectively.

d. Debris Disposal Sites.

(1) The USFWS recommended that debris disposal sites to be used during maintenance activities conducted by the Coachella Valley Water District be identified and agreed upon by the Corps of Engineers, U.S. Fish and Wildlife Service, California Department of Fish and Game, and Coachella Valley Water District prior to any construction activities.

(2) The Corps of Engineers believes that the EIS review process addresses this recommendation by allowing wildlife and other agencies to comment on the tentative debris disposal sites identified by the Coachella Valley Water District. The Corps has evaluated the potential for adverse impacts to significant resources that would result from the use of these site and has concluded that significant adverse impacts are not expected to occur. The sites are described in paragraphs 2.14, and 3.22 through 3.34 of this FEIS. It should be noted that availability of sites for debris disposal purposes may change over the 100-year life of the project resulting in the use of other sites. Compliance with applicable environmental laws and regulations during maintenance of the recommended project will be the responsibility of the Coachella Valley Water District.

e. Disturbance of Vegetation During Maintenance.

(1) The USFWS recommended that necessary maintenance of the East Magnesia Spring Channel by the CVWD or others affect the vegetation on no more than 4 acres. Within those 4 acres, clumps of woody

perennial vegetation should be avoided such that none are removed. The USFWS suggested that this recommendation is facilitated by the fact that very little debris is expected to accumulate in the East Channel.

(2) The Corps of Engineers has partially incorporated this recommendation into the mitigation plan. Point 'e' of the mitigation plan (paragraph 2.26 above) states that maintenance activities will minimize disturbance to vegetation within the mitigation area to the maximum extent practicable. The 4-acre figure was not incorporated because the reasonableness of the number will vary depending on maintenance needs.

COMPARATIVE IMPACTS OF ALTERNATIVES.

2.29 Table 1 presents a comparison of the effects of the alternatives on the significant environmental resources that are identified in Chapter 3 of this FEIS. Impacts of the alternatives are discussed in more detail in Chapter 4 of this FEIS.

2.30 The environmental effects of alternatives 1, 1A, and 2A are virtually identical because they differ only in terms of channel design. Further comparison of the three alternatives will be made in this FEIS only where relevant.

TABLE 1
COMPARATIVE IMPACTS OF ALTERNATIVES
West Magnesia Canyon Channel

	Base Condition	Future Without Project Condition (No Action)	Alternatives 1, 1A, and 2A Debris Basin & Concrete Channel	Alternative 3 Flood Plain Management
ALLUVIAL CONE AND VICINITY				
Biological Resources				
Vegetation	The undeveloped cone and surrounding hillsides provide good to poor wildlife habitat. Plant communities include creosote scrub and catclaw/smoketree wash vegetation.	No change from the base condition.	Loss of 12.5 acres to debris basin excavation and 3 acres to the debris basin embankment. Loss of 13 acres to the channel and service road. Indirect loss of 117 acres to induced growth.	No impact.
Wildlife	Diverse wildlife including reptiles, rodents, birds, raptors and bighorn sheep.	No change from the base condition.	Disruption of wildlife, particularly bighorn sheep and raptors, by construction and maintenance activities. Loss of up to 147.5 acres of habitat.	No impact.
Threatened and Endangered Species/Species of Concern	No threatened or endangered species. The Peninsular bighorn sheep is a candidate for endangered listing. Numerous raptors observed are included on the Audubon Society's Blue List. <u>Pitangia adenophora</u> , found in the canyon, is of concern to the California Native Plant Society.	No change in the species found in the project vicinity.	Disturbance of bighorn sheep by construction and maintenance noise. Possible reduced disturbance by unauthorized OHV activity on the cone. Loss of raptor foraging habitat.	No impact.
Cultural Resources	Five aboriginal sites have been identified. Three are remains of a trail. Two are grinding slicks that were used in the preparation of food.	No change.	No cultural resources will be impacted by the project features or debris disposal.	No known impacts.
Land Use	The undeveloped alluvial cone provides open space and wildlife habitat values. Used by OHVs, joggers, and for access to CDOP reserve. The City of Rancho Mirage is a desert resort community. Primary land uses are residential, commercial, and recreational.	No change.	Indirect growth inducement of 117 acres on the alluvial cone. Potential construction-induced noise disturbance of school activities at the Rancho Mirage Elementary School and of residents living near the channel alignment.	No impact.
Aesthetics	Aesthetic features include: sandy cone dotted with native vegetation, very steep rock side slopes, and a trickling spring in the canyon.	No change.	Loss of open space values on the cone to debris basin and to induced development.	No impact.
Water Resources	Perennial fresh water spring in the canyon. Surface water percolates rapidly into the highly-permeable, deep soils of the alluvial cone.	No change.	Groundwater recharge lost to the concrete channel is expected to be replaced by increased recharge within the debris basin and diversion of up to 50 cfs from the debris basin to the mitigation area during storms.	No impact.
Air Quality	Air Quality is fairly good. In 1982, all State and Federal standards for air quality were met except for ozone and total suspended particulates.	Air quality may gradually decline as the Southeast Desert Air Basin becomes more developed.	Construction and maintenance activities will contribute to ozone and total suspended particulate problems in this area as a result of vehicle emissions and dust generation.	No impact.

Table 1
COMPARATIVE IMPACTS OF ALTERNATIVES
West Magnesia Canyon Channel

Base Condition	Future without Project Condition (No Action)	Alternatives 1, 1a, and 1b (Debris Basin & Concrete Channel)	Alternative 2 (Paved Plain Management)	
TENTATIVE DEBRIS DISPOSAL SITES				
<u>Whitemeter River Park Site, City of Rancho Mirage</u>				
Land Use/Ethetics	Vacant, may be developed as a park at a later date.	No change.	Site will not be used for disposal if developed. No significant impact if undeveloped.	No impact.
Biological Resources	Highly disturbed; weedy vegetation predominating.	No change.	No significant impact.	No impact.
Cultural Resources	No cultural resource sites were identified here.	No change.	No impact.	No impact.
<u>Cook Street Site, City of Palm Desert</u>				
Land Use/Ethetics	Part "A" of site consists of a thin strip of vacant land between the Whitemeter River and a housing tract. A man-made gully has been partially filled with broken asphalt. Part "B" of site consists of wastewater treatment facility. Area has been developed with a building, roads, lawns, and an effluent spraying system.	No change.	Ethetics may be improved in part "A" by filling of the gully with soil from the debris basin. Coarse, sandy soil material placed on part "B" would not adversely affect infiltration rates of sprayed effluent, but may create problems for placement of irrigation pipe network.	No impact.
Biological Resources	Part "A" of site is highly disturbed, vegetation dominated by Russian thistle. Part "B" of site contains no significant biological resources.	No change.	No significant impact.	No impact.
Cultural Resources	No cultural resource sites were identified on parts "A" or "B".	No change.	No impact.	No impact.

3. AFFECTED ENVIRONMENT.

The environment that would be affected by the proposed flood control action is discussed below.

ENVIRONMENTAL CONDITIONS.

3.01 The project area is located on the alluvial cone of Magnesia Spring Creek which flows out of the Santa Rosa Mountains. The canyon is narrow, steep, and rocky. It contains a freshwater spring that flows year-round in the canyon except during the driest years. The sandy soils of the alluvial cone are highly permeable and surface waters percolate rapidly. Bighorn sheep and raptors utilize the canyon and surrounding areas. The alluvial cone is bordered by steep slopes that contain archeological sites indicating use of the area by prehistoric peoples. The upper portion of the cone is currently undeveloped due to the serious flood threat posed by Magnesia Spring Creek and supports a creosote scrub plant community valuable to wildlife. Dense urban development of the City of Rancho Mirage, a desert resort community, is located on the downstream portion of the alluvial cone and is subject to damages from high velocity, debris-laden floodflows of Magnesia Spring Creek.

3.02 The Coachella Valley Water District has identified tentative debris disposal sites that would be used during project maintenance activities. In general, the sites are highly disturbed, vacant lands. A portion of one site is developed with sewage treatment facilities.

SIGNIFICANT RESOURCES.

3.03 Significant resources within the project area are discussed in detail in the following paragraphs. These resources are biological resources (vegetation, wildlife, threatened and endangered species), cultural resources, land use, esthetics, water resources, and air quality. The discussion is divided into two sections: 1) alluvial cone and vicinity, and 2) tentative debris disposal sites.

ALLUVIAL CONE AND VICINITY.

3.04 BIOLOGICAL RESOURCES. The following brief discussions of biological resources (both vegetation and wildlife) are based on two biological reports: the Biological Inventory and Impact Analysis prepared for the Corps of Engineers under contract by Lawrence LaPre in September 1980 and the Fish and Wildlife Coordination Act Report prepared for the Corps of Engineers by the U.S. Fish and Wildlife Service in September 1982. A Corps biologist has confirmed these findings during 1983 field visits. The resources are described in detail in these reports which are included in the environmental appendix.

3.05 VEGETATION. The vegetation within the study area is dominated by the creosote scrub plant community. There are two forms of this association in the study area: rocky hillside creosote scrub and alluvial plain creosote scrub. The study area also contains catclaw/smoketree wash vegetation. The Magnesia Spring Canyon wash was heavily scoured by flooding in 1979, and this area has also been significantly impacted by bulldozing and repair of the existing levee and by frequent intrusion by off-road vehicles.

3.06 Rocky hillsides vegetated by creosote scrub are characteristic of the steep slopes and cliffs surrounding Magnesia Spring Canyon. The rocky hillside creosote scrub community is characterized by rather small creosote bushes widely and evenly spaced over all but the steepest cliffs and hillsides. Associated with the creosote bushes are numerous burrobushes, brittlebushes, cacti, and other smaller shrubs and herbs. On the steep cliffs, a group of plants adapted to dwelling on cliffs predominates. These include the desert fir or pygmy cedar, arrow leaf, barrel cactus, and woody forget-me-not. All these species occur in other habitats but are dominant only on steep rocky cliffs. In areas in the canyon where water rises to the surface, there is an assemblage of water-loving plants, such as California fan palm, arrow-weed, California loosestrife, narrow-leaved cattail, and honey mesquite.

3.07 The alluvial plain creosote scrub community found on the alluvial fan below Magnesia Spring Canyon tends to be more diverse than the rocky hillside creosote scrub. The creosote bushes are larger on the alluvial fan because of the greater amount of moisture in the ground. The vegetation of the fan is a collage with older, stabilized soils dominated by creosote and less stabilized, sandy spots dominated by catclaw, desert lavender, and indigo bush.

3.08 The catclaw/smoketree wash association occurs in the flood-prone canyon mouth and some of the larger drainages of the alluvial fan. As the name suggests, this vegetation association is dominated by catclaw and smoketree, along with desert lavender. Other shrubs include cheesebush, sweetbush, and, occasionally, honey mesquite.

3.09 Ditaxis adenophora, a member of the spurge family, Euphorbiaceae, is a species of concern to the California Native Plant Society. The species is found upstream from the project area; three populations were found on steep cliffs at the mouth of Magnesia Spring Canyon and in the side canyon adjacent to Magnesia Spring Canyon during the biological field survey (see LaPre report in appendix to FEIS). This species is scarce in part of its range and is declining in numbers; however, it is more or less widespread outside California. Its range is from southern Sonora to southwestern Arizona, northwestern Baja California, and the Coachella Valley.

3.10 WILDLIFE. Magnesia Spring Canyon and its environs provide significant biological values for a variety of wildlife including reptiles, rodents, birds, raptors, ringtail, bobcat, and bighorn sheep. The most numerous reptiles observed in the project area include the side-blotched lizard, zebra-tailed lizard, and western whiptail. Common rodents include the long-tailed pocket mouse, spring pocket mouse, and desert woodrat which inhabit rocky areas; Merriam's kangaroo rat and black-tailed jackrabbit in flatter, less rocky terrain; and the antelope ground squirrel. A great diversity of bird species is found in the area, including Gambel's quail, mourning dove, western bluebird, and Costa's hummingbird.

3.11 The project area is located in the northern Santa Rosa Mountains raptor concentration area established by the U.S. Bureau of Land Management (BLM) and the California Department of Fish and Game (CDFG). Raptors observed in the project area include the red-tailed hawk, prairie falcon, Cooper's hawk,

American kestrel, great-horned owl, and the barn owl. The prairie falcon, Cooper's hawk, barn owl, and American kestrel are included on the Audubon Society's Blue List, which identifies species exhibiting significant population declines throughout much of their ranges.

3.12 Magnesia Spring Canyon and the surrounding environs provide exceptional habitat for predatory birds due to a combination of favorable topographic features. The springs in the canyon provide a reliable water source, the rocky hillsides and alluvial fan constitute good feeding habitat, and the steep cliffs above the canyon and wash provide ideal nesting and perching sites. The north-facing orientation of the cliffs creates a zone of almost permanent shade in the late spring and summer which is crucial to the successful breeding of raptor species.

3.13 Favorable updrafts and panoramic views from the ridges and the wash at the construction site allow for heavy use for foraging by raptors. The abundance of Gambel's quail and mourning doves near the canyon mouth provides a food source for prairie falcons and American kestrels, both of which were seen attacking quail on the study site. Cooper's hawk may also feed on doves and quail near the spring.

3.14 The golden eagle, protected under the Bald Eagle Act of 1940 and a Federal endangered species, was not observed in the project area but nest sites are known in Cathedral Canyon and Deep Canyon just to the west and south, respectively, of the project area. All of the habitat requirements of this species are found in the project area and it is expected to forage occasionally over the project site.

3.15 Signs of ringtail and bobcat were observed in the canyon above the falls. Sparse signs of kit fox were observed in the wash near the canyon mouth. The kit fox and ringtail are fully protected by the State of California. This status recognizes the population decline of these species and protects them from hunting pressures.

3.16 The peninsular bighorn sheep, a candidate for Federal endangered species listing and listed as a rare species by CDFG, uses Magnesia Spring Canyon and surrounding hills and washes extensively. Habitat requirements provided in the project area include the single most critical factor, water, as well as suitable escape terrain, and at least adequate forage. The sheep activities in the project area and vicinity include lambing, rutting, and resting. Up to 21 different bighorn sheep were observed in the canyon between the upper and lower spring seeps during the summer of 1980 (LaPre, 1980).

3.17 Known lambing areas for bighorn sheep are about 1-1/2 miles northwest of the project site. Rutting territory is not precisely mapped, but any of the hillsides immediately bordering Magnesia Spring Canyon may be used.

3.18 Several resting pads of bighorn sheep are located along the shaded cliffs within Magnesia Spring Canyon, as is a well-defined access trail. One sleeping pad is located on the shaded cliffs of the side canyon. Both localities are shaded from the summer sun and are adjacent to suitable escape terrain (steep cliffs with uphill access away from the sleeping pads).

3.19 Sheep use of the lower wash and proposed debris basin site is occasional, as indicated by droppings. Droppings were found as far downhill as the existing cross-canyon dike and road, but not below on the alluvial fan. The sheep probably cross the wash intermittently, going to and from the rocky hillsides to the north and south of the construction site.

3.20 The entire project area, except perhaps the alluvial fan, can be considered important habitat for the bighorn sheep. Maximum use occurs during the late spring and summer, but some sheep probably can be found in the vicinity at any time of year. The Santa Rosa Mountains support the largest remaining population of the peninsular bighorn sheep in the United States (BLM & CDFG, 1980).

3.21 THREATENED AND ENDANGERED SPECIES. No listed, threatened or endangered species occur in the project area. However, candidate species and other species of concern are found in the project area. These include Ditaxis adenophora, a member of the spurge family (California Native Plant Society); the peninsular bighorn sheep (candidate Federal endangered species); raptors including the prairie falcon, Cooper's hawk, barn owl, and American kestrel (Audubon Society's Blue List); and ringtail and kit fox (fully protected by the State of California). These species are discussed above in paragraphs 3.09 through 3.20.

3.22 CULTURAL RESOURCES. Human occupation of the project vicinity began about 1000 years ago. These earliest inhabitants were groups of hunters and gatherers who in later times came to be known as the Cahuilla Indians. It has been postulated that these people migrated to southern California from the Nevada area. When they reached the Colorado Desert, they adapted to life around the now-extinct fresh-water Lake Cahuilla (where the Salton Sea is now found). As Lake Cahuilla slowly dried up, these groups had to adjust to a drier environment. They established a precise cycle of hunting game and gathering wild plant foods. They also developed a form of agriculture.

3.23 A cultural resource survey of the project area conducted for the Los Angeles District Corps of Engineers by the Archaeological Resource Management Corporation in November 1980 identified five remnants of this prehistoric occupation on the steep slopes on the west side of the alluvial cone. Three of the sites contain evidence of an aboriginal trail. The remaining two sites are related to food preparation and are composed of large boulders exhibiting grinding slicks.

3.24 LAND USE. The project area is located on an undeveloped alluvial cone immediately upstream from the City of Rancho Mirage. The undeveloped cone currently provides open space and wildlife habitat values. At present, the majority of the upper portion of the alluvial cone is within the 100-year flood plain and cannot be developed. The landowner, Rancho Mirage Properties, hopes to develop a residential community once the proposed project is in place and the flood threat has been removed. Although the cone is private property, it has been used by the public for recreational and access purposes. Off-road vehicles and joggers are known to utilize the area but the extent of this activity is unknown. The cone also provides convenient access to Magnesia Spring Canyon and to the Magnesia Springs State Ecological Reserve located on

the eastern slopes above the alluvial cone. The Coachella Valley Water District maintains an earthen levee that extends along the western edge of the cone and across the narrow, upstream portion of the cone in an attempt to protect the City of Rancho Mirage from devastating, debris-laden, high-velocity floodflows.

3.25 The City of Rancho Mirage is located on the lower portion of the alluvial cone. This desert resort community is characterized by residential and commercial land uses. Shopping, tennis, and golf are attractions offered in the community. There is no industrial production found in Rancho Mirage. Homes and the Rancho Mirage Elementary School are located adjacent to the existing earthen channel.

3.26 ESTHETICS. The esthetics of the project area are related to the natural environment. The steep, rocky slopes on either side of the alluvial cone, the deformed rock strata of those slopes, the desert vegetation, and the presence of water in the canyon are factors that contribute to the esthetic quality of this area.

3.27 WATER RESOURCES. Freshwater Magnesia Spring flows year-round in the narrow, rocky canyon above the alluvial cone except during the driest years. This flow forms pools in the canyon that are utilized by bighorn sheep, raptors, and other wildlife for drinking purposes. When this spring flow leaves the rocky canyon and meets the deep, sandy soils of the alluvial cone, it percolates immediately and presumably follows the alluvium-bedrock contact. The existing earthen levee which parallels the west edge of the alluvial cone, crosses the upstream end of the cone approximately 2,200 feet downstream of the head of the canyon where spring flows percolate. The levee directs storm flows (there are no surface base flows) along the edge of the cone and away from the existing development except when the levee is breached. Native vegetation found on the undeveloped alluvial cone obtains moisture by tapping the water table, from rainfall, and rarely from Magnesia Spring Canyon floodflows that breach the levee.

3.28 No wells are found on the Magnesia Springs alluvial cone. All water rights here belong to the Coachella Valley Water District, the local sponsor for this recommended flood control project.

3.29 AIR QUALITY. The project area is within the Southeast Desert Air Basin. The South Coast Air Quality Management District monitors the air quality at Palm Springs, approximately 8 miles west of the Rancho Mirage project area. The air quality reported for Palm Springs is likely to be indicative of air quality in the Rancho Mirage area and is assumed to be identical.

3.30 Air quality in the Palm Springs area is fairly good. The 1982 Summary of Air Quality published by the South Coast Air Quality Management District reports that State and Federal standards for carbon monoxide, sulfur dioxide, nitrogen dioxide, sulfate, and lead were not exceeded in this area in 1982. Ambient concentrations of total suspended particulates exceeded the State standard of an average of 100 micrograms/cubic meter ($\mu\text{g}/\text{m}^3$) per 24 hours on 2 out of 58 sampled days. The State ozone standard of 0.10 parts per million (ppm) for a one-hour average was exceeded on 88 days during 1982; the Federal counterpart of 0.12 ppm was exceeded only 37 days of the year.

3.31 First and second stage episodes are called when the hourly average ozone concentration equals or exceeds 0.20 ppm and 0.35 ppm, respectively. During the period from 1976 through 1982, no second stage episodes occurred. No first stage episodes occurred during 1981 and 1982; three to five episodes occurred each year during the period from 1976 through 1980.

TENTATIVE DEBRIS DISPOSAL SITES.

3.32 Tentative debris disposal sites have been identified by the Coachella Valley Water District for their use during project maintenance activities if alternative 1, 1A, or 2A is constructed. Included among these are: sites of future developments in the Rancho Mirage and Palm Desert areas that require construction fill, the site of the proposed City of Rancho Mirage Whitewater River Park, and a 165-acre site at Cook Street and the Whitewater River Stormwater Channel owned by the Water District (see 17 May 1982 letter in appendix to this FEIS and plate EIS-3). The Whitewater River Park site is highly disturbed. At the time of the site survey in September 1981, the site was characterized by weedy vegetation. The southeast portion of the site had been graded and was being used as a construction staging area for several tractors and trucks.

3.33 The Cook Street site is divided into two parts for purposes of discussion. Part "A" consists of a thin strip of disturbed, vacant land between the Whitewater River and a housing tract. Soil has been pushed up to form a levee along the river resulting in the creation of a gully. Broken asphalt has been disposed of in the gully. Vegetation is dominated by Russian thistle, but Fourwing saltbush is also present. Part "B" consists of a wastewater treatment facility. A portion of part "B" consists of a building, a few road, and lawns. The remainder of part "B" has been graded and is used for spraying effluent from the plant.

3.34 Both sites are highly disturbed; no cultural resources were identified and wildlife habitat values were found to be low.

4. ENVIRONMENTAL EFFECTS.

ALLUVIAL CONE AND VICINITY.

4.01 The environmental effects of alternatives 1, 1A, and 2A on the significant resources identified in Chapter 3 are virtually identical since these alternatives differ only in terms of channel design. Consequently, the discussion of the impacts of these alternatives is combined. A summary of impacts is found in Table 1 of this FEIS.

BIOLOGICAL RESOURCES.

VEGETATION.

4.02 ALTERNATIVES 1, 1A, AND 2A. The direct, long-term impacts on vegetation involve loss of acreage to the proposed flood control facilities. Vegetation on approximately 12.5 acres will be lost to excavation of the debris basin and later maintenance activities. Debris basin maintenance is expected to occur once every 3 to 5 years. Any vegetation will be scraped out along with the accumulated debris. As a result, the debris basin is expected to offer limited long-term habitat values. An additional 5 acres of creosote scrub vegetation will be lost to the placement of the debris basin embankment. The upstream face of the embankment will be armoured with concrete while the downstream face will be earthen and partly vegetated with native shrubs, thereby replacing some of the lost values.

4.03 Approximately 13 acres will be lost to construction of a concrete channel and service road from the debris basin to the Whitewater River. The proposed channel alignment follows that of the existing soft-bottom channel. This channel is regularly maintained by the Coachella Valley Water District and is highly disturbed. The permanent loss of any vegetation in the channel will be insignificant.

4.04 The indirect, long-term impacts involve the loss of vegetation on 117 acres of the alluvial cone to induced residential development. This 117 acres comprises the undeveloped portion of the cone downstream from the proposed debris basin alignment that will not be impacted directly by proposed flood control features nor preserved as mitigation. Flood protection provided to the City of Rancho Mirage will also be provided to the currently undeveloped cone. The removal of the flood threat will greatly enhance the developability and the property values on the cone, thereby inducing development (lack of adequate flood control is identified by the city as the limiting factor for development of this area). Disturbance of vegetation upstream from the proposed debris basin may be reduced due to the limiting of access to upstream areas provided by the project.

4.05 ALTERNATIVE 6. Alternative 6, the flood plain management plan, would not impact vegetation either directly or indirectly. The management plan would not entail construction of flood control facilities and would not induce urban development on the cone. The plan would require the City of Rancho Mirage to pass a zoning ordinance limiting future development of structures on the undeveloped cone to those elevated on columns. The requirements of the regulation measure may decrease the potential for development of the cone.

WILDLIFE.

4.06 ALTERNATIVES 1, 1A, AND 2A. Wildlife utilizing the alluvial cone, Magnesia Spring Canyon, or the nearby mountainous terrain for foraging or cover include the peninsular bighorn sheep, raptors including the prairie falcon and golden eagle, birds, lizards, and rodents. These species may be impacted by short-term, one-time construction activities; by short-term maintenance activities recurring over the long term; and by long-term changes in land use.

4.07 Use of the cone and possibly the lower canyon by wildlife, particularly the bighorn sheep and raptors, may be interrupted by construction and maintenance activities. The bighorn sheep, which are easily disturbed by human activity, may temporarily abandon the lower pool of Magnesia Spring for drinking purposes. Should this occur during the summer (15 June-30 September) of a dry year, the available water supply may not be sufficient to sustain the sheep population. Construction of flood control works is scheduled to be accomplished between the winter storms generally occurring during the months of November through March and the period of summer thunderstorms during the months of July through September. Enhancement of water sources in the vicinity of Magnesia Spring Canyon and timing of construction and maintenance activities to avoid the summer season to the maximum extent practicable should mitigate these impacts.

4.08 Raptors may abandon nesting sites on the steep slopes of the lower canyon as a result of construction and maintenance activities. Foraging opportunities for raptors on the alluvial cone will be permanently reduced. Construction of flood control facilities and induced development of 117 acres of the undeveloped alluvial cone will permanently destroy the habitat of small animals and birds upon which the raptors feed. Preservation and enhancement of the habitat values on 20 acres of the cone is expected to mitigate the loss of raptor foraging area.

4.09 The embankment and debris basin will act as a buffer for the canyon and for approximately 20 acres of wash upstream from the debris basin. Wildlife values may be slightly improved by the elimination of disturbance by unauthorized persons and vehicles.

4.10 ALTERNATIVE 6. The Flood Plain Management Plan is not expected to cause adverse impacts to wildlife since neither construction of flood control facilities nor induced urban development would be associated with this alternative.

THREATENED AND ENDANGERED SPECIES.

4.11 ALTERNATIVES 1, 1A, AND 2A. There are no threatened or endangered species in the project area. However, the bighorn sheep is a candidate for Federal endangered species listing. Species of concern identified in the project vicinity include Ditaxis adenophora, a member of the spurge family; raptors including the prairie falcon, Cooper's hawk, barn owl, and American kestrel; and ringtail and kitfox. Impacts to bighorn sheep and rapors are discussed above in FEIS paragraphs 4.07 and 4.08. Ditaxis adenophora will not

be impacted by these alternatives. Kingtail and kit fox may be impacted by construction and maintenance noise. Sparse signs of these animals were observed upstream from the proposed debris basin; the extent of their use of the area and the significance of any impacts are unknown. LaPre (see LaPre report in environmental appendix) suggests that impacts to large carnivorous animals including the kit fox will not be significant since few of their prey species are found on the alluvial cone and open space values important to animal movements will be retained upstream of the proposed debris basin embankment.

4.12 ALTERNATIVE 6. This alternative would have no adverse impacts on endangered or threatened species or on other species of concern.

CULTURAL RESOURCES.

4.13 ALTERNATIVES 1, 1A, AND 2A. A cultural resources reconnaissance report for the project area was prepared in November 1980 (Clevenger and Meighan, 1980). The report indicates that there are five archeological sites located on the slopes above the cone. The elevations of the sites are above elevations that will be impacted by project construction. A cultural resources monitor will be present during any construction affecting the slopes near the known sites to ensure that no impacts will occur. None of the sites is listed on the National Register of Historic Places. A site survey will be conducted at a later date to ensure that enhancement of water sources for wildlife will not impact any known or presently unknown sites. The State Historic Preservation office concurred with the Corps' no effect determination in an 18 October 1982 notice. The notice is included in the appendix to the FEIS.

4.14 ALTERNATIVE 6. The flood plain management plan entails the placement of a series of rain and stream gages in the uppermost reaches of the canyon which have not been surveyed for cultural resources. Prior to placement of any gages, a survey would be conducted and any identified resources would be avoided.

LAND USE.

4.15. ALTERNATIVE 1, 1A, AND 2A. Much of the acreage that will be used for flood control is currently used for that purpose. The proposed alignments of the debris basin embankment and the channel follow those of the existing earthen levee and channel maintained by the Coachella Valley Water District. Approximately 17.5 acres would be used for the debris basin and embankment. An additional 13 acres would be used for the concrete channel that will extend from the debris basin to the Whitewater River. Any direct changes in land use to these areas is expected to be minor. Indirectly induced changes to land use will result from the provision of flood protection to the undeveloped cone. The undeveloped 150-acre cone downstream from the proposed debris basin currently provides open space and wildlife habitat values. Of this, about 117 acres are expected to be replaced with urban land uses as a result of the provision of flood protection. The remaining 33 acres would be used for the flood control channel, the East Magnesia levee to be constructed by the Coachella Valley Water District, and the 20-acre mitigation area. Open space and wildlife habitat values would be preserved within the mitigation area.

4.16 Construction of the proposed concrete channel may create a temporary noise disturbance at the Rancho Mirage Elementary School and at residences adjacent to the channel alignment. This disturbance will be minimized by avoiding construction adjacent to the school during school hours, and during nighttime hours, to the maximum extent practicable.

4.17 ALTERNATIVE 6. The flood plain management alternative would not cause any change in land use.

ESTHETICS.

4.18 ALTERNATIVES 1, 1A, AND 2A. The debris basin and embankment and any induced development of the alluvial cone will substantially reduce the esthetic values found there. The debris basin will entail excavation of approximately 12.5 acres and the 36-foot-high embankment will partially block the existing residents' view of the mountains. Induced development of the cone would result in the replacement of natural esthetic values with urban land uses. The esthetic characteristics of Magnesia Spring Canyon will not be disturbed and may be protected by the project features. Construction will not affect the canyon and the barrier created by the debris basin and embankment and the environmental easement is expected to limit access and thereby reduce degradation of the natural areas upstream.

4.19 ALTERNATIVE 6. The features of alternative 6 may limit the developability of the cone thereby protecting the esthetic resources found there.

WATER RESOURCES.

4.20 ALTERNATIVES 1, 1A, AND 2A. The existing earthen levee at the upper end of the alluvial cone prevents floodflows from washing across the cone. Occasionally, the levee is breached and floodflows inundate the cone. The debris basin will slow floodwaters and allow increased recharge within the basin. The 1.4-mile-long concrete channel will eliminate recharge in the channel during storms; there are no surface baseflows. Diversion of up to 50 cubic feet per second from the debris basin to the mitigation area during storms will also provide for additional recharge on the cone. The perennial flows of Magnesia Spring will not be affected; once these flows leave the rocky canyon, they immediately percolate into the deep sandy soils of the alluvial cone at a point about 1,500 feet upstream of the recommended debris basin. The effects of the debris basin and channel on groundwater recharge and on native vegetation not removed by any induced development are not anticipated to be significant.

4.21 The debris basin drain and the highly-pervious, deep alluvial soils of the cone will allow the debris basin to drain completely within approximately 8 hours once inflow to the basin has ceased. No significant water quality or mosquito problems are anticipated to result from ponded water.

4.22 Any impacts to water quality resulting from construction are expected to be insignificant. Construction activities would be conducted during dry periods and would avoid rainy seasons. Surface water will not be present and the water table will not be intercepted; surface flows are non-existent during the dry seasons due to very rapid percolation rates and the depth of the alluvium is great.

4.23 ALTERNATIVE 6. The flood plain management alternative would not affect water resources on the alluvial cone.

AIR QUALITY

4.24 ALTERNATIVES 1, 1A, 2A. Short-term air quality impacts will be associated with construction of the recommended project. Hydrocarbons and oxides of nitrogen emitted by construction vehicles will contribute to the photochemical production of ozone over the 9-month construction period. Ambient concentrations of ozone in the project vicinity exceeded the State standard of 0.10 ppm for a one-hour average on about 25% of the days during 1982.

4.25 Dust will also be generated by earth-moving activities during construction of the project. The coarse, sandy soils predominating here may help to minimize the amount of dust that is created. Earthwork along the channel alignment adjacent to the existing residential development will generate dust that will impact residents while that work is being conducted. This dust will contribute to ambient levels of total suspended particulates; in 1982 the State standard of an average of 100 ug/m³ per 24 hours was exceeded in the general area approximately 3.5% of the time.

4.26 Maintenance of the recommended project will entail removal of accumulated sediment from the debris basin once every 3 to 5 years. Sediment will be trucked to future development sites in Rancho Mirage and Palm Desert that require construction fill, the site of the proposed City of Rancho Mirage Whitewater River Park, a 165-acre site in Palm Desert owned by the Coachella Valley Water District, or other sites that become available during the 100-year life of the project. Significant quantities of dust and vehicle emissions will be associated with this maintenance work. Approximately 800 to 1,350 round truck trips are expected to be made during sediment removal operations occurring once every 3 to 5 years. These figures were calculated assuming that sediment will accumulate in the debris basin at an average rate of 4,000 cubic yards per year and that a truck can haul a maximum of 15 cubic yards at one time.

4.27 Existing residential development and any future development on the alluvial cone will be most subject to dust and vehicle emissions resulting from sediment removal. Earth-moving equipment and trucks will operate in close proximity to these developments. Areas along truck routes will also be impacted by vehicle emissions and dust, but probably to a lesser extent than the Rancho Mirage area.

4.28 Anticipated development of the alluvial cone following provision of flood protection will also generate air pollutants. The nature and quantity of these emissions cannot be reasonably addressed at this time and are more appropriately addressed when development plans are submitted to the City of Rancho Mirage for approval.

4.29 ALTERNATIVE 6. The flood plain management alternative would not affect air quality. This alternative does not entail construction of flood control facilities and would restrict new development in the 100-year flood plain.

TENTATIVE DEBRIS DISPOSAL SITES.

4.30 ALTERNATIVES 1, 1A, AND 2A. The Whitewater River Park site will not be used for debris disposal if it is developed as a park. In its undeveloped state, no significant impacts will result from debris disposal on this site.

4.31 Esthetics may be improved on part "A" of the Cook Street site if soil removed from the debris basin is used to bury the broken asphalt and to fill the gully. Soil material placed on part 'B' of this site is not expected to adversely affect infiltration rates of sprayed sewage effluent but may create problems for the placement of the irrigation pipe network.

4.32 Compliance with environmental laws during the use of these or other sites for post-construction maintenance activities will be the responsibility of the Coachella Valley Water District.

4.33 ALTERNATIVE 6. Debris disposal sites would not be required by the flood plain management alternative.

5. LIST OF PREPARERS

<u>Name</u>	<u>Discipline/Expertise</u>	<u>Experience</u>	<u>Role in Preparing EIS</u>
John Kennedy	Geography/Community Planner	Recreation planning, Corps 3-1/2 years; Planning, Corps, 4-1/2 years.	Chief, Environmental Planning Section. Review of D&IS and F&IS
Kenneth Kules	Civil Engineer/Civil Engineering, Environmental Planning	Recreation Planning, Corps, 2 years; Environmental Planning, Corps, 8 years.	Former Chief, Environmental Planning Section. Oversee and review D&IS preparation.
Kathleen Kunysz	Environmental Planning/Environmental Planning	Environmental Planning, consultant, 1 year; Environmental Planning, Corps, 5 years.	EIS Coordinator; Preparation of EIS document.
Christopher Kronick	Civil Engineer/Project Planning	Civil Engineering & Study Management, Corps, 8 years.	Project Manager; Identification of project alternatives.
Richard Macias	Archeology/Archeologist	Archeologist, Corps, 5-1/2 years.	Archeological impact assessment.
Steven Schwartz	Archeology/Archeologist	Archeologist, consultant, 2-1/2 years; Archeologist, Corps, 3-1/2 years.	Archeological impact assessment.
Laura Tschudi	Geography/Geographer	Geographer, Corps, 9 years.	Former Acting Chief, Environmental Planning Section. Review of D&IS.
William Van Peeters	Biology/Biologist	Biologist, Calif. Dept. Fish & Game, 1 year; Private Consulting, 6 years; Biologist, Corps, 4-1/2 years.	Analysis of biological impacts; Coordination with wildlife agencies.
<u>Consultants</u>			
Joyce M. Clevenger	Archeology/Archeologist	Archeologist, Archeological Resource Inc. 3 years; Archeologist, Archeological Management Corp., 4 years.	Project director for archeology contract.
Lawrence F. LaPre, PhD	Biology/Biologist	Biologist, consultant, 3 years; Research in project vicinity - Whitewater River Basin.	Principal investigator for biological contract.
Clement Meighan, PhD	Archeology/Archeologist	Professor of Anthropology and Director of Archeological Survey, UCLA since 1952.	Principal investigator for archeology contract.

6. PUBLIC INVOLVEMENT.

PUBLIC INVOLVEMENT PROGRAM.

6.01 The West Magnesia Canyon Channel project was originally a part of the larger Whitewater River study. At a 15 June 1978 public meeting, the public was informed that further study of the Magnesia Spring Creek flood problem was not warranted. Following floods of 1979, this conclusion was reevaluated. At a 17 January 1980 public meeting in Rancho Mirage, the public was informed that West Magnesia Spring Canyon Creek was being restudied since further investigation of the flood problem there appeared to be warranted.

6.02 The public involvement program for the West Magnesia Canyon Channel project entailed interviews and public workshops. Individuals directly affected by flooding in the area were interviewed in order to gather data regarding damages. A mailing list including individuals, groups, and businesses was developed and used to mail a combined information brochure and expression-of-interest card designed to inform the public of preliminary alternative flood control measures and to determine interest in a public workshop. A public workshop was held on 16 June 1980; prior notices were sent out informing the public. The workshop provided a forum for the public to express their views. Provision of flood protection was expressed as a primary concern with environmental issues registering as a secondary concern. The findings of preliminary plan formulation studies were presented at the workshop and the public expressed interest in two basic plans. The first of these plans proposed a trapezoidal concrete channel extending from the mouth of Magnesia Spring Canyon to the Whitewater River with sufficient capacity to contain Standard Project floodflows. The second plan proposed a combination of debris basin and trapezoidal concrete channel. The proposed debris basin would extend across the upper part of the alluvial cone and the channel would extend from the debris basin to the Whitewater River. This plan would also provide SPF protection, but the debris basin would allow the channel to be sized smaller. With public approval of these concepts, the District proceeded to study these plans in greater detail and is now recommending the implementation of alternative 1.

REQUIRED COORDINATION.

6.03 Numerous meetings (17 June 1980, 21 August 1981, 26 August 1981, 9 November 1981, 7 December 1981, 26 April 1982, 10 May 1982, 18 May 1982, 18 March 1983, 29 April 1983, 6 July 1983, and 2 August 1983) were held with public agencies to discuss environmental issues associated with the recommended project and to formulate a reasonable environmental mitigation plan acceptable to those involved. Agencies involved in this coordination effort with the Corps were the Coachella Valley Water District (the local sponsor), City of Rancho Mirage (the affected local municipality), U.S. Fish and Wildlife Service, and the California Department of Fish and Game. Required coordination under all applicable laws, regulations, and executive orders is discussed in the summary to this Final Environmental Impact Statement.

TABLE 2
RECIPIENTS OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

Federal

Advisory Council on Historic Preservation

Department of Agriculture

Soil Conservation Service, Area Conservationist, Area VI
Forest Service, Forest Supervisor, San Bernardino National Forest

Department of Commerce

Deputy Assistant Secretary and Director for Environmental Affairs
National Oceanic and Atmospheric Administration, National Weather Service

Department of Defense

U.S. Army Corps of Engineers, South Pacific Division, San Francisco

Department of Energy, Representative Region IX

Department of Health and Human Services

Department of Housing and Urban Development

Department of the Interior

Director, Office of Environmental Project Review, Washington D.C.
The following agencies are among those that received copies of the DEIS
through distribution from the above office.

Bureau of Indian Affairs
Bureau of Land Management
Geological Survey
U.S. Fish and Wildlife Service

Department of Transportation

Federal Highway Administration

Environmental Protection Agency

Administrator, Region IX
Director, Office of Environmental Review

Federal Emergency Management Agency, Director

State

Clearing House, Office of Planning and Research. The following State
agencies, departments, and commissions are among the State offices to receive
copies of the DEIS through distribution from the clearing house.

Air Resources Board
California Water Commission
Department of Conservation
Department of Fish and Game
Department of Forestry, Region VI

Department of Health
Department of Native American Heritage
Department of Transportation (Caltrans)
Department of Water Resources
Office of Historic Preservation
Regional Water Quality Control Board, Colorado River Basin Region
State Assembly
State Lands Commission
State Library
State Senate

Riverside County

Board of Supervisors
County Clerk
Flood Control and Water Conservation District
Health Department, Environmental Health Services (Vector Control)
Office of Disaster Preparedness
Planning Commission
Planning Department
Road Department
Library Branches (Riverside, Cathedral City, Coachella,
Indio, Mecca, and Palm Desert)

Cities

Palm Springs City Library
Rancho Mirage City Offices

Other Agencies

Coachella Valley Association of Governments
Coachella Valley Water District
California Native Plant Society, Southern
California Chapter
California Water Resources Association
California Wildlife Federation
Desert Beautiful, Inc.
Desert Bighorn Research Institute
Desert Peoples United
Desert Protective Council
Desert Quail Garden Club
Ecology Center of Southern California
Friends of the Earth
Garden Club of the Desert
Inter-tribal Council of California, Inc.
Izaak Walton League of America
League of Women Voters, Palm Springs
Living Desert Reserve
Mountain Protective League
Nature Conservancy
Palm Springs Desert Museum
Palm Springs Garden Club
Palm Springs Historical Society
Riverside Archaeological Society

Roadrunner Garden Club
Sierra Club, Palm Springs
Sierra Club, San Geronio Chapter
Dr. Larry LaPre
Dr. Bill Mayhew, Dept. of Biology, University of California, Riverside
Dr. Al Muth, Director, Deep Canyon Desert Research Center
Dr. Phil Wilke, Dept. of Anthropology, University of California, Riverside
Mr. Andy Sanders, Dept. of Botany & Plant Sciences, University of
California, Riverside

6.04 Comments on the draft EIS requiring responses were received from the following agencies and groups:

Environmental Protection Agency
Department of Health and Human Services, Public Health Service
Department of the Interior, U.S. Geological Survey
U.S. Department of Commerce, National Weather Service
U.S. Bureau of Indian Affairs

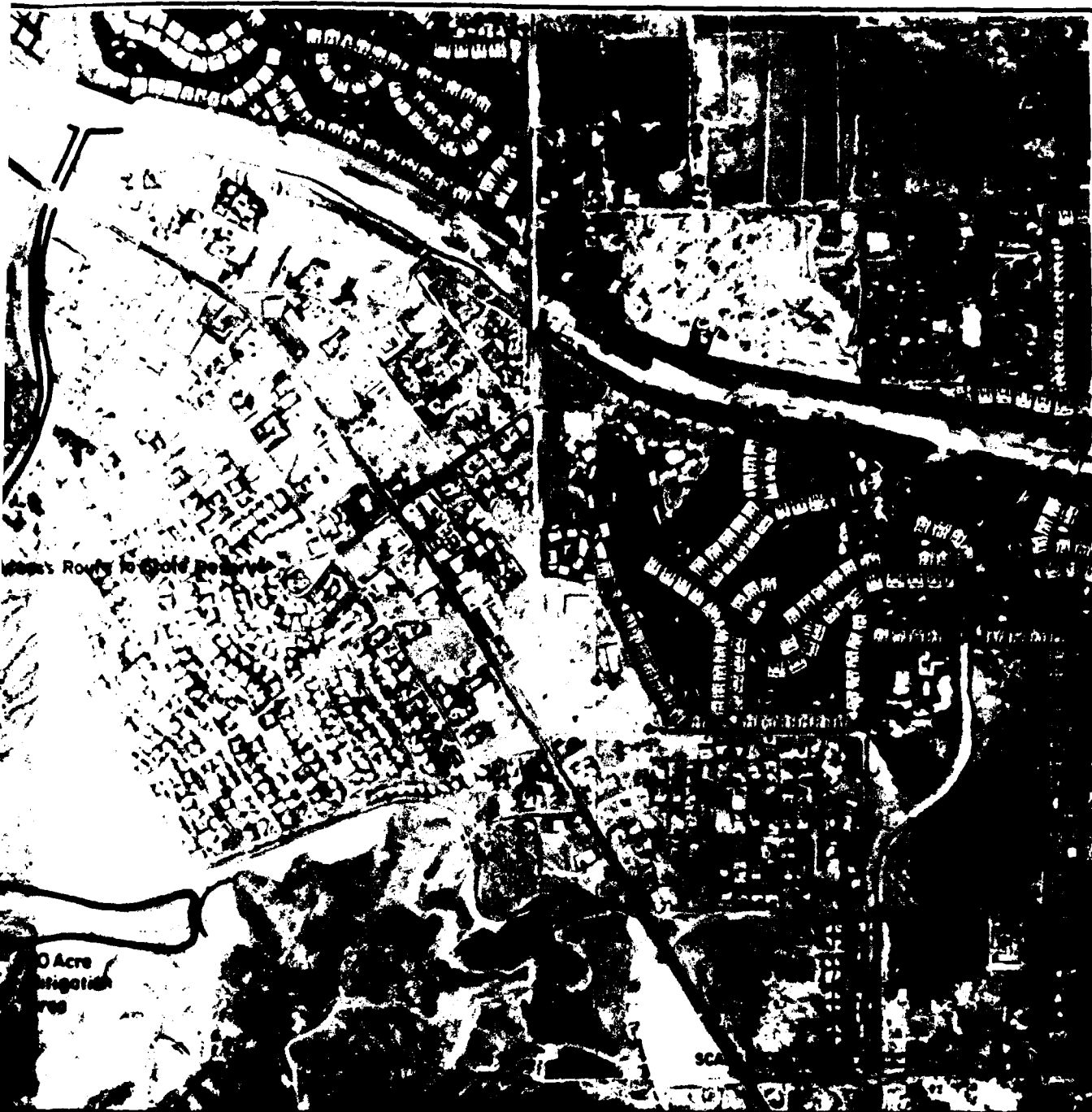
Resources Agency of California
 Department of Water Resources
 Caltrans
 Department of Fish and Game
State of California Native American Heritage Commission

Riverside County Parks Department

University of California, Riverside, Boyd Deep Canyon Research Center
Desert Bighorn Research Institute
Garfield Enterprises

Responses to the letters of comment received from these agencies and members of the public are found in the Public Involvement Appendix.



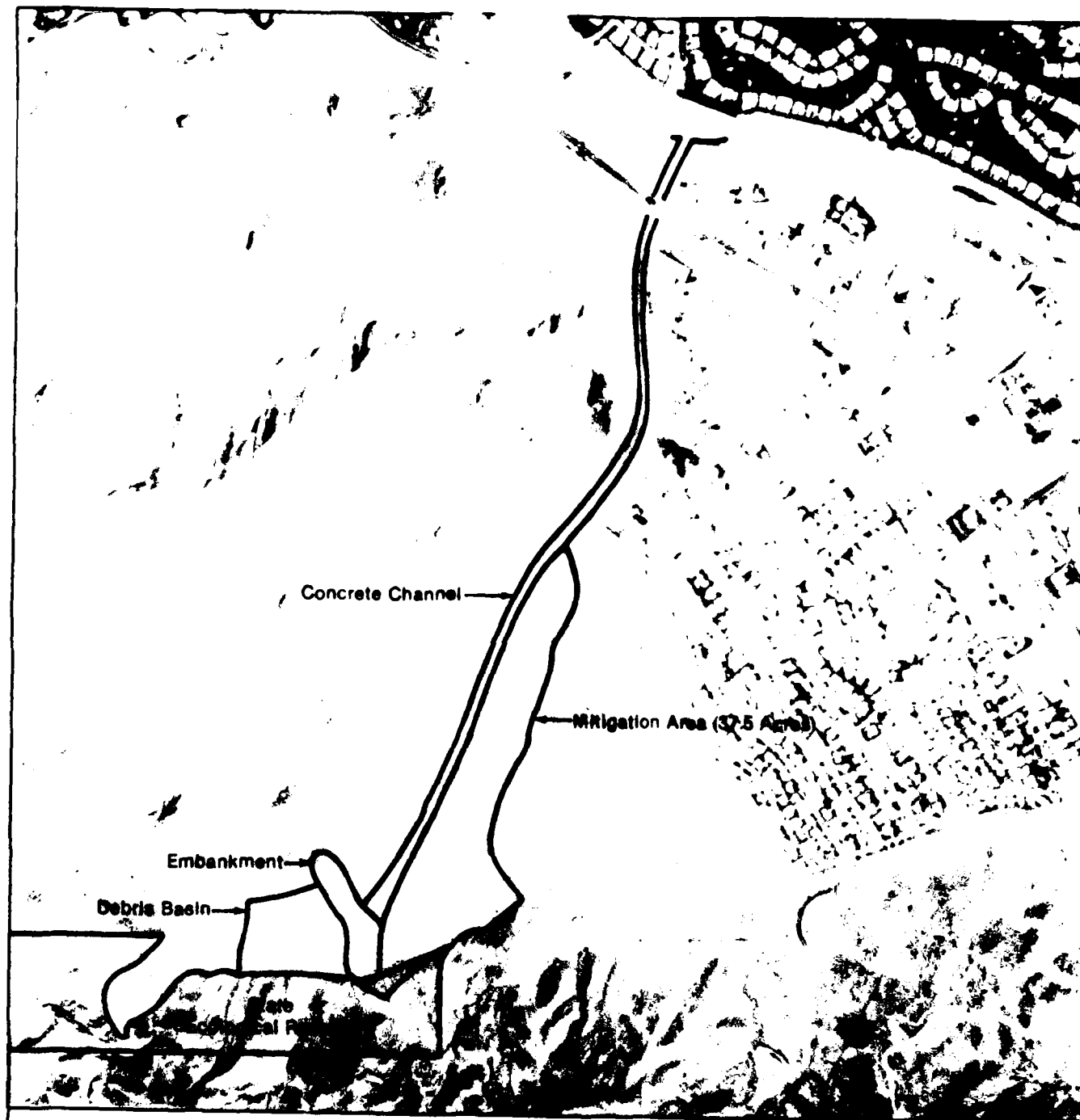


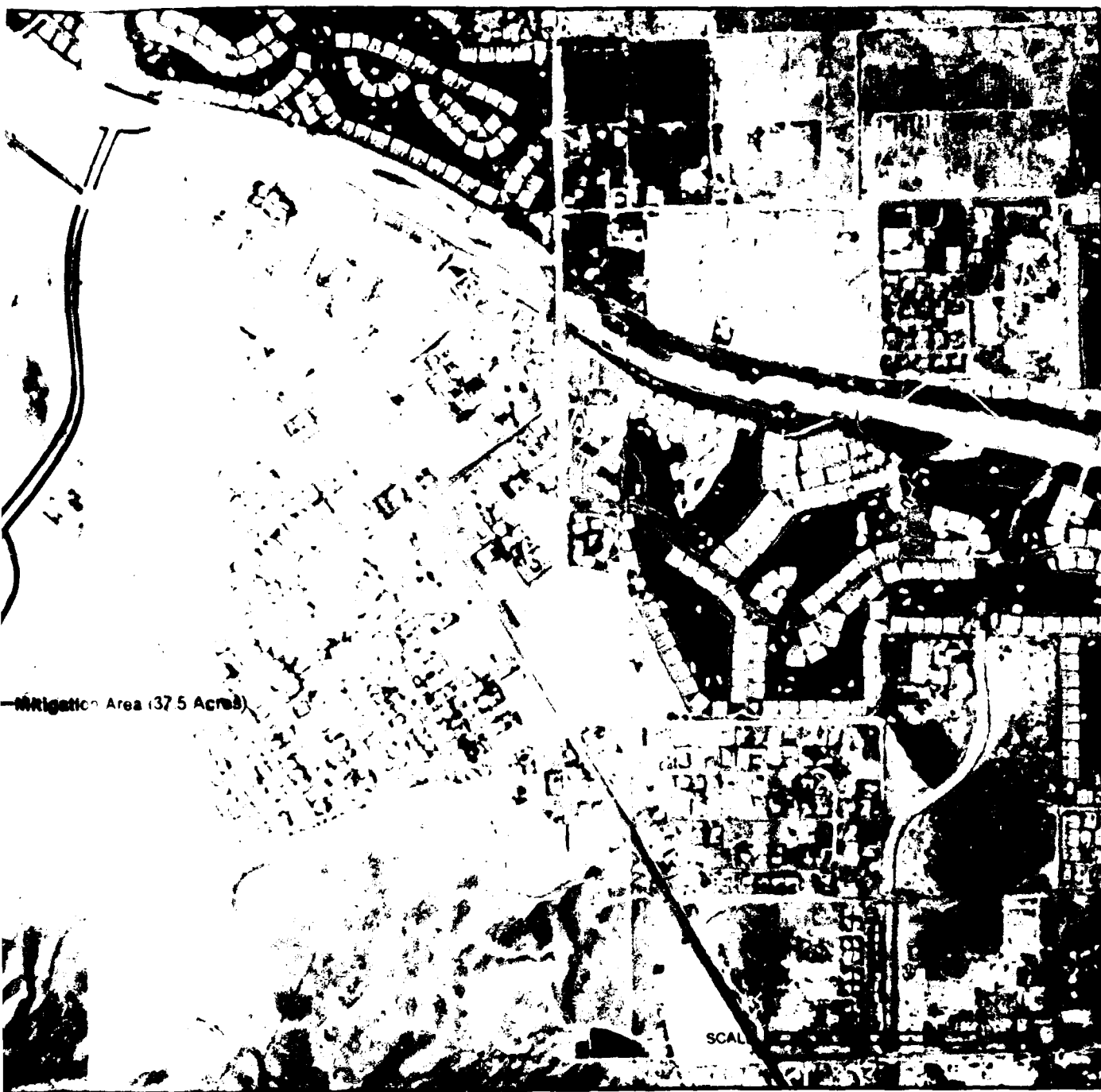
WEST MAGNESA SPRING CANYON
RANCHO MIRAGE

U.S. ARMY CORPS OF ENGINEERS
MITIGATION PROPOSAL
LOCATIONS OF MAJOR FEATURES

US ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

PLATE EIS - 1



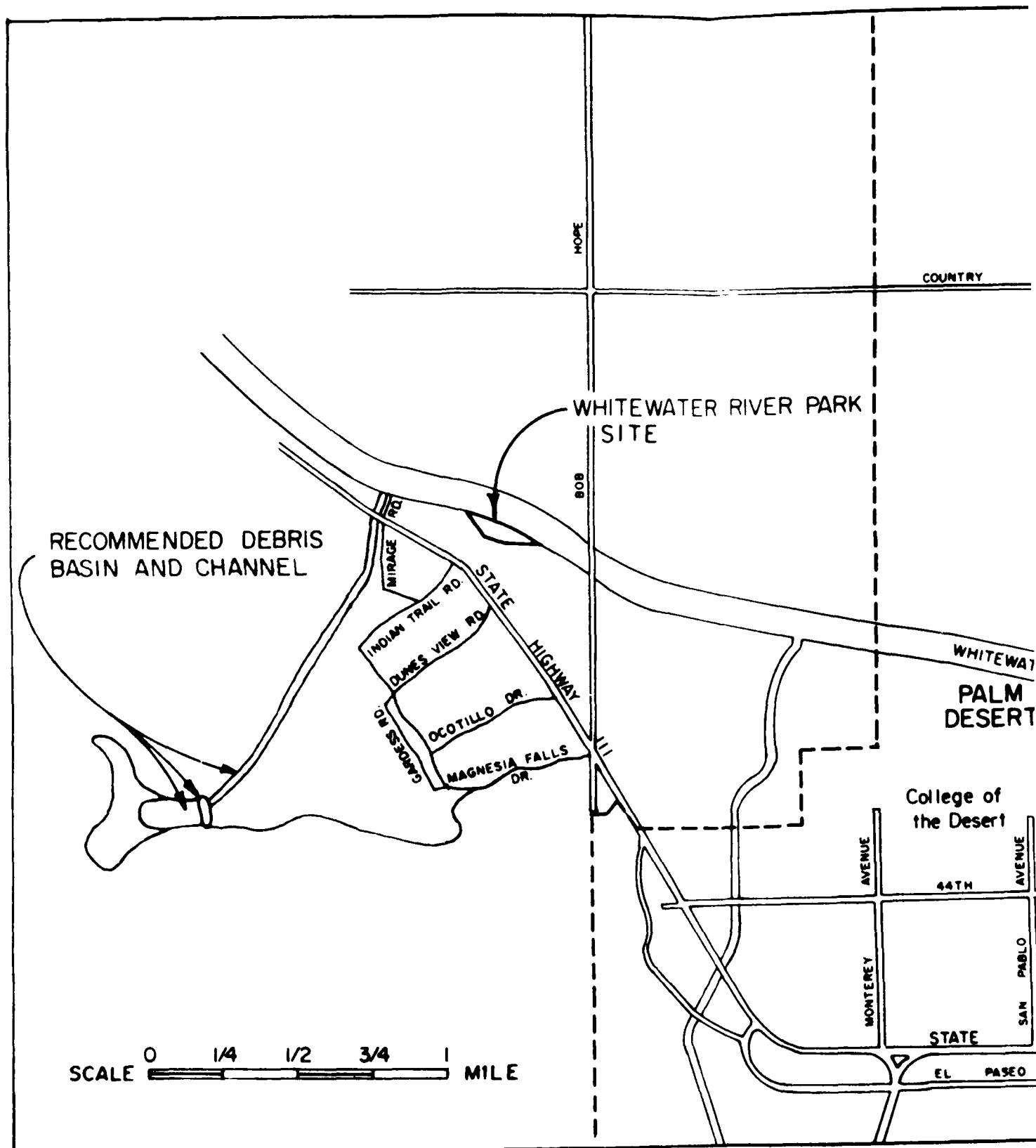


WEST MAGNESA SPRING CANYON
RANCHO MIRAGE

U.S. FISH AND WILDLIFE SERVICE
MITIGATION PROPOSAL
LOCATIONS OF MAJOR FEATURES

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

PLATE EIS - 2



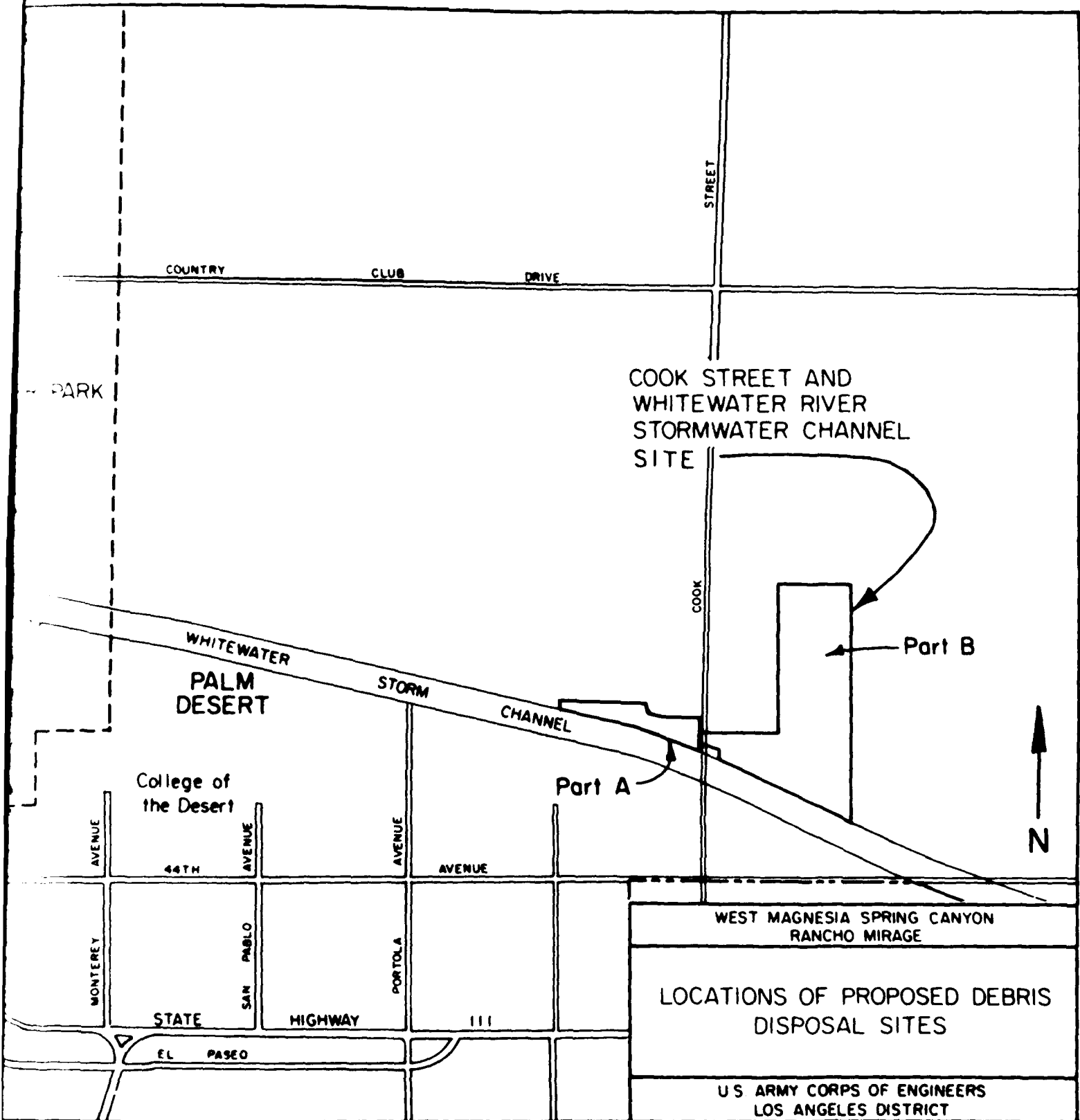
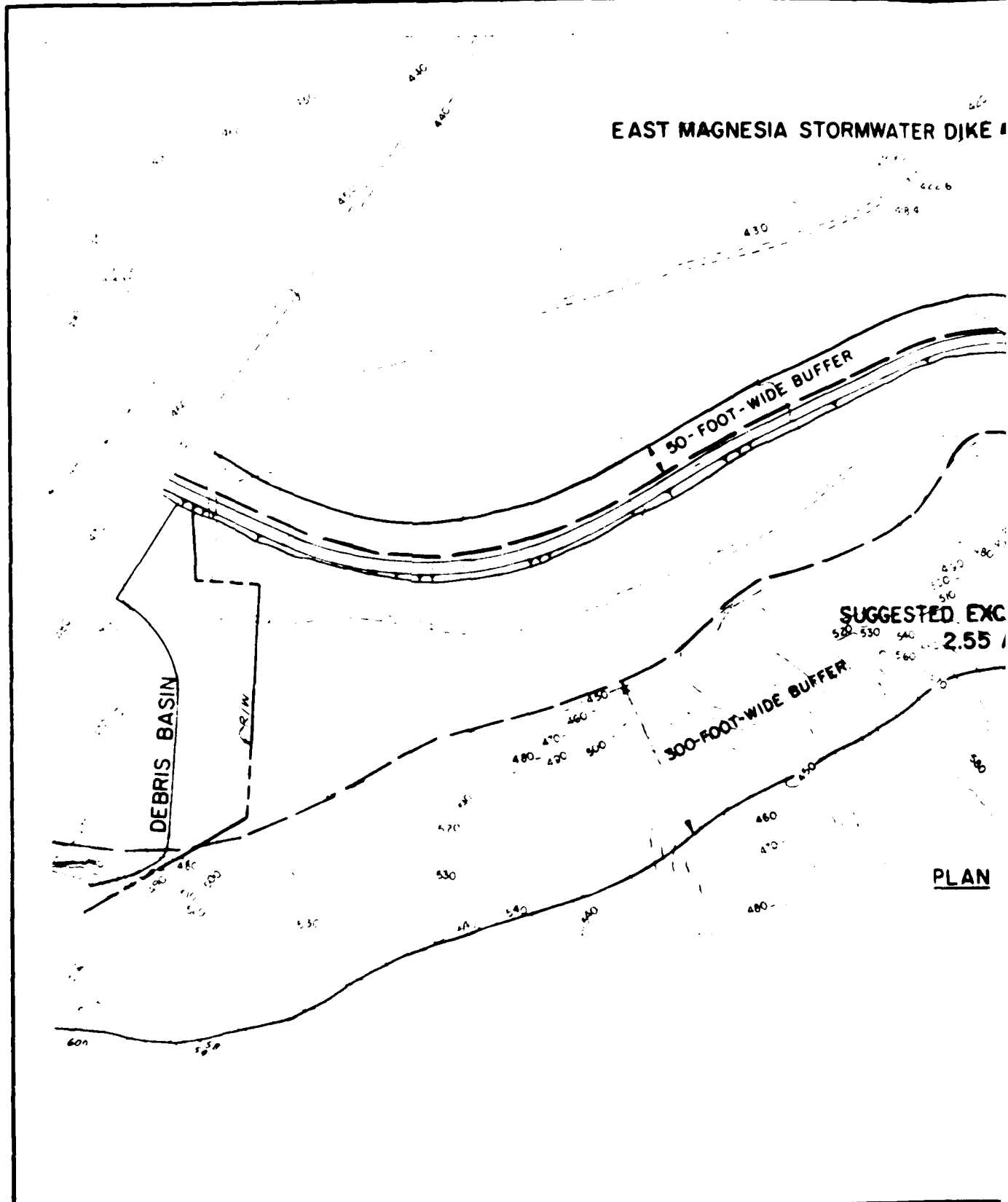
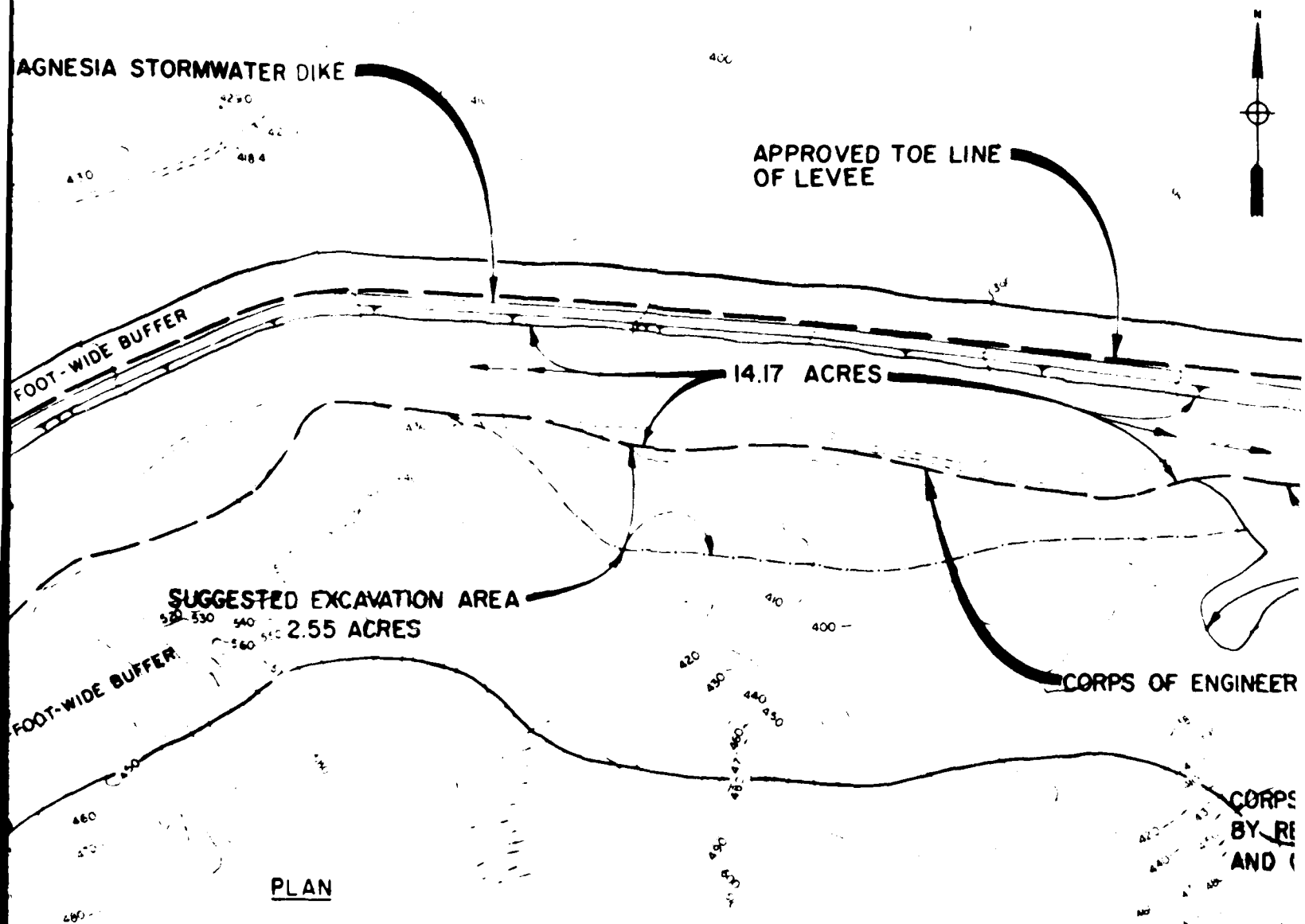


PLATE EIS-3

EAST MAGNESIA STORMWATER DIKE



VALUE ENGINEERING PAYS

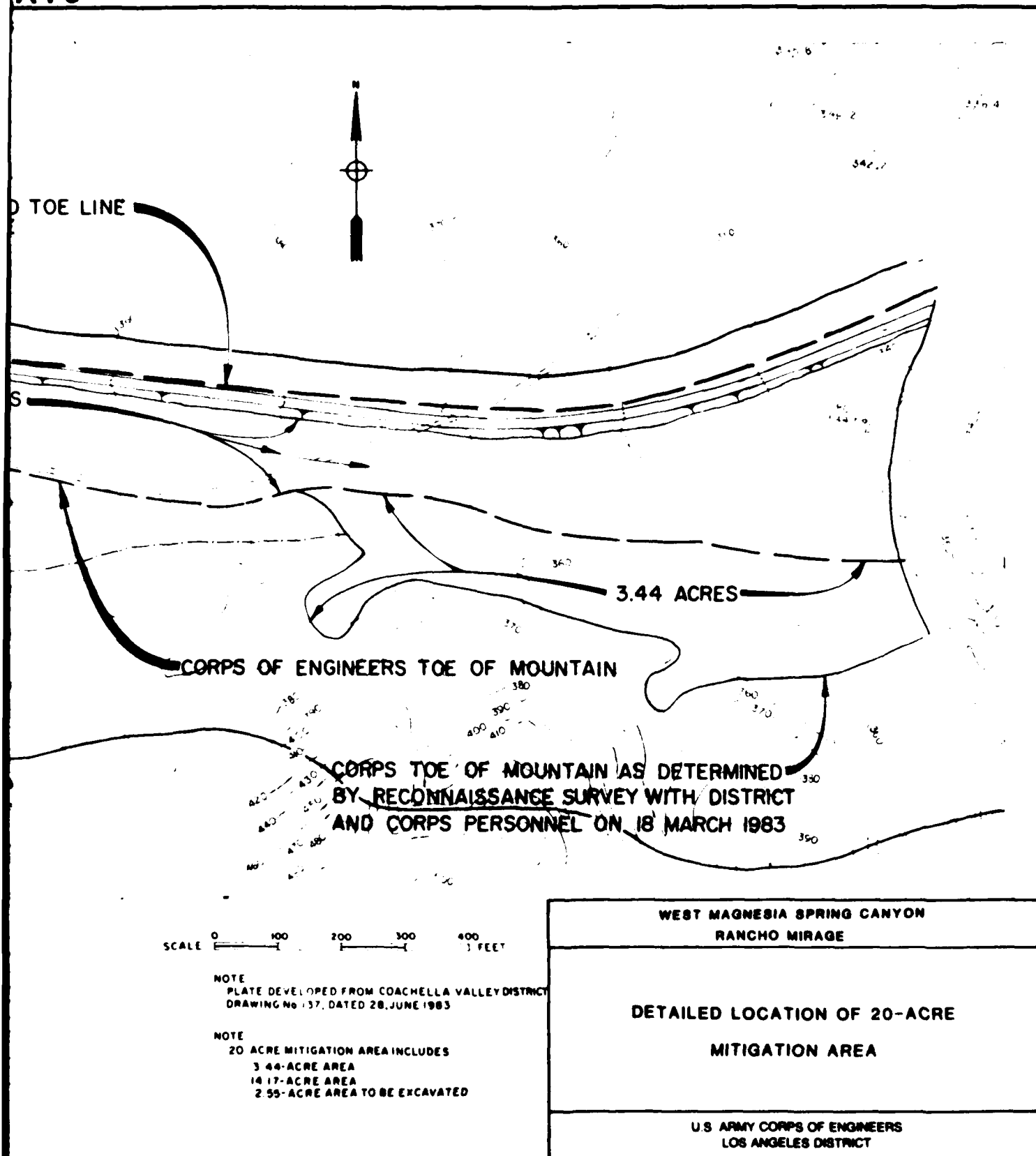


SCALE 0 100 200

NOTE
 PLATE DEVELOPED FROM C1
 DRAWING No. 57, DATED 28.

NOTE
 20 ACRE MITIGATION AREA
 3.44-ACRE AREA
 14.17-ACRE AREA
 2.55-ACRE AREA TO B

AYS



ENVIRONMENTAL APPENDIX

Environmental Appendix
to the
Detailed Project Report
and the
Final Environmental Impact Statement

West Magnesia Canyon Channel
City of Rancho Mirage
Riverside County, California

U.S. Engineer District
Los Angeles, California
December 1983

Environmental Appendix

Table of Contents

Pertinent Correspondence and Memorandums

Letter from the U.S. Fish and Wildlife Service (USFWS) with list of endangered and threatened species.

Letter to the USFWS dated 12 August 1982 with 2 August 1982 Memorandum for Record.

Letter to the California Department of Fish and Game dated 12 August 1982 with 2 August 1982 Memorandum for Record.

Letter from U.S. Soil Conservation Service dated 23 January 1981.

Letter to the State Historic Preservation Office dated 8 October 1982.

Notice from the State Historic Preservation Office dated 18 October 1982.

Letter from the California Department of Fish and Game dated 3 June 1980.

Letter to the California Department of Fish and Game dated 13 February 1981.

Letter to the California Department of Fish and Game dated 28 May 1982.

Letter from the California Department of Fish and Game dated 22 June 1982.

Letter from the Coachella Valley Water District (CVWD) to the California Department of Fish and Game (CDFG) dated 1 June 1982.

Letter from the CVWD dated 30 September 1981.

Letter from the CVWD dated 9 October 1981.

Letter from the CVWD dated 17 November 1981.

Letter from the CVWD dated 22 January 1982.

Letter from the CVWD dated 8 April 1982.

Letter from the CVWD dated 17 May 1982.

Letter from the CVWD dated 7 June 1982.

Letter from the CVWD dated 13 July 1982.

Letter from the CVWD dated 10 March 1983.

Letter from the CVWD dated 24 March 1983.

Letter from the CVWD dated 11 April 1983.

Letter from the CVWD to the CDFG dated 2 May 1983.

Letter from the CVWD dated 22 July 1983.

Letter to the CVWD dated 30 August 1983.

Letter from the CVWD dated 7 October 1983.

Letter to the CVWD dated 27 October 1983.

Memorandum for Record: Meeting on Rancho Mirage Flood Control dated 27 June 1980.

Memorandum for Record: Meeting on Rancho Mirage Mitigation dated 2 September 1981.

Memorandum for Record: Cultural Resources dated 21 September 1981.

Memorandum for Record: Meeting with Rancho Mirage Properties Representative dated 16 November 1981.

Memorandum for Record: Meeting with CVWD Regarding Mitigation dated 16 November 1981.

Memorandum for Record: Rancho Mirage Cultural Resources Survey dated 2 June 1982.

Memorandum for Record: Environmental Survey of Debris Disposal Sites for Rancho Mirage dated 3 June 1982.

Memorandum for Record: Location of the 20-Acre Mitigation Area for the Rancho Mirage Flood Control Project dated 25 March 1983.

Memorandum for Record: Coordination with USFWS Regarding Planting of the Mitigation Area dated 5 August 1983.

Memorandum for Record: Coordination with the Coachella Valley Water District Regarding Mitigation for the West Magnesia Canyon Channel Project, Rancho Mirage, California dated 31 August 1983.

Environmental Reports

U.S. Fish and Wildlife Service Planning Aid Report dated 11 September 1980.

U.S. Fish and Wildlife Service Coordination Act Report dated September 1982.

Rancho Mirage Flood Control Project: Biological Inventory and Impact Analysis. Prepared by Lawrence F. LaPre, Ph.D., September 1980.

A Cultural Resources Reconnaissance for the Rancho Mirage Flood Control Project, Riverside County, California. Prepared by Archeological Resource Management Corporation, 1980.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

AREA OFFICE
2800 Cottage Way, Room E-2740
Sacramento, California 95835

In reply refer to: SE50
91-1-81-SP-82

Mr. Norman Arno
Chief, Engineering Division
Los Angeles District, Corps of Engineers
P.O. Box 2711
Los Angeles, California 90053

Subject: Request for list of Endangered and Threatened Species in the Area of
the Proposed Flood Control Project in Rancho Mirage, Riverside County

Dear Mr. Arno:

This responds to the letter from your agency dated December 22, 1980, requesting a list of endangered and threatened species and those proposed for listing in either category that may be present within the subject project area. This fulfills the requirement of the Fish and Wildlife Service to provide information on listed species pursuant to Section 7(c) of the Endangered Species Act of 1973, as amended.

To the best of our knowledge, there are no listed or proposed threatened or endangered species within the project area. However, we are attaching a list of candidates which might, within the foreseeable future, be proposed and thus undergo a final rulemaking. We urge that you consider informal consultation to avoid any conflicts at a later date should the species become listed and be present within the area of the proposal. Informal consultation should be requested of our Area Office at the letterhead address.

Should you have additional questions regarding this list or your re-sponsibilities under the Act, please contact Mr. Ralph Sussman at (916) 440-2791 or (916) 440-2791. Thank you for your interest in endangered species.

Sincerely yours,

Area Manager

Attachments

LISTED SPECIES
Name
Endangered Species
Name
Candidate Species
Name

LISTED SPECIES

Name

ENDANGERED SPECIES

Name

CANDIDATE SPECIES

Plaint red velvet mill, 1. (endangered) and 2. (candidate)
Pentastylis bipartite sheet, (CN) (candidate) (endangered)



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
WASHINGTON, D.C. 20315

12A. 179.

ATTACHMENT #

FEDERAL AGENCIES' REQUIREMENTS UNDER SECTION 7(c)

Biological Assessments

This process is initiated by a Federal agency in requesting a list of proposed and listed endangered and threatened species that may be within the area of a construction project. The purpose of the assessment is to identify any proposed and/or listed species which are likely to be affected by a construction project. The assessment should be completed within 180 days after initiation of the assessment (or within such a time period as is mutually agreed to by our two agencies). If the Biological Assessment is not initiated within 90 days of receipt of the species list, your agency should informally verify the accuracy of the list with our Service. No irrevocable commitment of resources is to be made during the Biological Assessment process which would result in violation of your requirement under section 7(c) of the Act. Planning, design, and administrative actions may be taken by your agency; however, no construction may begin.

Your agency should: conduct an on-site inspection of the area to be affected by the proposal which may include a detailed survey of the area to determine if the species is present and whether suitable habitat exists for either expanding the existing population or for potential reintroduction of the species; review literature and scientific data to determine species distribution, habitat needs, and other biological requirements; interview experts including those within Fish and Wildlife Service, National Marine Fisheries Service, State conservation departments, universities and others who may have data not yet published in scientific literature; review and analyze the effects of the proposal on the species in terms of individuals and populations, including consideration of cumulative effects of the proposal on the species and its habitat; analyze alternative actions that may provide conservation measures. At the conclusion of the assessment as described above, the Federal agency shall prepare a report documenting the results. The report shall also include a discussion of study methods used, any problems encountered, and other relevant information. Upon completion, the report should be forwarded to our Area Manager (2800 Cottage Way, Room E-2740, Sacramento, California 95825).

1/ "Construction Project" means any major Federal action which significantly affects the quality of the human environment designed primarily to result in the building or erection of man-made structures such as dams, buildings, roads, pipelines, channels, and the like. This includes Federal actions such as permits, grants, licenses, or other forms of Federal authorization or approval which may result in construction.

Approved for Release by NSA on 09-11-2013 pursuant to E.O. 13526

12A. 179.

The purpose of this assessment is to identify the species that may be affected by the proposal. The assessment should be completed within 180 days after initiation of the assessment (or within such a time period as is mutually agreed to by our two agencies). If the Biological Assessment is not initiated within 90 days of receipt of the species list, your agency should informally verify the accuracy of the list with our Service. No irrevocable commitment of resources is to be made during the Biological Assessment process which would result in violation of your requirement under section 7(c) of the Act. Planning, design, and administrative actions may be taken by your agency; however, no construction may begin.

As stated

Approved for Release by NSA on 09-11-2013 pursuant to E.O. 13526

CC: Mr. Ralph C. Knappe, Field Supervisor
U.S. Fish and Wildlife Service
Ecological Services
24000 Avila Road
Laguna Hills, CA 92657

Mr. Fred Werthley, Regional Manager
California Department of Fish and Game
350 Golden Shore
Long Beach, California 90802

Mr. Lowell O. Webb, General Manager-Chief Engineer
Coachella Valley Water District
P.O. Box 1050
Coachella, California 92236

Mr. Steve Dixon, City Manager
City of Rancho Mirage
65-825 Highway 111
Rancho Mirage, California 92270

SPLPD-14

2 August 1982

MEMORANDUM FOR THE RECORD

SUBJECT: Features of Mitigation Package for the Project Proposed for
Magneña Spring Creek, Rancho Mirage, California

The mitigation package for the Magneña Spring Creek Flood Control Project developed in coordination with the Coachella Valley Water District, City of Rancho Mirage, U.S. Fish and Wildlife Service, and California Department of Fish and Game is as follows:

1. Preservation and enhancement of approximately 20 acres on the east side of the alluvial cone between the Coachella Valley Water District's proposed levee and the toe of the mountains.

a. Material for levee construction may be acquired within the 20 acres. Disturbance of the 20-acre area should be kept to a minimum. The Corps of Engineers will revegetate the 20-acre area with native plant species during its construction activities and irrigate for a period of up to 2 years should significant habitat values disturbed by construction of the levee fail to reestablish. Revegetation efforts will utilize native species such as palo verde, mesquite, and heloperone.

b. The 20 acres would be enhanced by the increased availability of water provided by the levee which will act to concentrate runoff and by a gated 30-inch pipe extending from the debris basin to the east channel. The gate will be adjusted so that the pipe is able to deliver 30 cfs and closed only during emergencies and maintenance operations. Maintenance of the pipe will be the responsibility of the Coachella Valley Water District.

c. The City of Rancho Mirage will assure that at least a 30-foot-wide strip of open-space will be provided along the east levee between the levee and any future development on the cone. In addition, at least a 300-foot-wide strip of open-space will be insured by the City along the slopes east of the mitigation area between any future development and the mitigation area.

d. All parties recognize the importance of protecting wildlife habitat within the 20-acre mitigation area on the east wash and pledge their efforts in the future towards that goal. Of particular importance to the wildlife using the mitigation area is the hillside directly to the east and the possibility of future development there. Any such development must be kept a minimum of at least insure minimal impacts on the mitigation area.

2. Limit on the alluvial cone upstream of the debris basin embankment will be put under the control of the State of California by means of a wildlife

SPLUP-EP 2 August 1982
SUBJECT: Features of Mitigation Package for the Project Proposed for
Magnesia Spring Creek, Rancho Mirage, California

esement. The Coachella Valley Water District will have fee title to the facilities. Enforcement of law and order upstream of the debris basin embankment will be the shared responsibility of the local law enforcement agencies and the California Department of Fish and Game.

3. Possible disturbance of the bighorn sheep caused by Corps of Engineers construction activities at the upstream end of the cone, including debris basin excavation and embankment and spillway construction, will be mitigated by enhancing water sources in Magnesia Spring Canyon prior to construction activities. The design and placement of the enhanced water sources will be determined by the Corps of Engineers in cooperation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game. The Corps has allocated \$15,000 for this purpose. Any maintenance of the enhanced water sources will be the responsibility of the California Department of Fish and Game, acting as an agent of the local sponsor. To minimize impacts to the bighorn sheep, construction activities will be scheduled, to the maximum extent practicable, to avoid the period from 15 June through 30 September.

4. Maintenance of the debris basin and upstream portion of the channels by the Coachella Valley Water District will, to the maximum extent practicable, be timed to avoid the critical dry period for bighorn sheep from 15 June to 30 September.

5. Potential construction-induced noise disturbance of school activities at the Rancho Mirage Elementary School and of residents living near the channel alignment will be mitigated, to the maximum extent practicable, by avoiding construction activities adjacent to the school during school hours and during the nighttime hours.

6. Disposal of debris from the basin during maintenance activities conducted by the Coachella Valley Water District will comply with applicable Federal regulations especially those concerned with the protection of significant cultural resources and endangered or otherwise significant plant and animal species.

7. Operation and maintenance of the East Magnesia Spring Channel by the Coachella Valley Water District will take wildlife values into consideration and will, to the maximum extent practicable, preserve the wildlife values that establish there.

8. Vehicle access to the Magnesia Springs State Ecological Reserve will be provided for representatives of the California Department of Fish and Game and private vehicles under California Department of Fish and Game's direct supervision by way of an easement along the channel and any debris basin service roads or by any other comparable roadway that provide for parking of several vehicles near the debris basin.

SPLUP-EP 2 August 1982
SUBJECT: Features of Mitigation Package for the Project Proposed for
Magnesia Spring Creek, Rancho Mirage, California

4. Public foot access to the Magnesia Springs State Ecological Reserve via the channel service road (or other comparable roadway) and debris basin will be permitted except during the period from 15 June through 30 September. Closing of access to the Reserve will be the responsibility of the California Department of Fish and Game.

11. A turn-around and parking area for several cars will be provided by the Corps of Engineers at the upper end of the channel service road for use by authorized vehicles.

13. Fencing will be provided on both sides of the channel in accordance with Corps of Engineers Regulations, safety requirements, and environmental concerns. Fencing on the west side of the channel will be of a type that is unlikely to catch the hooves of bighorn sheep. Gates will be provided to limit vehicle and foot access to the service road and debris basin.

14. The Corps of Engineers will provide wire mesh fencing along the downstream toe of the debris basin embankment to prevent unauthorized access to the embankment and the debris basin. Access for a firm channel excavation will be placed along the toe of the downstream embankment to act as a further barrier to vehicles.

15. Near stream excavated soil materials will be placed on the downstream face of the embankment. The downstream face will then be planted with some native vegetation to minimize erosion and improve esthetics.

16. Any of these mitigation features carried out prior to the construction of this project are understood by all parties to mitigate the wildlife impacts of this project.

KATHLEEN KURYSCZ
Environmental Coordinator
Environmental Planning Section



DEPARTMENT OF THE ARMY
CONSERVATION DIVISION
WASHINGTON, D.C. 20315

SWP-1P

12 AUG 1982

Mr. Fred Northley, Regional Manager
California Department of Fish and Game
350 Golden State
Long Beach, California 90802

Dear Mr. Northley:

This letter transmits our Memorandum for Record detailing the points of the mitigation package developed in coordination with your staff and other concerned agencies for the proposed small flood control project on Magnesia Spring Creek, Rancho Mirage, Riverside County, California. In a 28 May 1982 letter, the District requested your comments on the issue of public access to the Magnesia Spring State Ecological Reserve that had been in connection with this project. You responded to that issue and provided other comments in a 22 June 1982 letter. At this time, the District requests any additional comments that your Department may have regarding the entire mitigation package as outlined in the attached memorandum.

Should you or your staff have any questions concerning the contents of the memorandum, please contact Kathy Kuyas at 688-5421 or Chris Krimke at 688-5462.

Sincerely,

[Signature]
CARL V. ENSON
Acting Chief, Planning Division

1 Incl
As stated

01-000000

August 1982

MEMORANDUM FOR THE RECORD

SUBJECT: Mitigation Package for the Project Proposed for
Magnesia Spring Creek, Rancho Mirage, California

The mitigation package for the Magnesia Spring Creek Flood Control Project developed in coordination with the Coachella Valley Water District, City of Rancho Mirage, U.S. Fish and Wildlife Service, and California Department of Fish and Game is as follows:

1. Preservation and enhancement of approximately 20 acres on the east side of the alluvial cone between the Coachella Valley Water District's proposed levee and the toe of the mountains.

a. Material for levee construction may be acquired within the 20 acres. Disturbance of the 20-acre area should be kept to a minimum. The Corps of Engineers will revegetate the 20-acre area with native plant species during its construction activities and irrigate for a period of up to 2 years should its significant habitat values disturbed by construction of the levee fail to be reestablished. Vegetation efforts will utilize native species such as palo verde, mesquite, and heliotropium.

b. The 20 acres would be enhanced by the increased availability of water provided by the levee which will act to concentrate runoff and by a 16-inch pipe extending from the debris basin to the east channel. The gate will be adjusted so that the pipe is able to deliver 50 cfs and closed only during emergencies and maintenance operations. Maintenance of the pipe will be the responsibility of the Coachella Valley Water District.

c. The City of Rancho Mirage will assure that at least a 20-foot-wide strip of open-space will be provided along the east levee between the levee and any future development on the cone. In addition, at least a 100-foot-wide strip of open-space will be insured by the City along the slopes east of the mitigation area between any future development and the mitigation area.

d. All parties recognize the importance of protecting wildlife habitat within the 20-acre mitigation area on the east wash and pledge their efforts in the future towards that goal, of particular importance to the wildlife using the mitigation area is the hillside directly to the east and the possibility of future development there. Any such development must be kept a minimum of at least insure minimal impacts on the mitigation area.

2. Land on the alluvial cone upstream of the debris basin embankment will be put under the control of the State of California by means of a wildlife

SPD-4P
SUBMIT. Features of Mitigation Package for the Project Proposed for
Magueña Spring Trees, Rancho Mirage, California

2 August 1984

coastment. The Coachella Valley Water District will have fee title to the facilities. Enforcement of law and order upstream of the debris basin embankment will be the shared responsibility of the local law enforcement agencies and the California Department of Fish and Game.

4. Possible disturbance of the bighorn sheep caused by Corps of Engineers construction activities at the upstream end of the cone, including debris basin excavation and embankment and spillway construction, will be mitigated by enhancing water monitoring in Magueña Spring Canyon prior to construction activities. The design and placement of the enhanced water monitoring will be determined by the Corps of Engineers in cooperation with the local fish and wildlife service and the California Department of Fish and Game. The Corps has allotted \$10,000 for this purpose. Any maintenance of the enhanced water monitoring will be the responsibility of the California Department of Fish and Game, acting as an agent of the local sponsor. To minimize impacts to the bighorn sheep, construction activities will be scheduled, to the maximum extent practicable, to avoid the period from 1 June through 30 September.

5. Maintenance of the debris basin and upstream portion of the channel in the Coachella Valley Water District will, to the maximum extent practicable, be timed to avoid the critical dry period for bighorn sheep from 1 June to 30 September.

6. Potential construction-induced noise disturbance of school activities at the Rancho Mirage Elementary School and of residents living near the channel alignment will be mitigated, to the maximum extent practicable, by avoiding construction activities adjacent to the school during school hours and during the nighttime hours.

7. Disposal of debris from the basin during maintenance activities conducted by the Coachella Valley Water District will comply with applicable Federal regulations especially those concerned with the protection of significant cultural resources and endangered or otherwise significant plant and animal species.

8. Operation and maintenance of the East Magueña Spring channel by the Coachella Valley Water District will take wildlife values into consideration and will, to the maximum extent practicable, preserve the wildlife values that establish there.

9. Vehicle access to the Magueña Springs State Ecological Reserve will be provided for representatives of the California Department of Fish and Game and private vehicles under California Department of Fish and Game's direct supervision by way of an easement along the channel and any debris basin service roads or by any other comparable roadways that provide for parking of several vehicles near the debris basin.

SPD-4P
SUBMIT. Features of Mitigation Package for the Project Proposed for
Magueña Spring Trees, Rancho Mirage, California

2 August 1984

10. Public foot access to the Magueña Springs State Ecological Reserve via the channel service road for other comparable roadways and debris basin will be permitted except during the period from 1 June through 30 September. The timing of access to the reserve will be the responsibility of the California Department of Fish and Game.

11. A formal road and parking area for several cars will be provided by the Corps of Engineers at the upper end of the channel service road for use by authorized vehicles only.

12. Roadways will be provided to allow access to the channel in accordance with the Corps of Engineers regulatory, safety requirements, and environmental considerations. Roadways on the west side of the channel will be of a type that is suitable to match the beauty of higher elevations. Roadways will be of a type that will not be a hindrance to the wildlife and debris basin.

13. The Corps of Engineers will provide site near fencing along the channel to prevent access to the debris basin embankment to prevent unauthorized access to the embankment and the debris basin. Fencing from the channel excavation will be placed along the toe of the downstream embankment to act as a further barrier to vehicles.

14. Some areas excavated will be planted with native vegetation to stabilize erosion and improve aesthetics.

15. All of these mitigation features outlined prior to the construction of this project are understood by all parties to mitigate the wildlife impacts of this project.

MATTHEW ALBY
Environmental Coordinator
Environmental Planning Section



100

800-234-1982

[illegible]

This is in reply to your December 22nd letter, requesting additional information for your Magnesia Spring Carved Project in Kanab Ho Mirage, Riverside County, California.

If you have any questions about this information, please contact Mr. David Estrada at (714) 489-1954

Tanner, D. L. Cotton
JACK P. SMITH for
Area Conservationist

4

Included for your review and comment is a natural resources report entitled "A Study to Assess the Reclaimability of the Hawthorne Flood Control Project, Glendale County, California." This report was prepared in respect to the proposed flood control project for the Hawthorne Flood Control Project, Glendale County, California. The project is located in the Hawthorne Flood Control Project, Glendale County, California.

The results of this anatomical study proved to be positive. The literature has reported that the prevalence of the disease is 10% in the general population. The present study revealed that five mice (20%) of the 25 mice kept in the laboratory were infected with *S. typhimurium*. The prevalence of the disease was 12% in the 25 mice kept in the laboratory and 32% in the 25 mice kept in the field. The results of the study are in agreement with the results of other studies. The prevalence of the disease in the laboratory was 12% and in the field was 32%. The results of the study are in agreement with the results of other studies. The prevalence of the disease in the laboratory was 12% and in the field was 32%.

As is indicated on the enclosed map (Incl. 2), five of these archaeological sites are located directly adjacent to the proposed channel system. Of these five sites, two can be identified: River-12 and River-13. The remaining three sites are situated at locations which are not consistent with those of the proposed channel system. River-12 is revealed as being at an elevation of 115 ft. The channel line fly below this site will extend to the river centerline. River-13 has been located at the end of the channel line, and while it has been tentatively located at an elevation of 117 ft, the remaining three sites adjacent to it will be situated below this elevation. The remaining sites, River-14 and River-15, will not be suitable to locate as a result of construction, and it is highly unlikely that they would be inundated even under maximum flow conditions. River-16 is well out of the proposed affected area.

The District will not attempt to test the above atmospheric slates for a single day. Determination alone will undoubtedly be insufficient to establish the District's purpose to provide a complete slate. It is noted that the District has stated that while it is not a "closed" area, the condition is such that it will be necessary to close it down in winter and that the above slates, being left in place, will be tested. It is noted that these slates, but of the above slates, have been tested for a number of years and that the results have been satisfactory. It is noted that the District has stated that the above slates are not a "closed" area and that the above slates are not a "closed" area.

No effort shall be made to attempt to recover the isolated slates. It is noted that it is highly unlikely that it would be a valuable contribution to our knowledge of the above slates of the flag.

STUD-4P
Dr. Knox Nelson

8 NML

The history of the structure is highly significant. It is a historic building which was built in 1911 and is one of the few remaining structures of its kind. The structure is a two-story building with a gabled roof and a central chimney. It is made of brick and has a small porch on the front. The structure is located on a hill and is surrounded by trees. It is a very well-preserved building and is a good example of early 20th-century architecture.

An additional survey of the site was attempted in a separate study. The site is located on a hill and is surrounded by trees. It is a very well-preserved building and is a good example of early 20th-century architecture. The structure is a two-story building with a gabled roof and a central chimney. It is made of brick and has a small porch on the front. The structure is located on a hill and is surrounded by trees. It is a very well-preserved building and is a good example of early 20th-century architecture.

Given the above information, the District Engineer is of the opinion that the structure is a historic building and is a good example of early 20th-century architecture. The structure is a two-story building with a gabled roof and a central chimney. It is made of brick and has a small porch on the front. The structure is located on a hill and is surrounded by trees. It is a very well-preserved building and is a good example of early 20th-century architecture.

Please provide us with your concurrence or non-concurrence as soon as possible. If you require additional information, please contact Mr. R. L. Moxley of our staff at (213) 688-5421. Your continuing cooperation is greatly appreciated.

Sincerely,

[Signature]
CARL F. ENSLEY
Acting Chief, Planning Division

5 Incl
As stated

State of California - The Resource Agency
OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P. O. Box 2300
Sacramento, CA 95811
(916) 445-8000

10-10-80
1540-1-1-80A

RE: Historic Building Survey of the City of Sacramento

The item cited above was received in this office on 10-10-80. There is no consulting in pursuant to 36 CFR 100. We concur in your determination that the undertaking

☒ does not involve National Register and/or eligible properties.
☐ cannot affect National Register and/or eligible properties.

An official National Register eligibility determination (36 CFR 63) is unnecessary in cases of no effect. However, the provisions of 36 CFR 500.7 apply if previously unidentified National Register or eligible resources are discovered during construction.

Contact: Michael Bunick of our staff if you have any questions.

[Signature]
D. L. Moxley
State Historic Preservation Officer

STATE OF CALIFORNIA - DEPARTMENT OF FISH AND GAME
350 Golden Shore
Long Beach, CA 90802
(213) 590-5111

June 3, 1980

Mr. Jeff DeGrueter
Environmental Planning Section
U.S. Army Corps of Engineers
P.O. Box 271
Los Angeles, CA 90053

Dear Mr. DeGrueter:

The information contained in this letter constitutes our preliminary and informal comments regarding the potential impacts upon biological resources that could result from the construction of the Rancho Mirage Flood Control Project. Our purpose is to provide you with our comments at an early stage of project planning so that our concerns and recommendations for the protection of wildlife within and adjacent to the project site can be incorporated into the planning process for this proposed project.

On May 7, 1980, our field biologist Tom Paulsen and Dave Deane conducted an on-site inspection of the project site. As you are aware, the State-designated Mesquite Spring Biological Reserve is adjacent to the subject site. The purpose of this reserve is to rehabilitate and maintain critically needed water supplies and habitat for Peninsular bighorn sheep, a state-designated rare species, and other desert associated biological resources. Although the primary purpose of the Reserve is for the protection of wildlife, it is open to public access for passive recreational purposes except during the period of June 15 to September 30 of each year. Public access is prohibited during the summer months because it is critical that bighorn sheep are not affected by human disturbance when travelling to and utilizing water sources within the Reserve.

In reviewing the four alternatives described in the Reconnaissance Report, November 1979, we would oppose any retention type device as mentioned in Alternatives 1, 2, and 4. If a project was deemed economically and biologically feasible in the future, less biological impact would occur with the structures mentioned in Alternative 3.

The reasons for our opposition to the dam and debris basin are as follows:

1. The dam and debris basin will cause water to inundate portions of the Reserve. Additionally, portions of the dam foundation will be on Reserve property. Temporary or long-term water impoundment and debris may cause a change in floral and faunal species due to inundation, deposition of sediments, and maintenance activities. These impacts could result in severe adverse impacts to biotic resources.

Mr. Jeff DeGrueter

June 3, 1980

1. To maintain the operational feasibility of the dam and debris basin, debris removal would be necessary. The operation of heavy equipment near the Reserve perimeter could result in unwanted disturbance to wildlife and excessive reduction of habitat.

2. The project sponsor should consider that the Reserve be open to public access as specified under current Department of Fish and Game regulations. The placement of a dam or debris basin across or near the mouth of Mesquite Canyon could obstruct public access into the Reserve.

3. We will not oppose Alternative 3 if public access to the Reserve is provided for in the project plans. We suggest that a pullout or parking lot be constructed near the road's end but not near the canyon mouth. These facilities would provide the access point for those who wish to walk into the Reserve. Motorized traffic should be allowed beyond this point.

Thank you for the opportunity to comment upon this project at this phase of project planning. We look forward to the opportunity to continue our coordination activities during future planning efforts for this project.

If you have any further questions, please contact fisheries biologist Dave Deane at 714-597-4011 or wildlife biologist Tom Paulsen at 714-597-4044, or Jack L. Spruill of our Environmental Services staff at 714-597-4137.

Sincerely,

Paul M. Worthington
Paul M. Worthington
Regional Manager
Region 5

SPLD-27

Mr. Fred Northley, Jr.

SPLD-28

Mr. Fred Northley, Jr.
Sagueni Manager, Region 5
California Department of Fish and Game
350 Golden Shore
Long Beach, CA 90802

Dear Mr. Northley:

The US Army Corps of Engineers is studying flood control measures for Maguena Springs Creek near the town of Rancho Mirage, California. Several alternative plans have been considered and are discussed below. We request that the California Department of Fish and Game work with us in analyzing the recommended plan and in developing appropriate measures to avoid or compensate any adverse impacts that our plan will have on wildlife resources, pursuant to the requirements of the Fish and Wildlife Coordination Act.

Studies of the flooding problem at Rancho Mirage have shown that only one of the previously proposed alternative plans will meet flood control goals. This preliminary plan incorporates a debris dam and basin located at the mouth of Maguena Canyon. The dam would be 30 feet high and 450 feet long, with 300 foot-wide spillway at an elevation of 305 feet, designed to conduct floodflow in a new concrete channel.

The new concrete channel will carry floodflow from the dam along the existing channel alignment. This channel would be 8 feet deep, 20 feet wide at its base, and trapezoidal in cross section for the first 0.9 mile below the dam. Downstream for the remaining 0.35 mile of this section, the channel will be rectangular in cross section, and the bottom width will be 30 feet. The channel will enclose a standard project flood flow. An energy dissipater will be installed near the confluence of Maguena Springs Creek and Whittier River.

The present alignment of the proposed debris basin above the Maguena Springs Biological Reserve, and the inundation area for a standard project flood also encroaches on a small portion of the Reserve. The proposed debris basin site is the most feasible location from an engineering standpoint. This location eliminates the debris basin length while maintaining the distance from Maguena Springs Canyon.

Another alternative, a concrete channel without a debris basin, was discussed as potentially feasible at the public workshop in Rancho Mirage on 16 June 1980. Subsequent engineering studies have demonstrated that this alternative is not feasible because of debris accumulation at the inlet, sedimentation, and subsequent wear in the channel. Deposition near the outlet would create problems in the operation of the channel without a debris basin. This alternative would also require more frequent upstream maintenance than the debris basin alternative.

Other alternatives discussed at the workshop, including a single levee and unretained low-flow channel, an earth-filled dam, flood plain management, and floodproofing, are infeasible because of engineering or economic considerations.

The Corps is attempting to identify the value of wildlife habitat lost or altered as a direct or indirect result of the project. We have been coordinating with the U. S. Fish and Wildlife Service (FWS) Laguna Miguel field office, in this effort. We are also seeking input from your agency in this matter. We are hopeful that you can coordinate with FWS and arrive at an agreed upon proposal for discussion with the Corps.

Another issue about which your agency staff has expressed concern is the provision of public access to the Ecological Reserve. The Corps favors provisions of public access to the Reserve during the period of September 30 through June 15, if access is properly monitored. However, the Corps has reservations about the proposal to provide a turnaround and mail parking area near the debris basin for the following reasons:

- Such a structure would invite people into the area, increasing the probability of sheep disturbance.
- Damage and vandalism by off-road vehicles and people not committed to having a nature experience may be expected to result.
- The City of Rancho Mirage doesn't want the service road to become a public thoroughfare because of the City's liability.

The adverse impacts of the project on biological resources noted by your agency have also been indicated by FWS, and have been studied by a biological contractor hired by the Corps (Inc 1). The Corps feels that any adverse environmental impacts caused by the project can be effectively mitigated as a part of the project.

Mr. Fred L. Barnaby, Jr.

The Corps commences spent by your agency on project litigation as required under the Fish and Wildlife Coordination Act. We also encourage you to consider the Corps' position on the project. We also encourage you to consider the Corps' position on the project. We also encourage you to consider the Corps' position on the project.

Summary

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Chief, Engineering Division

U. S. Fleet and Wildlife Service
2000 Avila Road
Laguna Signal, CA

[illegible]

DATE TIME FROM TO

891914

28 May 1942

Mr. Fred Worthley, Regional Manager
Department of Fish and Game
350 Golden Shore
Long Beach, CA 90802

Dear Mr. Worthley:

Recently, a meeting was held to discuss proposed mitigation for a project that the US Army Corps of Engineers is considering in Macho Mtnge. Representatives of the Corps, the City of Macho Mtnge, the Cerroville Valley Watermaster District, and the California Department of Fish and Game attended (Bennett Wang and Tom Paulich).

We were not able to reach agreement over the exact nature of public access to the Magdalena Springs State Geological Reserve through the project area. Specifically, we could not agree to where parking should be provided and beyond which point public foot traffic only would be permitted.

The Corps is hopeful that the agencies that will have to share the management of this area after the Corps has constructed the project can reach agreement on this issue. I understand that your staff will forward information on their position and that both the city and the water district are writing to you to explain their positions and appeal for consideration by the State.

Our quick attention to this matter would be appreciated so that if a consensus can be reached we can discuss it in our next EIS. If you have any questions, please call Chris French, Sancho Miraga Study Manager, at (213) 688-3667.

Maximally

CARL F. SIMON
Acting Chief, Engineering Division

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DEPARTMENT OF FISH AND GAME

350 Golden Shore
Long Beach, CA 90802
(213) 556-5113

June 22, 1982

Mr. Carl F. Eason
Acting Chief, Planning Division
Los Angeles District, Corps of Engineers
P.O. Box 2711
Los Angeles, CA 90053

Dear Mr. Eason:

This is in response to your May 28, 1982, letter regarding proposed project mitigation for the Rancho Mirage flood control measures. Department concerns regarding the project have primarily involved potential impacts to the Magnesia Springs State Ecological Reserve. Previous meetings with your staff have identified the following project considerations for inclusion in the draft EIS.

The construction of the proposed debris basin at the mouth of Magnesia Canyon would preclude public access to Magnesia Spring Ecological Reserve. Department personnel have recommended that the Corps project include provisions for public access to the reserve. We believe all parties concerned are in agreement that public access to the reserve would best be accomplished using the service road associated with the debris basin outlet channel. It should also be noted that this access should include provision for public use beyond the proposed debris basin into the wash adjacent to the reserve.

During a coordination meeting, representatives of the City of Rancho Mirage and the Coachella Valley Water District expressed concern regarding private vehicle use of the access route. These agencies have recommended that existing parking facilities at the Rancho Mirage Elementary School be utilized and that non-supervised public use of the access route be restricted to foot traffic only. In addition, the City of Rancho Mirage has indicated that a public park site is proposed on land adjacent to the school site and that the eventual development of the park would also serve to facilitate public access to the reserve.

The Department recognizes the concerns of the City and Water District and can concur with the above recommendations. We believe, however, that provisions for public access to the reserve should be fully discussed in the draft EIS, and a public access easement be completed prior to project construction. In addition, we recommend that the easement allow for Department and private vehicle use when under the supervision of the Department of Fish and Game. We believe this approach would also serve to provide for reasonable public use of the reserve by conservation and educational groups as well as other interested parties.

The Department has also provided recommendations regarding the disposition of lands upstream of the proposed debris basin. These lands constitute habitat for peninsular bighorn sheep and are considered to be of vital importance for the continued use of the summer water source located on the reserve. The reserve is closed to all public access from June 15 to September 30, to allow bighorn use of this water source. It is our understanding that the upstream wash area adjacent to the reserve will be purchased by the Corps of Engineers and turned over to the Coachella Valley Water District on completion of the flood control project.

Recognizing the importance of the upstream lands for bighorn within the reserve, the Department has recommended that all land acquired by the Corps above the debris basin dam be placed under terms of a wildlife easement. The easement would prohibit use of these lands for purposes other than flood control. In addition, the easement would prohibit, except under emergency conditions, debris removal and the use of heavy equipment behind the debris dam during the period June 15 - September 30.

The Department would concur also with the recommendation that debris basin excavation, embankment and spillway construction be timed to avoid the critical dry period for bighorn sheep (June 15 - September 30). The Corps has recommended that improvements to the water source at Magnesia Springs be implemented prior to construction activities to reduce the potential for detrimental impact to bighorn sheep. We concur with this recommendation; however, we request that improvements to the water source be the responsibility of the Department upon receipt of the appropriate mitigation funding.

We appreciate the efforts of your staff in the resolution of impacts associated with the subject flood control improvements. The Department looks forward to reviewing the draft EIS. Thank you for your consideration.

If you have any questions, please contact Tom Paulsen at 714-659-4966.

Sincerely,

Fred A. Worthley Jr.
Fred A. Worthley Jr.
Regional Manager
Region 5

TF:lt



COACHELLA VALLEY WATER DISTRICT

COACHELLA VALLEY WATER DISTRICT, CALIFORNIA 92230

FOR THE DISTRICT ENGINEER AND CHIEF ENGINEER
FEDERAL FISHERIES AND WILDLIFE SERVICE
LONG BEACH, CALIFORNIA

June 11, 1962

File # 2121-3761
01111001

Fred Worthley, Regional Director
California Department of
Fish and Game
350 Golden Shore
Long Beach, California 90802

Dear Mr. Worthley:

Re: Magnesia Canyon Stormwater
Projects

The U.S. Army Corps of Engineers is currently completing the reconnaissance report on the Rancho Mirage Flood Control Project. As you are aware, the City of Rancho Mirage was struck by a catastrophic storm in 1954 which resulted in the loss of life and millions of dollars of damage to the residents. The Corps has developed a flood control project which will provide protection for the community.

The Department of Fish and Game owns an ecological reserve which is located just above the south of Magnesia Canyon where the Corps project starts. The Corps, City of Rancho Mirage, and the District have been working with the Federal Fish and Wildlife Service and your department to develop acceptable mitigation for the proposed project. We believe that we have reached a substantive agreement on all of the mitigation with one exception.

The item that we have not been able to resolve is the point where public vehicular traffic will stop. All parties recognize that it is necessary for your department to have vehicular access for your vehicles to the reserve. However, both the City and the District believe that public vehicular access should be restricted to the point where the existing paved roads terminate at the Rancho Mirage Elementary School. Currently, legal vehicular access ends at this point where adequate parking exists at the school.

We propose to install as part of the construction a double locked pipe gate and construct an unpaved road to the debris basin. At the debris basin, chain link fencing and gates would be installed in accordance with your staff's request to allow the closing of the reserve during the summer months to protect the Peninsular Bighorn Sheep (*Ovis canadensis cremnobates*).

Attachment 1 shows the proposed access route together with your reserve.

TRUE CONSULTATION
USE WATER ONLY

COPY

Fred Worthley

June 11, 1962

Both the City of Rancho Mirage and the District firmly believe that vehicular traffic should not be allowed in this access road because of the problems of polluting the area, vandalism, and liability. We both are very supportive of providing public access for bikers wishing to visit the reserve. The reserve is located approximately 5,500 feet from the Rancho Mirage Elementary School.

Both the City and the District have maintained the same position since the Corps project was proposed in 1954. This issue has been discussed with the City Council which was adamant that vehicular access should be limited.

As I am sure you remember from your many visits to the reserve, the majority of the reserve is located just above the falls which requires a person in reasonably good physical condition to ascend them. We do not believe that this short hike will deter anyone from visiting this area. In the future, the City of Rancho Mirage is proposing to construct a path adjacent to the school which would provide additional facilities for those persons wishing to visit the reserve.

We do not believe that limiting vehicular traffic will significantly impact handicapped persons as the plan suggested by your staff would still require the person visiting the reserve to walk 2,000 feet before reaching the falls. It should be noted that approximately 4.5 miles away in Palm Desert, we have the very excellent resource of the Living Desert Reserve which is available for those persons with handicaps to view the natural environment.

It should be noted that the reserve currently does not have any legal public access to it and that the only way to get to the reserve is by trespassing across private property. We believe that our proposal results in assuring the public access to this valuable site.

I am writing you on behalf of the City of Rancho Mirage and the District to ask that you review with your staff our proposal for public access to the reserve.

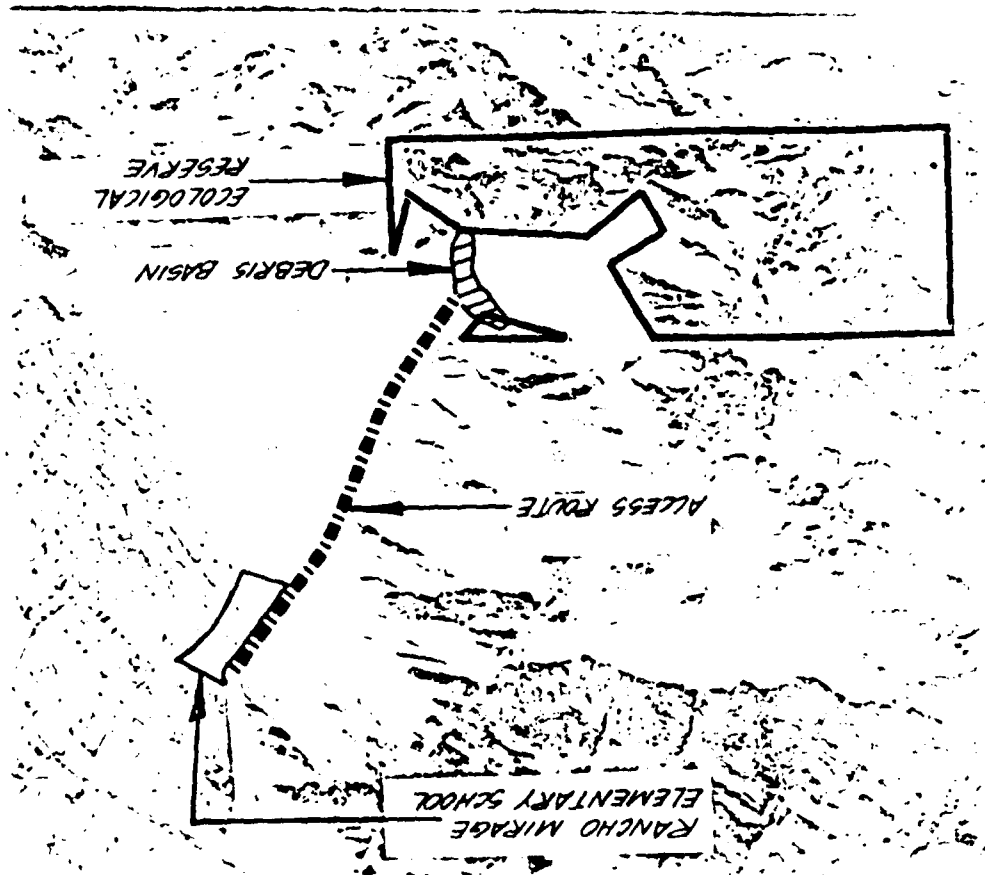
The Corps of Engineers has indicated that this item is delaying the issuance of its report. Therefore, we would like to get it resolved as soon as possible. Should you feel that it is necessary, the City and the District would be happy to meet with you to discuss the issue in more detail.

If you have any questions or desire additional information, please contact Tom Levy.

Yours very truly,

Lowell G. Becks
General Manager-Chief Engineer

TEL: 66
Enclosure/1/45



Fred Northey

cc: Chris Rodolick
 Corps of Engineers
 Post Office Box 90051
 Los Angeles, California 90051

cc: Dave Dixon, City Manager
 City of Rancho Mirage
 99-825 Highway 111
 Rancho Mirage, California 92270

cc: Tom Povich
 Department of Fish and Game
 Region 5
 Post Office Box 1717
 Imperial, California 92345



COACHELLA VALLEY WATER DISTRICT

HEAD OFFICE 600 W. 10th • COACHELLA, CALIFORNIA 92236 • TELEPHONE (714) 396-3441

ESTABLISHED IN 1942 AS A PUBLIC AGENCY

COACHELLA VALLEY WATER DISTRICT
600 W. 10th Street
Coachella, California 92236
Telephone (714) 396-3441

COACHELLA VALLEY WATER DISTRICT
600 W. 10th Street
Coachella, California 92236
Telephone (714) 396-3441

October 9, 1981

File No.: 0106.11
0121.3061
0121.3062

Mr. Norman Arnes
Chief, Engineering Division
Corps of Engineers
P.O. Box 2711
Los Angeles, California 90053

Dear Mr. Arnes:

As I explained to you over the telephone, I have just returned from vacation and inadvertently signed a letter to you dated September 30, 1981, our File No. 0106.11, which had to do with environmental mitigation for the West Hemetia Stormwater Channel.

I have read the Corps of Engineers memorandum for record dated September 2, 1981, and I think it would be only fair to you to state that this District is in absolute disagreement on every item.

I suggest that you have members of your staff contact members of my staff to arrange for a meeting as soon as possible.

Yours very truly,

Lowell O. Weath
General Manager-Chief Engineer

LAW/jm

cc: Chris Knecht
Steve Blum



COACHELLA VALLEY WATER DISTRICT

HEAD OFFICE 600 W. 10th • COACHELLA, CALIFORNIA 92236 • TELEPHONE (714) 396-3441

October 9, 1981

File No.: 0106.11
0121.3061
0121.3062

Mr. Norman Arnes
Chief, Engineering Division
Corps of Engineers
P.O. Box 2711
Los Angeles, California 90053

Dear Mr. Arnes:

Re: Environmental Mitigation for the West Hemetia Stormwater Channel

The District's position on the environmental mitigation for the West Hemetia Stormwater Channel is as follows: 1) The District is in absolute disagreement on every item. 2) The works along the east side of the canal will be designed to provide approximately 1.5 miles of water used land for the West Hemetia Stormwater Channel dike outer toe line and the dike as a flooding and open space buffer. This land should be owned by the developer to a public agency.

3) The land upstream of the Lebris Basin will be received as a flooding zone and open space area. This land will be owned by the developer to the appropriate public agency.

These items are in accordance with our discussions at the two aforementioned meetings and they will be pursued by representatives from the City of Coachella and this District when you have received approval on them from the Fish and Wildlife Service.

If you have any questions or seek additional information, please contact Dave Parkinson at (714) 396-2651.

Very truly yours,

Lowell O. Weath
General Manager-Chief Engineer

LAW/dc

cc: Chris Knecht
Steve Blum



COACHELLA VALLEY WATER DISTRICT

COACHELLA VALLEY WATER DISTRICT

PO BOX 9053 COACHELLA, CALIFORNIA 92234

COACHELLA VALLEY WATER DISTRICT
ATTENTION: CHIEF OF ENGINEERS
POST OFFICE BOX 2711
LOS ANGELES, CALIFORNIA 90053

November 17, 1981

File: 0166.11
0121.3061
0121.3062

Norman Arno
Chief, Engineering Division
Corps of Engineers
Post Office Box 2711
Los Angeles, California 90053

Dear Mr. Arno:

Re: Rancho Mirage Flood
Control Project

This letter is to confirm our discussions on November 9, 1981 concerning the environmental mitigation for the Rancho Mirage Flood Control Project. We agreed on the following:

- 1) That the necessity for fencing on both sides of West Magnesia Stormwater Channel for its total length would be re-examined;
- 2) That the area upstream of the proposed debris basin be zoned for no development;
- 3) That particular dump sites for deposition of the material that will accumulate behind the proposed debris basin would not be identified, but that the report would identify which Federal statutes must be followed for the deposition of this material;
- 4) That the area left in a natural state between the hills and East Magnesia Stormwater Channel will not be the irrigation responsibility of the District; and
- 5) That the District would prepare a drawing showing the proposed alignment of West Magnesia Stormwater Channel to better utilize the land.

On November 12, 1981, we transmitted to Chris Murak of your organization five copies of the drawings showing our proposed alignment for West Magnesia Stormwater Channel.

Norman Arno

November 17, 1981

We are on this subject. If you have any further questions, please contact Chris Murak at (213) 357-4531.

Yours very truly,

[Signature]
Robert O. Weeks
General Manager-Chief Engineer

LBH:ra

cc: Chris Fronick
Corps of Engineers
Post Office Box 2711
Los Angeles, California 90053



COACHELLA VALLEY WATER DISTRICT

POST OFFICE BOX 90053, COACHELLA, CALIFORNIA 92230

TO: Mr. Arnold
FROM: Mr. Arnold
SUBJECT: Mr. Arnold
DATE: May 17, 1982

Mr. Arnold
U.S. Army Corps of Engineers
Post Office Box 2711
Los Angeles, California 90053

Dear Mr. Arnold:

Our records will be addressed primarily to the fifth paragraph of your letter bearing the date of October 10, 1981.

There is sufficient area upstream (downstream and beyond) of this project, on Federal land, to accomplish the proposed mitigation goals.

It is not acceptable to the District to raise the creation of a wildlife refuge of refuge on twenty acres near the hills. The hills in this general area are adequate to accomplish the intended wildlife refuge.

There has been no demonstrated need that the wildlife refuge be located in the area of District expense. We have gone to great lengths as to the thousands of 60 years) and expended millions of dollars to conserve existing supplies of water, to construct works and import water from the Colorado River, more than 10 miles distant, developed and negotiated contracts and related bond issues to finance emergency works to bring water to Coachella Valley by way of the State Water Project.

Water used by wildlife was not included in the supplies of water. They are for human consumption, which includes farming for food and fiber. We have no objection to the wildlife using the spin-off benefits in the agricultural area. Indeed, there are large quantities of additional wildlife refuge spin-off to these projects, but as the water is needed for the primary purpose by those who are paying for it, then wildlife must be a secondary concern by the Water District. Therefore, we cannot designate or obligate water resources for a twenty-acre wildlife reserve as suggested in your letter.

Yours very truly,

Lowell O. Weeks
Lowell O. Weeks
General Manager-Chief Engineer

COACH
LL



COACHELLA VALLEY WATER DISTRICT

POST OFFICE BOX 90053, COACHELLA, CALIFORNIA 92230

TO: Mr. Arnold
FROM: Mr. Arnold
SUBJECT: Mr. Arnold
DATE: April 8, 1982

Colonel Paul A. Taylor
U.S. Army Corps of Engineers
Engineers Office
Post Office Box 2711
Los Angeles, California 90053

Dear Colonel Taylor:

Re: Rancho Mirage Flood Control Project

We have reviewed the Biological Inventory and Impact Analysis and the U.S. Department of Interior Fish and Wildlife Services comments on the mitigation for the Corps of Engineers Rancho Mirage Flood Control Project. We cannot agree that the proposed mitigation of 20 acres is correct. However, because of our concern about the potential loss of life and property damage in the Magnesia Falls area if the Corps project is not built, we will accept it as a condition in order to expedite the construction of the vitally needed flood control facilities.

Your staff has indicated that the Corps anticipates the start of construction in October 1983.

We would appreciate any support which you can give to expedite the report, plans and specifications and construction of this project so that the people in the Magnesia Falls area will have this project constructed as soon as possible.

If you have any questions or desire additional information, please contact Tom Levy at (714) 398-2831.

Yours very truly,

Lowell O. Weeks
Lowell O. Weeks
General Manager-Chief Engineer

TEL: 714

COACH
LL
General Manager-Chief Engineer
Los Angeles, California

TRUE CONSERVATION
USE WATER WISELY

COACH



COACHELLA VALLEY WATER DISTRICT

1000 NORTH AVENUE, COACHELLA, CALIFORNIA 92230

COACHELLA VALLEY WATER DISTRICT
1000 NORTH AVENUE, COACHELLA, CALIFORNIA 92230
TELEPHONE (602) 325-1111
FAX (602) 325-1112

May 17, 1982

File: 01-1, 1062

Chris Kronick
U. S. Army
Corps of Engineers
Post Office Box 2711
Los Angeles, California 90053
Dear Mr. Kronick:

Re: Rancho Mirage Stormwater Channel

This letter is in response to your request for the District to provide information concerning the location of the disposal sites for debris from the proposed Nagsena Canyon Debris Basin. The design debris load is 135,000 cubic yards or 8.4 acre feet. We would propose to dispose of the debris at the following sites in the order listed:

1. At various locations within the Rancho Mirage and Palm Desert areas where developers require fill material to construct developments in accordance with plans approved by the planning functions of the cities. This planning process requires environmental review.
2. City of Rancho Mirage Whitewater River Park.
3. Cook Street and Whitewater River Stormwater Channel. The District owns approximately 165 acres in this area, part of which are remnants from the realignment of the channel and part was acquired for a treatment plant. Significant fill can be placed in this area without impacting the other uses which are being made of it. This provides a long term disposal site in the event that the above locations are not available.

Figure 1 shows the approximate location of sites 1 and 3.

TRUC CONSTRUCTION
1000 NORTH AVENUE

1000 NORTH AVENUE

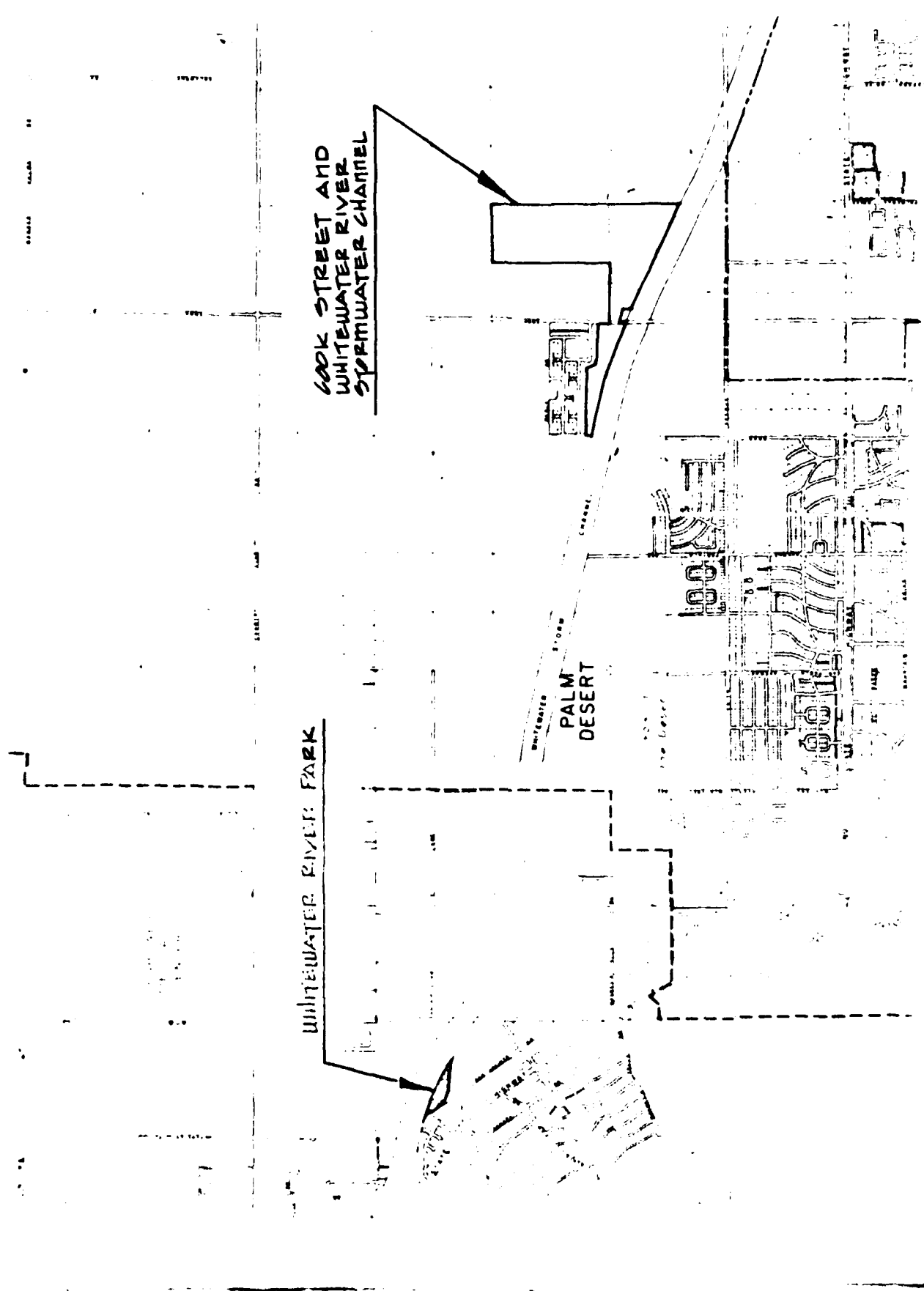
We hope you find this information helpful. If you have any questions, please call Bob Meyer at (602) 325-1111.

Very truly yours,

Robert Meyer
Robert Meyer
District Manager-Chief Engineer

Enclosure: 2

cc: Dave Diann, City Manager (w/enclosures)
69-625 Highway 111
Rancho Mirage, California 92270



WHITE WATER RIVER PARK

COOK STREET AND
WHITE WATER RIVER
SPRINKLER CHANNEL

PALM
DESERT

CHANNEL



ESTABLISHED BY PUBLIC ACT 1940, CHAPTER 100

COACHELLA VALLEY WATER DISTRICT

POST OFFICE BOX 90053 • COACHELLA, CALIFORNIA 92236 • TELEPHONE 348-4400

COACHELLA VALLEY WATER DISTRICT
ENGINEERING DEPARTMENT
200 WEST 1ST STREET
COACHELLA, CALIFORNIA 92236

June 1, 1982

File: 0121.3061
0121.3062

Chris Kronick
Corps of Engineers
Post Office Box 90053
Los Angeles, California 90053

Dear Mr. Kronick:

Re: Debris Disposal Site
Mojave Canyon Stormwater
Project

The following information is provided in accordance with your request of June 3, 1982 concerning the debris disposal site at Cook Street and the Whitewater River Stormwater Channel.

The District acquired a majority of the property at the Cook Street location as part of the realignment of the Whitewater River Stormwater Channel. Construction was accomplished in 1970 during which the natural channel which was between 10 and 40 feet below the current ground surface was filled as part of the realignment and straightening of the channel. This site was then used for the Palm Desert Water Reclamation Plant. Construction of the plant started in 1974 with the initial phase completed in 1976. Additional phases of construction were done in 1979 and 1980. We currently have additional construction under contract. The entire site has been disturbed by the filling of the Stormwater Channel and/or leveling operations performed.

If you have any questions or desire additional information, please contact Tom Levy at (714) 398-2651.

Yours very truly,

Lowell C. Weeks
Lowell C. Weeks
General Manager—Chief Engineer

TE: dlb

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ESTABLISHED BY PUBLIC ACT 1940, CHAPTER 100

COACHELLA VALLEY WATER DISTRICT

POST OFFICE BOX 90053 • COACHELLA, CALIFORNIA 92236 • TELEPHONE 348-4400

COACHELLA VALLEY WATER DISTRICT
ENGINEERING DEPARTMENT
200 WEST 1ST STREET
COACHELLA, CALIFORNIA 92236

June 1, 1982

File: 0121.3062

Miss Kathy Kunze
Environmental Planning
United States Army Corps of Engineers
Post Office Box 2111
Los Angeles, California 90053
Dear Miss Kunze:

Re: Mojave Springs Name
Mitigation Package

Enclosed is a copy of the Features of Mitigation Package for the above referenced project.

The City of Rancho Mirage is reviewing this material and should provide us with their comments by July 2nd, 1982. We will call them to you so that you will have an opportunity to discuss the material and their

comment. We are awaiting your response. All the best at the moment.

Yours very truly,

William J. Longenecker
William J. Longenecker
Deputy Chief Engineer

TE: ts

Enclosure 1-45

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MEMORANDUM FOR RECORD

SUBJECT: Features of Mitigation Package for the Project Proposed for
Magneesia Spring Canyon, Rancho Mirage, California

The mitigation package for the Magneesia Spring Canyon Project is as follows:

1. Preservation and enhancement of approximately 20 acres on the east side of the alluvial cone between the Coachella Valley Water District's levee and the toe of the mountains.
 - a. Material for levee construction may be acquired within the 20 acres. Disturbance of the 20-acre should be kept to a minimum. The Corps of Engineers will revegetate with native plant species and irrigate the 20-acre area during its construction activities should significant habitat values disturbed by construction of the levee fail to reestablish. Revegetation efforts will utilize native species such as palo verde, mesquite, and palo verde.
 - b. The 20 acres would be enhanced by the increased availability of water provided by the levee which will act to concentrate runoff and by an ungrated pipe extending from the debris basin to the east channel and delivering up to 30 cfs. The pipe would be placed and sized by the Corps of Engineers during construction of the flood control project.
2. Land on the alluvial cone upstream of the debris basin embankment will be put under the control of the State of California by means of a wildlife easement. The District will have fee title to the facilities. Enforcement of law and order upstream of the debris basin embankment will be the shared responsibility of the local law enforcement agencies and the California Department of Fish and Game.
3. Construction activities by the Corps of Engineers at the upstream end of the cone including debris basin excavation and embankment and spillway construction will be mitigated for possible adverse impacts to the bighorn sheep by enhancing water source(s) in Magneesia Spring Canyon prior to construction activities. The design and placement of the enhanced water source(s) will be determined by the Corps of Engineers in cooperation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game. \$15,000 has been allotted by the Corps for this purpose. Any maintenance of the enhanced water source(s) will be the responsibility of the California Department of Fish and Game.
4. Maintenance of the debris basin and upstream portion of the channels by the Coachella Valley Water District will, to the maximum extent practicable, be timed to avoid the critical dry period for bighorn sheep from 15 June to 30 September.

5. The City of Rancho Mirage will assure that a 10-to-100-foot-wide strip of open-space including streets and grassed area will be provided along the east levee between the 20-acre mitigation area and future houses on the cone by the developer of the cone.
6. Vehicle access to the Magneesia Springs State Ecological Reserve will be provided to representatives of the California Department of Fish and Game vehicles under California Department of Fish and Game's direct supervision by way of an easement along the channel access road.
7. Public foot access to the Magneesia Springs State Ecological Reserve via the channel access road and debris basin will be permitted except during the period from 15 June through 30 September. Closing of access to the reserve will be the responsibility of the California Department of Fish and Game.
8. A turn-around and parking area for about three cars will be provided by the Corps of Engineers at the upper end of the channel road for use by authorized vehicles.
9. Fencing will be provided on both sides of the channel in accordance with Corps of Engineers regulations.
10. The Corps of Engineers will provide wire mesh fencing along the downstream toe of the debris basin embankment to prevent unauthorized access to the embankment and the debris basin. Excess rock from channel excavation will be placed along the toe of the downstream embankment to act as a further barrier to vehicles.
11. Disposal of debris from the basin during maintenance activities conducted by the Coachella Valley Water District will comply with applicable Federal regulations especially those concerned with the protection of significant cultural resources and endangered or otherwise significant plant and animal species.
12. Operation and maintenance of the East Magneesia Spring channel will take wildlife values into consideration.
13. Any of these mitigation features carried out prior to the construction of this project are underboded by all parties to mitigate for this project.
14. This agreement is binding on the City of Rancho Mirage and the Coachella Valley Water District only in the event that the Corps of Engineers funds the construction of the Magneesia Spring Canyon Spillway Project.

For: U.S. Fish and Wildlife Service

For: California Department of Fish and Game

For: U.S. Army Corps of Engineers

For: City of Rancho Mirage

For: Cochella Valley Water District



COACHELLA VALLEY WATER DISTRICT

COACHELLA VALLEY WATER DISTRICT
222 N. COACHELLA, CALIFORNIA 92230

COACHELLA VALLEY WATER DISTRICT
222 N. COACHELLA, CALIFORNIA 92230
TELEPHONE (602) 325-1111
TELETYPE (602) 325-1111

March 10, 1981

File: 6221.001
6221.002

Col. Paul W. Taylor
Commander, Los Angeles District
U.S. Army Corps of Engineers
Post Office Box 2211
Los Angeles, California 90003

Re: East and West Magnesia Canyon Channels

Dear Col. Taylor:

On March 8, 1981, the Board of Directors of the Coachella Valley Water District (CVWD) adopted Resolution No. 81-14 recommending that the U.S. Army Corps of Engineers approve the Draft Detailed Project Report for the West Magnesia Canyon Channel Project.

At that time meeting the Board adopted Resolution No. 81-17, authorizing the General Manager/Chief Engineer to execute on behalf of the CVWD the Mitigation Agreement for the West Magnesia Canyon Channel.

The CVWD Engineering Staff has been working with the Corps of Engineers, U.S. Fish and Wildlife Service, California Department of Fish and Game, and the City of Rancho Mirage to develop a Mitigation Agreement for the West Magnesia Canyon Channel.

The Mitigation Agreement substantially consists of the preservation and enhancement of approximately 20 acres on the east side of the alluvial cone between the proposed levee for the East Magnesia Canyon Project and the toe of the mountains, a 300 foot easement to prevent development in the mountains, an easement for wildlife in the debris basin, and enhancement of the natural water supply above Magnesia Springs. In order for the Corps to move ahead with the construction of the West Magnesia Project, the Mitigation Agreement was necessary, therefore the Board approved its execution.

Col. Paul W. Taylor

Mar 11, 1981

As the local sponsoring agency the CVWD is responsible for acquiring the rights of way for the West Magnesia Canyon Project. Concurrently we will be acquiring the rights of way for the East Magnesia Canyon Project. This latter project is being prepared to go out to prospective bidders sometime after the first of April.

In order to acquire the rights of way for both projects we need alignment information for the West Magnesia Canyon "barrier" in such detail that we can prepare legal descriptions. We have requested verbally this information from your staff.

Since the West Magnesia Canyon Project seems nearer to fruition after many years of planning and studying, the City of Rancho Mirage and the CVWD are especially interested in completing the East Magnesia Canyon Project. Therefore, it is extremely important that we get the alignment information as soon as possible.

Please call me if there is any additional information you need.

Yours very truly,

Lowell C. Webb
Lowell C. Webb
General Manager/Chief Engineer

UWH:dib

cc: Les Crist, City Manager
City of Rancho Mirage
69-825 Highway 111
Rancho Mirage, California 92270

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STANDARD FORM NO. 64-A (Rev. 5-22-64)

COACHELLA VALLEY WATER DISTRICT

POST OFFICE BOX 300 • COACHELLA, CALIFORNIA 92234 • PHONE 422-1000, 422-1001

FOR THE DISTRICT ENGINEER
THE COACHELLA VALLEY WATER DISTRICT
ATTENTION: DISTRICT ENGINEER
POST OFFICE BOX 300
COACHELLA, CALIFORNIA 92234

TO: DISTRICT ENGINEER, COACHELLA VALLEY WATER DISTRICT
ATTENTION: DISTRICT ENGINEER
POST OFFICE BOX 300
COACHELLA, CALIFORNIA 92234

March 24, 1983

TO: DISTRICT ENGINEER
ATTENTION: DISTRICT ENGINEER
POST OFFICE BOX 300
COACHELLA, CALIFORNIA 92234

Col. Paul W. Taylor
Commander, Los Angeles District
U.S. Army Corps of Engineers
Post Office Box 2711
Los Angeles, California 90008
Dear Col. Taylor:

Re: East and West Magnesia
Canyon Channels

On March 10, 1983 we wrote to you in regard to the Corps' Project Report for the West Magnesia Canyon Channel Project and the Mitigation Agreement for that project.

Also, in that letter we referred to alignment information for the West Magnesia Project which we have requested from your staff. To date we have not received that information.

Since 1974 we have been working with the Corps in attempting to resolve the stormwater problems originating from the Magnesia Canyon. After many meetings with Corps personnel we believed that we had agreed on both an alignment for the East Magnesia Canyon Channel and the Mitigation Agreement.

The solution lay in a cooperative effort among the Corps, the City of Rancho Mirage and the District. As a result, the West Magnesia Canyon Channel Project became a Corps' project and the East Magnesia Canyon Channel became a City District project.

We have instructed our consulting engineering firm, Bechtel Civil & Minerals, to complete the plans and specifications. We propose to advertise for bids on or about April 1, 1983 and to receive bids on or about May 1, 1983.

TO: Paul W. Taylor

TO:

March 24, 1983

Enclosed is a copy of the drawing showing a portion of the Magnesia Canyon Channel and the proposed alignment for the upper portion of the East Magnesia Canyon Project.

The line identified as "District Mitigation for 1983" is the alignment we believed had been agreed to by the District and the Corps and is the alignment upon which the Mitigation Agreement is based. It is the alignment which Bechtel is using.

In March 1983, our stormwater engineer, Bert Wieg, met with Corps people Chris Frost, Kathy Funder, and Bill Van Pelt at the location shown on Drawing No. 105. As a result of this meeting we agreed to draw a new line identified as "Corps' Mitigation for 1983". This new line is based on the Corps' interpretation of the terrain and is indicated by the line marked "Corps' Mitigation for 1983".

Our previous understanding with the Corps was based on the line marked "District Mitigation for 1983". Taking that line and the District's line, a mitigation area of 28.5 acres would be provided. This is in excess of the 20 acres provided for in the Mitigation Agreement.

The owner of the properties in this area, Rancho Mirage Properties, represented by Don Appel, has proposed another alignment which would shift some of the mitigation area from the north end of the line to the south end. This alignment was sent to your staff for review and consideration on January 20, 1983. This alignment would be equally acceptable to the District.

We find no basis in either logic or reasonableness to the proposed new Corps' line. We and the City of Rancho Mirage have recognized the aims and the desires of the Corps and the other parties to a mitigation agreement and in good faith spent many hours in developing an alignment which we understood to be acceptable. Now we are told that the agreed upon alignment is unacceptable.

As the agent of the City of Rancho Mirage we are proceeding with the plans and specifications as indicated above. To minimize the engineering effort and to expedite the acquisition of rights of way we need the following from the Corps:

1. A mutually acceptable alignment for the East Magnesia Dike.

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COACHELLA VALLEY WATER DISTRICT

19-00000 14 - COACHELLA, CALIFORNIA 92334 - 19-00000 14-00000

[illegible]

1991 : 102

549 01-1-1961

Chris Kronick
 Dept of Engineers
 Post Office Box 2744
 Los Angeles, California 90033

Re: East Manganese Stormwater Project

Dear Mr. Cronick:

As we discussed today, enclosed are two prints of Drawing No. 115 showing:

1. Toe of Mountain - District and Corps.
2. Downstream Toe Line - District and Corps.
3. Alternate Alignment - Proposed by property owner.
4. Cross hatched in red - area between District Toe Line and District Toe of Mountain, 28.5 acres.
5. Colored yellow - area between Corps Toe Line and Corps Toe of Mountain, 17.8 acres.

The area between the Corps and District Downstream Ice Lines is approximately 6.0 acres.

Also as we discussed, the purpose of the meeting scheduled for 29 April, 1968, at 10:00 a.m. at the District's office in Coacheila is to agree on an alignment for the East Magnesia Dike. We understand that the Corps will name a person or persons at that meeting who are authorized to make that determination and that such determination will satisfy the area mitigation requirements for the West Magnesia Slott after Project.

Yours very truly,

William W. Longenecker, Jr.
Deputy Chief Engineer

91P:18

Enclosures/2/as.

cc. General Manager-w/o Enclosure

**TRUE CONSERVATION
USE WATER WISELY**

March 24, 1983

-3-

100-443881-10

2. All recent information for the West Magazine - Penna; and Table Book.

If you need any additional information please call me.

Yours very truly,

for Lovell O. Weeks
General Manager-Chief Engineer

Ami. 13

Enclosure 1. 25

cc: Los Crist, City Manager (w/enclosure)
City of Rancho Mirage
69-825 Highway 111
Rancho Mirage, California 92270

Chris Kronick (enclosure)
U.S. Army Corps of Engineers
Post Office Box 1114
Los Angeles, California 90033



COACHELLA VALLEY WATER DISTRICT

NOV 20 1963 BOX 338 COACHELLA, CALIFORNIA 92234 TEL 368-3434

COACHELLA VALLEY WATER DISTRICT
265 N. Broadway
Long Beach, California 90802

May 2, 1963

File: 0121.3061
0121.3062

Fred Worthley
Regional Manager
California Department
of Fish and Game
265 N. Broadway
Long Beach, California 90802

Dear Mr. Worthley:

Re: Magnesia Spring Ecological
Reserve

The Army Corps of Engineers is finalizing their project report on the West
Magnesia Stormwater Project. In past discussions with your staff, we have
agreed to provide access easements to the Ecological Reserve and provide a
wildlife easement over the area upstream of the debris basin. In addition,
the comments on the draft project report indicate that a Section 1601
Permit is required.

We would like to move ahead with the preparation of the necessary easements
and obtain any necessary permits. As you are aware, flood flows from
Magnesia Canyon have resulted in the loss of life and catastrophic damage
to the residents of the Magnesia Cove area of the City of Rancho Mirage.
Therefore, we wish to insure that there are no delays in the Corps moving
ahead with this urgently needed project without any possible delays.

We would appreciate it if you would send us the necessary application forms
and some sample wildlife easements which you currently have. The Corps of
Engineers has indicated that they will issue the final report on the
project by July 1, 1963. If possible we would like to have the easements
and permits drafted before that date.

TRUE CONSERVATION
USE WATER WISELY

Fred Worthley

-2-

May 2, 1963

If you have any questions or desire additional information please contact
Tom Levy at (619) 398-2651.

Very truly yours,

/s/ Lowell O. Weeks
Lowell O. Weeks
General Manager-Chief Engineer

TJ:eed

cc: Roner Blong
Department of Fish and Game
Region 5
P.O. Box 171
Idyllwild, CA 92349

Jim Christopher
Department of Fish and Game
1419 Ninth St.
Sacramento, CA 95814

Chris Fronick
Corps. of Engineers
P.O. Box 2711
Los Angeles, CA 90033

COPY



COACHELLA VALLEY WATER DISTRICT

11400 10th St. Suite 100, Coachella, California 92236

COACHELLA VALLEY WATER DISTRICT
11400 10th St. Suite 100, Coachella, California 92236
Tel: (619) 335-1140
Fax: (619) 335-1141
E-mail: info@cvwd.net
Web: www.cvwd.net

Chris Kronick
Corps of Engineers
Post Office Box 251
Los Angeles, California 90001

Dear Mr. Cronick:

Subject: East Magnesia Stormwater Channel

Included in a print of Drawing No. 137. This has been revised to show the
Debris Basin Right-of-Way per your request. With this revision, this
leaves 10.16 acres for the mitigation area for the East Magnesia Canyon
Channel. It is our understanding that the Mitigation area is now
acceptable to the Corps of Engineers.

If you have any questions or desire additional information, please contact
SAB Meleg at (619) 348-2651.

Yours very truly,

Lowell O. Weeks
Lowell O. Weeks
General Manager-Chief Engineer

ROP:dib
Enclosure(1)/en.

TIME CONSERVATION
USE WATER WISELY



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
P.O. BOX 2470
LOS ANGELES, CALIFORNIA 90024

August 11, 1983

SPUDJ-WA
August 11, 1983

Mr. Lowell Weeks, General Manager
Coachella Valley Water District
P.O. Box 1058
Coachella, CA 92236

Dear Mr. Weeks:

Reference your letter dated July 22 1983 and Drawing No. 137 enclosed in
that letter. We have received this drawing and found that the areas shown on
the map between the levee and the hillside total twenty acres and will
therefore meet this requirement of our mitigation area.

In addition, we have received and coordinated the changes to the
mitigation agreement suggested by your staff. A copy of this revised
agreement is enclosed (Encl 1).

So that we can complete our Final Detailed Project Report on this
project, we need a letter of local support indicating that your agency has
reviewed the draft section 221 contract (Encl 2), acknowledges the
requirements and is willing and able sign the final contract prior to
construction.

Sincerely,

Carl F. Enson
Chief, Planning Division

Enclosures

Copies Furnished to/Enclosures:

Mr. Leo Crist, City Manager
City of Rancho Mirage
89-825 Highway 111
Rancho Mirage, California 92270

Mr. Ralph Pincaple
U. S. Fish and Wildlife Service
Ecological Services
24000 Avila Road
Laguna Niguel, California 92677

Mr. Fred Worthley, Regional Manager
California Department of Fish and Game, Region 5
200 Golden Shore
Long Beach, California 90802

24 August 1983

Mitigation Agreement for the Proposed West Magnesia Canyon
Channel Project, Rancho Mirage, Riverside County, California

The following points have been developed by the Corps of Engineers in coordination with the Coachella Valley Water District, the City of Rancho Mirage, the U.S. Fish and Wildlife Service, the California Department of Fish and Game and other concerned agencies and public during the planning process for the proposed Corps project. This agreement is binding only in the event that the Corps of Engineers funds the construction of the West Magnesia Canyon Channel Project. Any of these mitigation features carried out prior to the construction of this project are understood by all parties to mitigate the impacts of this project.

1. A mitigation area of at least 20 acres of alluvial cone will be provided between the toe of the mountains along the east side of the cone and the East Magnesia levee proposed by the Coachella Valley Water District as shown on the accompanying map. Wildlife habitat values of the mitigation area will be preserved and enhanced. The area will function as the East Magnesia Channel.

2. During construction of the East Magnesia levee by the Coachella Valley Water District, disturbance of vegetation in the 20-acre mitigation area should be avoided. Any unavoidable disturbance of the vegetation of this area during construction of the levee will be repaired by the Corps of Engineers as a project cost during its construction activities on the West Magnesia Canyon Channel Project if the vegetation has failed to reestablish on its own. Repair efforts will entail revegetation with native plant species that provide high wildlife habitat values (such as palo verde, mesquite and palo verde). At that time, the Corps will also enhance the existing wildlife habitat values with limited planting of native species beyond that required for revegetation of areas disturbed during construction of the levee. Irrigation of the mitigation area by a Corps contractor will continue for up to 2 years to help ensure success of these efforts. Irrigation may be accomplished by regular use of a water truck or by other means shown to be more effective or appropriate.

The appropriate numbers and size of plants to be used, planting design and techniques, and irrigation methods and duration will be examined by desert plant expert(s) during the Corps' development of plans and specifications for this project. The study will address revegetation of disturbed areas within the mitigation area and some enhancement planting and will emphasize identification of technically appropriate and cost-effective planting and irrigation methods and planting to provide for future development of a high-quality, self-sustaining wildlife habitat area. The final plan will be developed by the Corps of Engineers and coordinated with the Coachella Valley Water District and the U.S. Fish and Wildlife Service.

En. 10494

3. Enhancement of wildlife values of the mitigation area is also expected to result from the increased availability of water that would be provided by the levee and by two pipes that would extend from the debris basin to the Coachella Valley Water District will maintain the pipes from the debris basin to the mitigation area so that they function to provide additional water to the mitigation area as designed. The pipe gates will be closed only during maintenance of the pipes.

4. Material for the East Magnesia levee may be taken from the terrace area set aside for excavation rather than from other portions of the mitigation area. Approximately 2.5 acres will be excavated to the level of the adjacent alluvial cone in order to provide the minimum of 20 mitigation acres. Excavated rock and man-made debris will not be left on the excavated area or on any other part of the mitigation area. The excavated area will be graded so that runoff over the mitigation area will flow in a reasonably uniform manner.

5. Any necessary maintenance of the East Magnesia Channel by the Water District will minimize disturbance of vegetation, especially clumps of woody vegetation within the mitigation area, to the maximum extent practicable. To the maximum extent practicable, maintenance of the upstream 1,000 feet of the east channel and levee will be timed to avoid the critical dry period for Bighorn sheep from June 15 through September 30.

6. Posts will be placed across the downstream end of the 20-acre mitigation area and a gate will be placed across the downstream end of the East Magnesia levee access road to restrict unauthorized vehicle access to this area. No trespassing signs designating the area as protected wildlife habitat will be posted every two hundred feet along the top of the levee. Local law enforcement authorities and the California Department of Fish and Game will have authority to police the 10-acre mitigation area.

7. Buffers will be provided on both sides of the mitigation area to help protect wildlife values. These buffers between the mitigation area and any future development on the slopes and alluvial cone which will be required by the City of Rancho Mirage, will consist of a 300-foot-wide strip of open space along the slopes east of the mitigation area and a 50-foot-wide strip of open space on the alluvial cone west of the levee. Both buffers are indicated on the accompanying map. Any development occurring on the slopes above the 20-acre mitigation area during the life of the project must ensure no significant impacts on the mitigation area and no significant net impacts on Bighorn sheep. Appropriate vegetation for the 30-foot-wide buffer ranges from native plant species to turf grass. Roadways, parking lots, and yards with side-lot-line fences are not suitable land uses in this buffer strip.

8. Potential adverse impacts to Bighorn sheep by this project will be avoided to the maximum extent practicable and otherwise minimized. Construction of the debris basin, embankment, spillway, and the upstream 1,000 feet of the West Magnesia Channel by the Corps of Engineers and maintenance of those facilities by the Water District will, to the maximum extent practicable, be timed to avoid the critical dry period for Bighorn sheep from 15 June through 30

September. Any maintenance of the upstream 1,000 feet of the East Magnesia Spring Channel will also be timed to avoid the critical dry period for the Bighorn sheep. Noise may disturb the Bighorn sheep and discourage them from using the lower watering pool.

9. The Corps will enhance water source(s) for Bighorn sheep in the vicinity of Magnesia Spring Canyon as a first item of construction of the West Magnesia Canyon Channel Project. Fifteen thousand dollars (\$15,000) will be available for this purpose. The design and placement of the enhanced water source(s) will be determined by the Corps of Engineers in cooperation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game. Any maintenance of the water source(s) will be the responsibility of the California Department of Fish and Game, acting as an agent of the local sponsor.

10. Potential construction-induced noise disturbance of school activities at the Rancho Mirage Elementary School and of residents living near the west channel alignment will be reduced, to the maximum extent reasonable, by avoiding construction activities adjacent to the school during school hours, and during nighttime hours.

11. Access to the Magnesia Springs State Ecological Reserve for Bighorn sheep will be provided by the Coachella Valley Water District to representatives of the California Department of Fish and Game and to the public. Vehicle access from the vicinity of the Rancho Mirage Elementary School to the proposed debris basin embankment will be provided via the channel service road to representatives of the California Department of Fish and Game and to the public under the Department's direct supervision. A turn-around and parking area for several cars will be provided by the Corps of Engineers near the embankment. Foot access will be available to the public along the channel service road. Vehicle parking will be available along a public road contiguous to the service road in the vicinity of the Rancho Mirage Elementary School and at a park proposed to be developed by the City of Rancho Mirage adjacent to the school and across the embankment, debris basin, and upper wash to the mouth of the canyon. Closure of access to the reserve (by locking gates provided as part of project fencing) during the dry summer months will be the responsibility of the California Department of Fish and Game.

12. Provision of another access roadway may be more compatible with future development and may be acceptable if equivalent features are provided. These include provision of: (a) access by foot and vehicle between the upstream end of the existing development and the debris basin embankment service road; (b) parking areas at both ends of the roadway; and (c) effective means to limit access, such as gates and fencing or other more appropriate methods.

13. Land on the alluvial cone upstream from the debris basin embankment will be placed under the control of the State of California by means of a wildlife easement provided by the Coachella Valley Water District. The wildlife easement will limit the use of these lands to purposes of flood control, wildlife management, and access to the ecological reserve. The terms of the wildlife easement will be agreed upon by the California Department of Fish and

DRAFT "SECTION 221" AGREEMENT

THIS AGREEMENT entered into this ____ day of ____ 19____, by and between the UNITED STATES OF AMERICA (hereinafter called the "Government"), represented by the Contracting Officer executed this Agreement, and the Coachella Valley Water District Board of Directors (hereinafter called the "District"),

WITNESSETH THAT:

WHEREAS, construction of the West Magnesia Springs Canyon Channel Flood Control Project (hereinafter called the "Project") was authorized by the Chief of Engineers, U.S. Army on the ____ day of ____ 19____; and in accordance with Section 205 of the 1948 Flood Control Act (PL 80-856) and its amendments; and

WHEREAS, the District hereby represents that it has the authority and capability to furnish the non-Federal cooperation required by applicable law.

NOW, THEREFORE, the parties agree as follows:

1. The District agrees that, if the Government shall commence construction of the West Magnesia Springs Canyon Channel Flood Control Project under the authority of Section 205 of the 1948 Flood Control Act and its amendments and substantially in accordance with the detailed Project Report authorizing such work, the District shall, in

A-5

Enclosure

Came and the Coachella Valley Water District and signed prior to initiation of the Corps construction. The easement will be finalized once the Water District has obtained fee title to these lands. Law enforcement upstream of the easement will be the shared responsibility of the local law enforcement agencies and the California Department of Fish and Game.

14. The Corps of Engineers will provide fencing on both sides on the channel and along the downstream toe of the debris basin embankment in accordance with Corps regulations, safety requirements, and environmental concerns. Fencing on the west side channel will be of a type that is unlikely to catch the hooves of horses or sheep. The Water District will maintain all project fencing. Native vegetation which will not require long-term irrigation will be planted to improve aesthetics on the downstream face of the debris basin embankment where overhead for the service roads permits it.

15. Disposal of debris from the basin during maintenance activities conducted by the Coachella Valley District will comply with applicable Federal regulations, especially those concerned with the protection of significant plant and animal species.

consideration of the Government commencing construction of such Project, fulfill the requirements of non-federal cooperation specified in applicable law, to wit:

- a. Provide without cost to the United States all lands, easements, and rights-of-way, including suitable borrow and spoil disposal areas, necessary for construction of the project.
- b. Contribute a cash contribution for all funds in excess of Federal limitations expressed in Section 205 of the Flood Control Act (PL 80-858) and its amendments or for funds required by special cost sharing due to windfall benefits, whichever is greater.
- c. As made necessary by construction, accomplish, without cost to the United States, all alterations and relocations of buildings, transportation facilities, storm drains, utilities, and other structures and improvements. This provision excludes railroad bridges and approaches, and facilities necessary for the normal interception and disposal of local interior drainage at the time of protection.
- d. Maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army.
- e. Prescribe and enforce regulations to prevent obstruction or encroachment on flood control works which would reduce their flood-carrying capacity of hinder maintenance and operation, and control development in the project area to prevent an undue increase in the flood control damage potential.

A-6

- f. Comply with requirements of the Uniform Relocation Assistance and Real Estate Acquisition Policies Act of 1970, Public Law 91-646.
- g. Publicize flood plain information in the areas concerned and provide this information to zoning and other regulatory agencies for their guidance and leadership in preventing unwise future development in the flood plain.
- h. Hold and save the United States free from water rights claims caused by the construction and operation of the project.
- i. Hold and save the United States free from damages due to the construction, operation, and maintenance of the project, excluding damages due to the fault or negligence of the United States or its contractors.
- j. Maintain and operate all project-related works (including the 20-acre mitigation area) in accordance with the terms of the mitigation agreement as described in the EIS.
- k. The District hereby gives the Government a right to enter upon, at reasonable times and in a reasonable manner, lands which the District owns or controls, for access to the Project for the purpose of inspection, and for the purpose of repairing and maintaining the Project, if such inspection shows that the District for any reason is failing to repair and maintain the Project in accordance with the assurances hereunder and has persisted in such failure after a reasonable notice in writing by the Government delivered to the District official. No repair or maintenance by the Government in such event

A-7



ESTABLISHED IN 1925 BY PUBLIC ACT 1925-1

COACHELLA VALLEY WATER DISTRICT

COACHELLA, CALIFORNIA 92236
(619) 335-1111
FAX: (619) 335-1112
TELETYPE: (619) 335-1113
CABLE: COACHELLA
INTERNET: WWW.COACHELLAVALLEYWATERDISTRICT.COM

COACHELLA VALLEY WATER DISTRICT
1000 WEST MAGNOLIA
LOS ANGELES, CALIFORNIA 90053

Carl F. Eason
Chief, Planning Division
Corps of Engineers
Post Office Box 2711
Los Angeles, California 90053

Dear Mr. Eason:

Subject: West Magnolia Springs Canyon Channel
Flood Control Project SP-20-WA

We have reviewed the Draft "Section 211" Agreement, acknowledge the requirements except as noted below and are willing and able to sign the final contract prior to construction.

Paragraph 1.1. of the Draft "Section 211" Agreement makes reference to "the mitigation agreement as described in the EIS."

Corps and VWD personnel met on October 4, 1981, to discuss the terms of that mitigation agreement. We are optimistic that mutually acceptable terms can be agreed to.

Yours very truly,

Richard H. Hensworth
Richard H. Hensworth
Lowell O. Weeks
Federal Manager-Chief Engineer

WHL:dib

cc: City of Rancho Mirage
89-825 Highway 111
Rancho Mirage, California 92270

TRUE CONSERVATION
USE WATER WISELY

shall operate to relieve the District of responsibility to meet its obligations as set forth in Paragraph 1 of this Agreement, or to preclude the Government from pursuing any other remedy, by law or equity.

1. Operate and maintain environmental mitigation features as described in the Mitigation Agreement for West Magnolia Canyon Channel.

a. This agreement is subject to the approval of the Chief of Engineers, U.S. Army.

In WITNESS WHEREOF, the parties hereto have executed this contract as of the day and year first above written.

APPROVED AS REQUIRED UNDER SECTION

221 OF PUBLIC LAW 91-611, AS TO

FORM AND AS TO LEGAL SUFFICIENCY:

By: President, Board of Directors

DATE: _____

ATTEST:

By: Secretary, Board of Directors

DATE: _____

THE UNITED STATES

By: Colonel, Corps of Engineers
District Commander
Contracting Officer

DATE: _____

APPROVED:

FOR THE CHIEF OF ENGINEERS

Mitigation Package for the Recommended West Magnesia Canyon
Channel Project, Rancho Mirage, Riverside County, California

The following points have been developed by the Corps of Engineers in coordination with the Coachella Valley Water District, the City of Rancho Mirage, the U.S. Fish and Wildlife Service, the California Department of Fish and Game and other concerned agencies and public during the planning process for the recommended Corps project. This mitigation is binding only in the event that the Corps of Engineers funds the construction of the West Magnesia Canyon Channel Project. Any of these mitigation features carried out prior to the construction of this project are understood by all parties to mitigate the impacts of this project.

1. A mitigation area of at not less than 20 acres of alluvial cone will be provided between the toe of the mountains along the east side of the cone and the East Magnesia levee proposed by the Coachella Valley Water District as shown on Plate EIS-4. Wildlife habitat values of the mitigation area will be preserved and enhanced. The area will function as the East Magnesia Stormwater Channel.
2. During construction of the East Magnesia levee by the Coachella Valley Water District, disturbance of vegetation in the 20-acre mitigation area should be avoided. Any unavoidable disturbance of the vegetation of this area during construction of the levee will be repaired by the Corps of Engineers as a project cost during its construction activities on the West Magnesia Canyon Channel Project if the vegetation has failed to reestablish on its own. Repair efforts will entail revegetation with native plant species that provide high wildlife habitat values (such as palo verde, mesquite and belderrhine). At that time, the Corps will also enhance the existing wildlife habitat values with limited planting of native species beyond that required for revegetation of areas disturbed during construction of the levee. Irrigation of the mitigation area by a Corps contractor will continue for up to 2 years to help ensure success of these efforts.

The appropriate numbers and size of plants to be used, planting design and techniques, and irrigation methods and duration (up to 2 years) will be examined by desert plant expert(s) during the Corps' development of plans and specifications for this project. The study will address revegetation of disturbed areas within the mitigation area and some enhancement planting and will emphasize identification of technically appropriate and cost-effective planting and irrigation methods and planting to provide for future development of a high-quality, self-sustaining wildlife habitat area. The final plan will be developed by the Corps of Engineers and coordinated with the Coachella Valley Water District and the U.S. Fish and Wildlife Service.

3. Enhancement of wildlife values of the mitigation area is also expected to result from the increased availability of water that would be provided by the levee and by two pipes that would extend from the debris basin to the mitigation area and would be designed to deliver a maximum rate of flow of 50

October 27, 1961

SPC-4

Mr. Lowell G. Webb
General Manager
Coachella Valley Water District
P.O. Box 1074
Coachella, California 92234

Dear Mr. Webb:

As a result of the meeting on October 6, 1961 we have made several changes to the mitigation package for the recommended plan for the West Magnesia Canyon Channel, a copy of which is enclosed. I believe we now have a mutually acceptable document and will include the description in the detailed Project Report and Environmental Impact Statement as a part of the overall Project description. As such, we will no longer refer to the mitigation package as an Agreement. Also enclosed you will find the text of Section 2 of the 1961 Flood Control Act (as amended), and a description of our working responsibilities for local sponsors you have requested. We are now making final preparations for the completion of the West Magnesia Detailed Project Report and Environmental Impact Statement and will be submitting the report to our Division in the very near future.

Sincerely,

Carl P. Faxon
Chief, Planning Division

Enclosures

10011

9. The Corps will enhance water sources for bighorn sheep in the vicinity of Magnesia Spring Canyon concurrently with the first item of construction of the West Magnesia Canyon Channel Project. Fifteen thousand dollars (\$15,000) will be available for this purpose. The design and placement of the enhanced water source will be determined by the Corps of Engineers in cooperation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game. Any maintenance of the water source will be the responsibility of the California Department of Fish and Game.
10. Potential construction-induced noise disturbance of school activities at the Rancho Miraga Elementary School and of residents living near the west channel alignment will be reduced by avoiding construction activities adjacent to the school during school hours, to the maximum extent reasonable.
11. Access to the Magnesia Springs State Ecological Reserve for bighorn sheep will be provided by the Coachella Valley Water District to representatives of the California Department of Fish and Game and to the public. Vehicle access from the vicinity of the Rancho Miraga Elementary School to the recommended debris basin embankment will be provided via the channel service road to the representatives of the California Department of Fish and Game and to the public under the Department's direct supervision. A turnaround and parking area for several cars will be provided by the Corps of Engineers near the embankment. Foot access will be available to the public along the channel service road (vehicle parking will be available along a public road contiguous to the service road in the vicinity of the Rancho Miraga Elementary School and as a path proposed to be developed by the City of Rancho Miraga adjacent to the school) and across the embankment, debris basin, and upper wash to the mouth of the canyon. Failure of public access to the reserve (by losing gates provided as part of project fencing) during the dry summer months will be the responsibility of the California Department of Fish and Game.
12. Provision of an alternate access road to that discussed in point 11 may be more compatible with future development and may be acceptable if equivalent features are provided. These include provision of: (a) access by road and vehicle between the upstream end of the existing development and the debris basin embankment service road; (b) parking areas at both ends of the roadway, and (c) effective means to limit access, such as gates and fencing or other more appropriate means.
13. Land on the alluvial cone upstream from the debris basin embankment will be placed under the control of the State of California by means of a wildlife easement provided by the Coachella Valley Water District. The wildlife easement will limit the use of these lands to purposes of flood control, wildlife management, and access to the ecological reserve. The terms of the wildlife easement will be agreed upon by the California Department of Fish and Game and the Coachella Valley Water District and signed prior to initiation of the Corps construction. The easement will be finalized once the water district has obtained fee title to these lands. The Coachella Valley Water District shall maintain the presence of California Department of Fish and Game and Forest officers and other local law enforcement authorities upstream of the debris basin embankment.

cubic feet per second during periods of maximum runoff. The Coachella Valley Water District will maintain the pipes from the debris basin to the mitigation area so that they function to provide additional water to the mitigation area as designed. The pipe gates will be closed only during maintenance of the pipes.

4. Material for the East Magnesia levee may be taken from the terrace area west of the excavation rather than from other portions of the mitigation area. Approximately 2.5 acres will be excavated to the level of the adjacent alluvial cone in order to provide the 20 mitigation acres. Excess rock and man-made debris will not be left on the excavated area or on any other part of the mitigation area. The excavated area will be graded so that runoff over the mitigation area will flow in a reasonably uniform manner.
5. Any necessary maintenance of the East Magnesia Stormwater Channel by the Water District will minimize disturbance of vegetation, especially clumps of woody vegetation within the mitigation area, to the maximum extent practicable.
6. The Coachella Valley Water District will place one or more gates across the East Magnesia lower access road wherever necessary to restrict unauthorized vehicle access to the mitigation area that will be developed within the East Magnesia Stormwater Channel. No trespassing signs designating the area as protected wildlife habitat will be posted every 200 feet along the top of the East Magnesia levee by the Corps of Engineers during construction of the East Magnesia Stormwater Channel Project. The Coachella Valley Water District will not object to the presence of California Department of Fish and Game and Forest officers and other local law enforcement authorities on the levee or within the East Magnesia Stormwater Channel seeking to remove trespassers.
7. Buffers will be provided on both sides of the mitigation area to help protect wildlife values. These buffers between the mitigation area and any future development on the slopes and alluvial cone which will be required by the City of Rancho Miraga will consist of a 300-foot-wide strip of open space along the slopes east of the mitigation area and a 50-foot-wide strip of open space on the alluvial cone west of the levee. Both buffers are indicated in the accompanying map. Any development occurring in the slopes above the 20-acre mitigation area and 50-foot wide buffer during the life of the project must ensure no significant impacts on the mitigation area and no significant net impacts on bighorn sheep. Appropriate vegetation for the 300-foot wide buffer ranges from native plant species to turf grass. Pasture, parking lots, and yards with side-lot-line fences are not suitable land uses in this buffer strip.
8. Potential adverse impacts to bighorn sheep by this project will be avoided to the maximum extent practicable and otherwise minimized. Construction of the debris basin, embankment, and the upstream 100 feet of the west wash area channel and spillway by the Corps of Engineers and maintenance of these facilities by the water district will, to the maximum extent practicable, be timed to avoid the critical dry period for bighorn sheep from 15 June through 30 September.

14. The Corps of Engineers will provide fencing on both sides of the water channel and along the downstream toe of the debris basin embankment in accordance with Corps regulations, safety requirements, and environmental concerns. Fencing on the west side of the channel will be of a type that is unlikely to catch the hooves of bighorn sheep. The water district will maintain all project fencing. Native vegetation which will not require long-term irrigation will be planted to improve aesthetics on the downstream face of the debris basin embankment where overbuild for the active road permits it.

15. Disposal of debris from the basin during maintenance activities conducted by the Garfield Valley District will comply with applicable Federal regulations, especially those concerned with the protection of significant plant and animal species.

27 June 1980

MEMORANDUM FOR FILED

SUBJECT: Meeting on Rancho Mirage Flood Control, June 1980, 1980.

1. An "agency" meeting on the subject project was held on 16 June 1980. A list of meeting attendees is attached.
2. Subsequent to the agency meeting, a public workshop was held, also, on June 16. The major points discussed at these meetings are summarized below:
 - a. Alternative 2 (debris basin and trapezoidal channel) was presented by Ben Douglas as the favored alternative at both meetings. He said Alternative 3 (channel side) would probably not work, but that further hydraulic (sedimentation) study would determine this.
 - b. At both meetings, I responded at an appropriate time that Alternative 3 was the least environmentally damaging, and would be a better choice if proven engineeringly feasible.
 - c. The public attending the workshop, Garfield Valley Water District, Cal PWS, and others, the U.S. Fish and Wildlife Service, the City of Rancho Mirage, and the Corps Environmental Planning Section all favored Alternative 3. It is proven engineeringly feasible.
 - d. A primary reason for favoring Alternative 3 is so that maintenance activities (debris removal) will occur near the Whitewater River, rather than near the Canyon mouth where Big Horn Sheep may be adversely affected. WWD also indicated that maintenance would be easier at the Whitewater because of easier access.
 - e. As an alternative to the channel only plan, the levy of WWD suggested considering doubling the capacity of the debris basin to avoid summer maintenance after just one large storm event.
 - f. The costs for all alternatives rose dramatically between March, 1980 and the meetings in June. The cost differential between Alternative 2 (\$1.7 million) and Alternative 3 (\$4.5 million) is accounted for by bridge replacement or relocation under Alternative 3.
 - g. At the workshop, Ben Douglas remarks that the Corps and WWD were overly concerned with environmental issues, and that the Corps required flood protection.

AD-A150 016

WEST MAGNESA CANYON CHANNEL CITY OF RANCHO MIRAGE
RIVERSIDE COUNTY CALIF. (U) ARMY ENGINEER DISTRICT LOS
ANGELES CA DEC 83

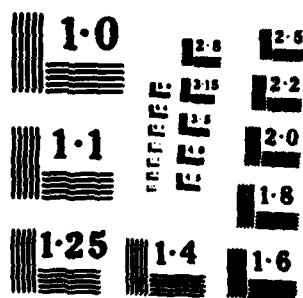
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SPLEB-27

27 June 1981
SUBJECT: Meeting on Rancho Mirage Flood Control, June 16-17, 1980

- h. Both USFWS and CPC proposed a buffer (no development) between the reserve and future development on the upper cone.
- i. CPC wants to acquire the sandy wash that abuts the ecological reserve.
- j. The City Manager, Dave Dimes, indicated that the development in the upper cone would have a density of 2-3 units per acre and 50% open space.
- k. The BLM Habitat Management Plan for the Santa Rosa Mountains includes Magnesia Spring Canyon.
- l. There are reptons in Magnesia Spring Canyon.

My P. Ryzan
Dick Zumbel
Civil Engineer
Environmental Planning Section

[Signature]
Richard Schum
Geographer
Environmental Planning Section

SPLEB-27

2 September 1981

MEMORANDUM FOR RECORD
SUBJECT: Rancho Mirage Mitigation

On 26 August 1981 a meeting was held at the USFWS office in Laguna Niguel to discuss Bill Van Pester's mitigation proposal. In attendance were:

Ralph Plampin, USFWS Field Supervisor
Dick Zumbel, USFWS Biologist
Tom Pauluk, Cal F&C Biologist
Chris Kronick, Corps Project Manager
Bill Van Pesters, Corps Biologist
Kathy Kunyas, Corps Geographer

Bill's mitigation concept had been previously presented to Tom Pauluk and Dick Zumbel via the telephone. Since then it had been discussed and refined in a 21 August meeting with the City of Rancho Mirage and the Coachella Valley Water District.

The 26 August meeting of the Corps and wildlife agencies covered the following points:

- a. USFWS would like to see fencing on both sides of the concrete channel. Cyclone fencing would be provided along the development side of the channel to keep people out. Appropriate fencing or cabling should be provided on the opposite side prevent big game from falling into the channel. Standard chain link fencing may trap sheep hooves.
- b. Disposal of debris from the basin (from both construction and maintenance activities) should avoid fringe-toed lizard habitat.
- c. Mitigation for the project should include more than just the enhanced 20 acres along the east side of the cone in order to gain concurrence from USFWS and Cal F&C. Other features of the mitigation package are covered in the following points.
- d. Improve Magnesia Spring for the Bighorn sheep and provide guzzler(s) for their use elsewhere in the area. Improvement of the existing spring takes priority since its use has been documented and guzzlers may not be used.
- e. Levee construction by the Water District should not destroy existing vegetation within the 20-acre mitigation area. Material for the levee should not be obtained from within the channel buffer area.
- f. Insure that development does not occur within a hillside area on the

2 September 1981

SPLD-17
SUBJECT: Rancho Mirage Mitigation

east side of the canal. The prohibition should be for the life of the project and should not be solely dependent upon the city's zoning.

g. USFWS likes the idea of requiring the developer to irrigate the 20-acre mitigation area as well as the green belt along the opposite side of the levee.

h. Cal Fish and Game is primarily concerned with:

- providing access to the Santa Rosa Mountains Preserve.

- controlling the canal area upstream of the debris basin. This area has higher priority with Cal F&G than the 20-acre mitigation area.

i. Cal F&G also wants a written agreement with the Water District regarding the timing of debris basin maintenance.

Kathy Kung
KATHY KUNGS
Environmental Planning

SPLD-17

21 September 1981

MEMORANDUM FOR RECORD

SUBJECT: Cultural Resources Memorandum for the Proposed Rancho Mirage Flood Control Project

1. On 15 September 1981, Steve Schwartz and I conducted an on-site intensive survey of the debris disposal site for the proposed Rancho Mirage Flood Control Project. The purpose of the survey was to locate and record any encountered archaeological sites. A previous archaeological report conducted for the District under contract indicated that no previously recorded cultural resources were located within or adjacent to the area of the proposed debris disposal site.

2. Since the disposal site had no previous on-site survey, the entire ten (10) acre area was systematically surveyed. The entire area was walked in a "zig-zag" pattern from the northwest periphery to the southeast corner of the site. No cultural resources were encountered. The area contained extensive disturbance due to vehicle use and construction activity to adjacent properties. The southeast corner of the disposal site presently contains a fenced construction staging area which houses several tractors and trucks. This area also contained no cultural resources.

3. A cultural resources study for the Rancho Mirage Flood Control Project was completed under contract in November 1980. The study revealed that eight (8) archaeological sites were located within the sphere of influence of the proposed flood control project. Two of these sites have since been destroyed and no longer exist: Riv-1321 and Riv-1323.

4. Upon receiving updated technical drawings of the proposed project, it was learned that the remaining six archaeological sites are all located at elevations that are well above the area of impact in Magnesia Spring Canyon.

5. The following is an inventory of the recorded sites:

Riv - 1320

This site is located .2 miles south of Highway 111 on the west terrace above west Magnesia Canyon flood control channel. The site is situated at the base of the hill at the 315' contour elevation. It is thus above the area of impact. No action is required.

Riv - 1321

Site destroyed. No action required.

SPUD-27 21 September 1981
SUBJECT: Cultural Resources Memorandum for the Proposed Rancho Mirage
Flood Control Project

Riv - 1322

This site is situated 1 mile south of Highway 111 on the west side of the west Magnesia Canyon channel located within the drainage of a side-canyon. The site is located on the 400' contour elevation and is thus well outside the area of impact. No action required.

Riv - 1323

Site destroyed. No action required.

Riv - 1324

This site is located approx. 1/3 mile below Magnesia Spring. The site is situated on the 500' contour elevation. The site is well above the area of impact thus no further action is required.

Riv - 65

This site is out of the project area and will not be subject to impacts.

Riv - 2003 (AMMC-1)

This site is a segment of an aboriginal trail located on an alluvial terrace directly west of Magnesia Canyon flood control channel. This site is situated on the 400' contour elevation and thus above the area of impact. No further action is required.

Riv - 2004 (AMMC-2)

This site is located on the west side of Magnesia Canyon just above the channel floor 1/2 mile north of Magnesia Spring. The site is on the 500' contour elevation and is thus above the area of impact. No action required.

Impacts

A single isolated granite metate fragment was located in the wash a short distance from site Riv - 2004. This artifact is not associated with any site, since it is obvious that it has washed down from up stream. The site report does not give an exact location for it. The metate should be relocated and recovered since the tent and map in the report indicate that it may be in the area of impact. This task will be accomplished in-house during the upcoming fiscal year. Should the artifact be relocated, it will be housed at the University of California, Riverside Archaeological Survey.

6. Although it appears that all the recorded sites are situated well above the project area of impact, extreme caution should be taken to avoid the

SPUD-27 21 September 1981
SUBJECT: Cultural Resources Memorandum for the Proposed Rancho Mirage
Flood Control Project

sites in planning access roads, haul roads, staging areas and other project related construction activities. No sites that are eligible for, or included in, the National Register of Historic Places are present in the project area at this point in time. Upon completion of the project, caution should be taken to avoid disturbance of the recorded sites in the operation and maintenance of the facility. Although field survey indicated that no cultural resources were encountered in the debris disposal site and the generally undisturbed cultural resources, should any cultural resources be encountered during construction activity, the District Archaeological staff should be notified and construction activity should cease to allow for proper evaluation and treatment of the resource in question.

7. The cultural resources report mentioned above entitled "A Cultural Resources Reconnaissance for the Rancho Mirage Flood Control Project Riverside County, California" and all in-house work is currently being coordinated with the State Historic Preservation Office (see attached).

PICH MACIAS
Archaeologist
Environmental Planning Section

SPLEU-UP

16 November 1981

MEMORANDUM FOR RECORD

SUBJECT: Meeting with Rancho Mirage Properties Representative

1. On 10 November 1981 a meeting was held to inform Don Appel, the representative for Rancho Mirage Properties, of the engineering and environmental mitigation factors under discussion that may affect his client's land holdings on the Magnolia Spring Creek alluvial cone and surrounding slopes. The L.A. District was represented by Chris Kronick, Project Manager, and Bill Van Pelters and Kathy Ramsey of the Environmental Planning Section.
2. Mr. Appel was shown maps detailing the location and size of the proposed project features, of the mitigation plan proposed by the USFWS in the draft Coordination Act Report, and of the mitigation plan proposed by the Corps of Engineers. A copy of the 5 November 1981 memo which lists the latest version of the features of the Corps' proposed mitigation package was given to Mr. Appel for his review and comment.

3. The issues raised by Mr. Appel include the following:

- a. Loss of 20 acres of developable land on the cone to mitigation is excessive. He would prefer that wildlife losses be made up on the slopes.
- b. The provision of a 50-to-100-foot-wide Greenbelt along the water district's proposed levee on the east side of the cone may be unacceptable. A greenbelt may prevent the development of units along the east side of a road that would follow the outer limit of the cone. In addition, Mr. Appel felt it unfair that the developer be asked to set aside a strip of the property and then be required to maintain it.
- c. Access to the channel road should be limited to foot traffic and authorized vehicles. Mr. Appel is concerned that such a roadway could create a nuisance by providing a racetrack for motorcycles and parking for campers.
- d. The channel design and alignment should allow for alignment of an 80-foot-wide private road alongside the channel and construction of a bridge crossing over the channel for the road. The City of Rancho Mirage has required the developer to provide adequate access to the upper cone without utilizing existing residential streets.

Kathleen Kumpfy

KATHLEEN KUMPFY
Geographer
Environmental Planning Section

RANCHO MIRADE QUADRANGLE
CALIFORNIA-RIVERSIDE CO
7.5 MINUTE SERIES (TOPOGRAPHIC)
NO. 100-111
116-22-20
116-22-45

RN A
RESOURCES



SPLEB-EP

16 November 1981

SUBJECT: Meeting with the Coachella Valley Water District Regarding Mitigation for the Proposed Rancho Mirage Project

MEMORANDUM FOR RECORD

1. A meeting was held on 9 November 1981 to discuss the Coachella Valley Water District's withdrawal of support for the Corps' proposed mitigation package in an October 1981 letter.
2. In attendance were Lowell Weeks, Keith Almsworth, and Dave Parkinson of the Coachella Valley Water District; and Norman Arno, Ted Ouchi, Chris Kronich, Ron Enloe, Bill Van Pelters, Ira Arts, and Kathy Kuryasz of the Los Angeles District Corps of Engineers.
3. Mr. Weeks, General Manager of the Water District, explained the Water District's three objections to the Corps' proposed mitigation plan detailed in by 5 November 1981 memorandum.
 - a. The first objection deals with item 11 of the 5 November 1981 memo. The memo suggests that the Water District contact the US Fish and Wildlife Service to ensure that debris disposal sites do not impact the endangered fringe-toed lizard. Mr. Weeks stated that the fringe-toed lizard is not found in the Rancho Mirage area. In addition, in future years the status of the lizard or the Endangered Species Act may change. The mitigation package should, therefore, not specify that debris disposed of during maintenance activities avoid the sand dune habitat of the endangered fringe-toed lizard. Rather, the statement should allow for changes in circumstances and state that the Coachella Valley Water District will comply with the applicable Federal regulations.
 - b. Mr. Weeks' second objection addresses the issue of fencing presented in item 9 of the memo. The memo states that the Corps will provide wire mesh fencing along the easterly side of the proposed channel to ensure public safety. Fencing appropriate for use in higher sheep terrain may be provided by the Corps along the westerly side of the proposed channel to prevent higher mortality. Mr. Weeks stated that the Water District's experience is that fencing in the desert is frequently vandalized and stolen. As a result, the Water District has adopted a policy of not providing fencing alongside their channels. In addition, Mr. Weeks noted that kid mortality among the higher sheep during the last three years has been virtually complete. The provision of fencing for the safety of higher sheep may be pointless. The Water District would prefer that the Corps not provide fencing of the channel. Mr. Arno assured him that the Corps of Engineers will look

SPLEB-EP
SUBJECT:

Meeting with the Coachella Valley Water District Regarding Mitigation for the Proposed Rancho Mirage Project

16 November 1981

critically at its fencing requirements for public safety and at the US Fish and Wildlife Service emphasis on fencing.

- c. The third objection brought up by Mr. Weeks addresses item 1 of the 5 November memo. Item 1 proposes that 20 acres be preserved and enhanced between the toe of the mountain and the Water District's proposed levee on the east side of the cone. Mr. Weeks feels that mitigation consisting of 20 acres of developable land is excessive and creates an unnecessary loss of tax base from which the Water District may draw upon to pay for flood control facilities. It was explained that the city of Rancho Mirage had agreed that there would be no reduction in the number of units that could be developed on the cone. The Corps agreed to determine the adequacy of replacing some of the 20 mitigation acres on cone with others on the slopes above the cone.

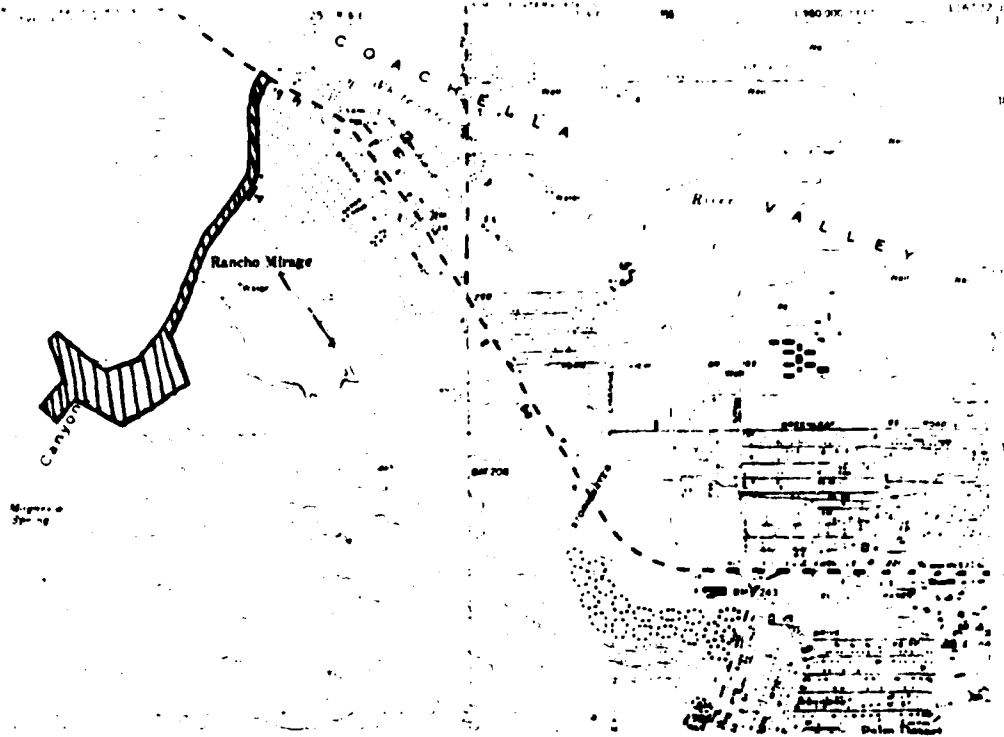
Kathleen Kuryasz

KATHLEEN KURYASZ
Geographer
Environmental Planning

CALIFORNIA
CULTURAL RESOURCES

ARM SURVEY
IN HOUSE SURVEY

RANCHO MIRAGE QUADRANGLE
CALIFORNIA-RIVERSIDE CO
7.5 MINUTE SERIES (TOPOGRAPHIC)
U.S. GEOLOGICAL SURVEY



2 June 1962

SPL-10-17

MEMORANDUM FOR RECORD

SUBJECT: Rancho Mirage Cultural Resources Survey

1. On 4 May 1962 a cultural resources survey was conducted adjacent to the District proposed Rancho Mirage flood control channel in Rancho Mirage, California. The survey was conducted by District archeologists, Rich Macias, and Helen Wells. The area surveyed consisted of the entire alluvial fan located at the mouth of Negasia Spring Canyon extending northeast to the southeast limits of the City of Rancho Mirage.
2. The cultural resources survey which was conducted by Archeological Resource Management Corporation (ARM) was limited to the proposed channel improvement and debris basin. As the District proposed project will ultimately result in indirect adverse impacts (as a result of development) to this specific area, the in-house survey was warranted.
3. The entire area of the alluvial fan was covered on foot. This generally consisted of walking a zig-zag pattern from the proposed channel boundaries on the western side of the fan (the entire length) to the southeast boundaries of the fan where it joins the hills on the south. The archeologists were spaced about ten meters apart. The area indicated on the attached map was covered 100 percent.
4. No cultural resources were located during this survey. The survey area was very badly disturbed as a result of past flooding and extensive vehicle use. The area also contained many dump sites. Therefore, within the limits of the alluvial fan (not including areas surveyed by ARM) the proposed project will have no effect on cultural resources and National Register quality sites.
5. A more detailed analysis of the study area can be found in the report prepared by ARM entitled "A Cultural Resources Reconnaissance for the Rancho Mirage Flood Control Project, Riverside, California," November 1960. Photos taken during the survey are available in Planning Section files.

RICH MACIAS & HELEN WELLS
Environmental Planning Section

SPLPD-KP

3 June 1982

MEMORANDUM FOR RECORD

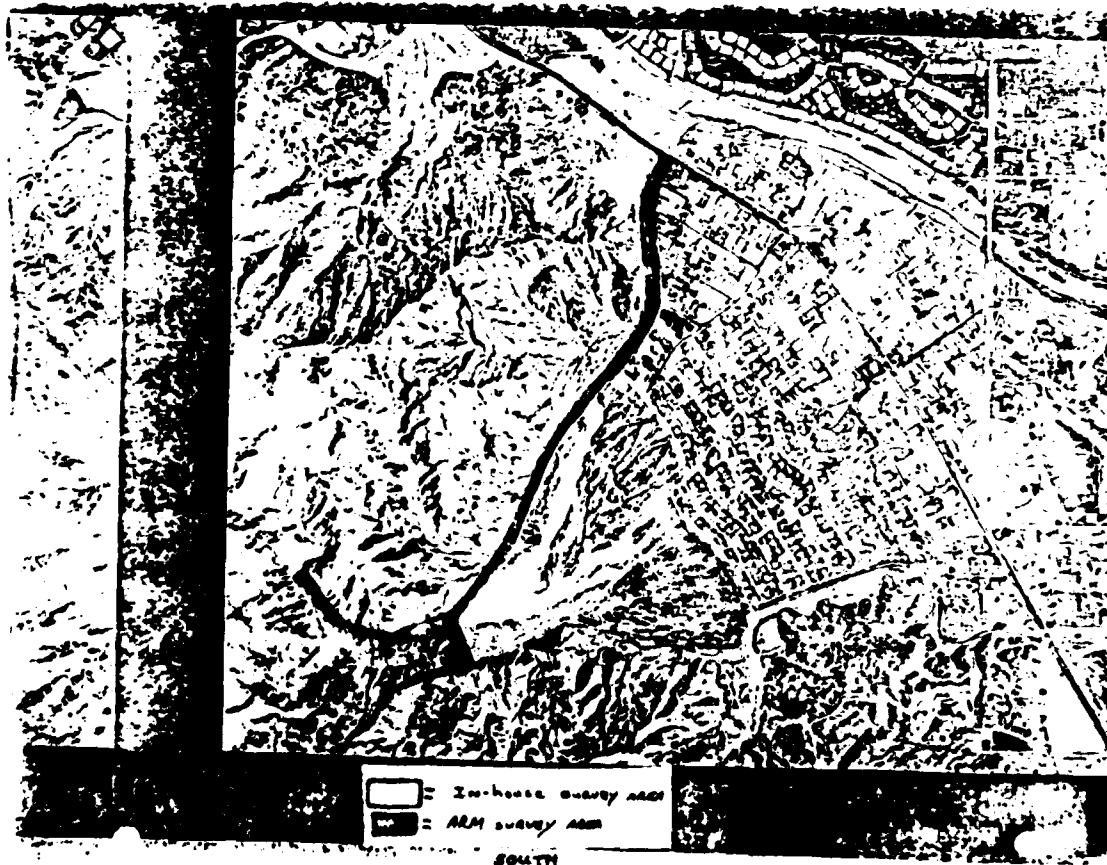
SUBJECT: Environmental Survey of Debris Disposal Sites for Rancho Mirage

1. On 26 Friday 1982 Rich Macias and Kathy Kuyasz surveyed the 165-acre debris disposal site identified in a 17 May 1982 letter to the Corps from the Coachella Valley Water District. The site would be utilized by the water district to dispose of debris removed from the debris basin on West Magnolia Creek, Rancho Mirage. Two other sites are also mentioned in the 17 May letter: future development sites in Rancho Mirage and Palm Desert that require fill and a small park site in Rancho Mirage adjacent to the Whitewater River that has already been surveyed for cultural resources by Rich Macias and Steve Schwartz. (No sites were found.)

2. The 165-acre site is located in Palm Desert at the intersection of Cook Street and the Whitewater River. This site is divided into two parts (A&B) for purposes of discussion. Part 'A' consists of a thin strip between the Whitewater river channel and a housing tract. It appears that the soil, a fine silty sand, was pushed up to form the levee along this stretch of the river. The gully formed in this manner has been partially filled with broken asphalt.

3. The wildlife habitat values of part 'A' are low. The vegetation is dominated by Russian Thistle (*Salsola iberica*) but Fourwing saltbush (*Atriplex canescens*) is also present. No cultural sites were observed. Placement of fill from the debris basin may improve aesthetic by filling the gully created during construction of the levee and covering the broken asphalt paving.

Part 'B' consists of a waste water treatment facility operated by the Coachella Valley Water District. The entire site was fenced and a portion of it had tamrins lining the fence. There is one unmanned gate on Cook Street. Rich and I determined that we would not be able to get in, so we walked around the entire site. A portion of Part B consists of a building, a few roads, and lawns. The waste water treatment facilities were not observed but may have been located in the building. Earth-moving tractors were seen at what appeared to be percolation ponds in the southeast corner of the site. The northern portion of Part 'B' is used strictly for spraying effluent from the treatment plant. The area was fine sandy soil that was probably graded level. A network of small ditches covered this area. Small pipes appeared just into the air and salt-type soil was also distributed effluent over the area. An opportunity was taken to look at the area along the pipeline. It also appeared that the area beneath was a lined impervious south-southwest tetrachloroethylene pipeline. The area was filled with concrete



SPLP-47
SUBJECT: Environmental Survey of Debris Disposal Sites for Rancho Mirage
3 June 1982
beaches. Part of the site was 10 to 15 feet higher than the surrounding topography suggesting that some filling may have already taken place. Due to the disturbed nature of this site, the wildlife habitat values are low and the likelihood of finding any cultural resources is very slim. Placement of debris on this spreading ground would not affect percolation adversely since the debris would consist of coarse sand, cobbles, and boulders. It may, however, create some problems for the placement of the pipe network.

KATHY KUNYSE
Geographer

SPLD-BP
 SUBJECT: Location of 20-Acre Mitigation Area for the Rancho Mirage Flood Control Project

SPLD-BP
 SUBJECT: Location of 20-Acre Mitigation Area for the Rancho Mirage Flood Control Project

alluvial cone where the property is less valuable to a potential developer. Not all the acreage would be shifted upstream, however, because the levee must tie into an existing flood control channel adjacent to existing development on the east side of the cone. The proposed shift would substantially narrow the alluvial reach of the mitigation area and divide the majority of the mitigation acreage between the upper and lower ends of the undeveloped cone. This configuration forms two small parcels that are functionally isolated from one another. The value of the 20 acres as wildlife habitat is less in this configuration than if the 20 acres functioned as a whole. In our mitigation package presented in the DEIS, we have proposed to enhance the wildlife habitat values of the 20-acre mitigation area. This enhanced area would be capable of supporting a larger wildlife population and, in that sense, would be equivalent to a larger portion of the alluvial cone. The effect of the water district's proposal is to reduce rather than enhance the wildlife values of the 20-acre mitigation area.

7. The attached plate roughly delineates the mountain toe and our proposed configuration of the mitigation area as it appeared in the DEIS. It also shows the water district's proposed shifting of the mitigation area. A topography map that delineates these areas more precisely is in the Environmental Planning Section's files.

8. The field observations of 19 March pointed out that in the eastern side of the alluvial cone the density of vegetation is not as great as the upper end as it is at the middle and lower reaches. In addition, the density of vegetation species of greatest value to wildlife (leguminous species such as mesquite, mesquite tree, tidigo bush, and acacia) is also greater in the middle and lower reaches.

9. The combination of configuration difficulties and the presence of more significant wildlife habitat in the middle and lower reaches of the undeveloped alluvial cone lead to the conclusion that the proposed shifting of the 20-acre mitigation area would have a significant adverse impact on the project mitigation package. This alteration of the proposed mitigation plan would require supplemental coordination with concerned Federal, State, and local agencies and the public. Preparation of a supplemental draft environmental impact statement would be required if coordination reinforces our conclusion that such a change would be significant.

W. A. V. 10/10/83
 WATKINS
 Environmental Consultant
 10/10/83
 Biologist

Page: 1
 Date: 10/10/83
 Name: W. A. V.
 Address: 10/10/83

W. A. V. 10/10/83
 SUBJECT: Location of 20-Acre Mitigation Area for the Rancho Mirage Flood Control Project

1. On 19 March 1983, Chris and I (project manager, Bill Van Pelt, biologist), and Walter Kuntz (environmental consultant, met with Bob Naylor of the Coachella Valley Water District at the project site to discuss details of locating the mitigation area. The 20-acre mitigation area is proposed to be sandwiched between the toe of the mountain on the east side of the cone and the levee proposed to be built by the water district. The water district is anxious to begin construction of the east levee and desires resolution of levee alignment issues.

2. On 19 March the area along the east side of the cone was visited. This where our delineation of the mountain toe on the topography map and to evaluate the significance of the water district's proposal to shift more of the mitigation area to the upper part of the cone.

3. Delineation of the mountain toe considered our stated goal of enhancing wildlife values on 20 acres of alluvial cone by concentrating runoff and reducing the limiting effect of water in this arid environment (see 1 August 1982 and December 1982 DEIS, paragraph 12.2). Mitigation and plateau areas that presently support scant vegetation and that could not benefit from the runoff-concentrating effects of the proposed levee were not included as part of the alluvial cone.

4. In addition, the vegetation of the plateau areas is more similar to that of the rocky hillside than to that of the alluvial cone (see paragraph 12.2, 3.09 of the December 1982 DEIS). Preservation and enhancement of wildlife habitat on the 20 acres is designed to mitigate the loss of wildlife habitat provided by alluvial cone vegetation. Preservation of habitat on the rocky hillside and plateau would not meet this goal.

5. A small area at the downstream end of the undeveloped cone has been included as part of the cone and hence as part of the proposed mitigation area although it is set off from the remainder of the cone by a thin strip of high ground. This area is characterized by a mass of small drainage courses, supports extensive vegetation, and is of considerable value to wildlife.

6. In response to a request by the Coachella Valley Water District, the Corps has evaluated the effect of altering the configuration of the proposed mitigation area. Specifically, the water district has suggested that some of the mitigation acreage be shifted to the narrower, upstream portion of the

SPLPD-RP

5 August 1983

MEMORANDUM FOR RECORD

SUBJECT: West Nagavella Canyon Channel Project: Coordination with USFWS
Regarding Planting of the Mitigation Area

1. On Tuesday, 2 August 1983, Chris Kronick and I met with Dick Zembal of the U.S. Fish and Wildlife Service Laguna Miguel Field Office to discuss details of revegetation. Dick did not voice any strong demands for minimum planting efforts. He had some good suggestions but admitted to having very little expertise with regard to desert revegetation and how it should be done. His suggestions are as follows:

a. Plant species to be emphasized:

1. Palo Verde Cercidium floridum
2. Mesquite Prosopis juliflora
3. Mesquite Prosopis glandulosa, Prosopis pubescens
4. Cat claw Acacia greggii
5. Desert lavender Lycium californicum
6. Sombra tree Dalea spinosa, Dalea schottii.

b. Because planting and establishment is expensive and funds are limited, it is understood that an intensive, all-over planting effort will not be feasible. In order to make the most of any planting effort, concentrate on the upstream end; seeds will wash downstream.

c. Plant vegetation in clumps with approximately 6 to 12 palo verde trees in each clump. Shrubs should also be planted in clumps.

d. The most appropriate method of watering (to establish the plants) may be one that simulates natural conditions. Flushing the area with water on a relatively infrequent basis would provide deep watering that would encourage development of deep roots rather than surface roots, would be less expensive in terms of a physical irrigation system and labor, but could wash out small, 1-gallon size plants.

e. Plant species in situations or areas where they are naturally occurring. For example, mesquite should be planted along the edge of the slope and along the edge of the water district's proposed levee.

f. The La Quina/Bear Creek area provides an example of an ideal situation that our planting effort should try to duplicate.

SPLPD-RP

5 August 1983
SUBJECT: West Nagavella Canyon Channel Project: Coordination with USFWS
Regarding Planting of the Mitigation Area

2. Dick agrees that a study conducted by desert plant experts would be appropriate to determine the specific details for the revegetation and enhancement planting efforts. The study should address:

- a. Size of plants.
- b. Spacing between plants.
- c. Irrigation specifics including method, timing, and quantity of water applied, and
- d. Reasonable planted density.

KATHLEEN KUTYSZ
Environmental Coordinator
Environmental Planning Section

SPLPD-BP

August 11, 1981

MEMORANDUM FOR THE RECORD

SUBJECT: Coordination with the Coachella Valley Water District Regarding Mitigation for the West Magesa Canyon Channel Project, Rancho Mirage, California

1. This memorandum presents a brief summary of the coordination between the Coachella Valley Water District and the Los Angeles District Corps of Engineers during the period from April 1981 through August 1981.

2. The coordination focused on three main points: (1) provision of additional acreage in order to increase the mitigation area to 20 acres, (2) review and refinement of the mitigation agreement, and (3) planting for enhancement and revegetation of the mitigation area.

3. Area and Boundaries of the Mitigation Area. This point has been the subject of considerable discussion during the development of the mitigation package for this project. At a 29 April 1981 meeting between the Coachella Valley Water District, City of Rancho Mirage, and the Corps of Engineers an alignment for the Water District's East Magesa levee was agreed upon. The Corps' concurrence was predicated on the appearance that our commitment to provide 20 acres for mitigation on the alluvial cone between the levee and the mountain toe would be met.

4. The mapping brought to the 29 April meeting by the Corps of Engineers was the basis for the levee alignment agreement reached that day. That mapping showed the Corps' original delineation of the mountain toe and the 18 March 81 revision of the toe line. The mountain toe line had been revised during a field meeting between Corps staff (Chris Kromick, Bill Van Peeters, and Kathy Kuyasz) and Bob Helwig of the Water District to include a 1.44 acre area near the downstream end of the mitigation area. This area is separated from the alluvial cone by a thin strip of high ground but is heavily vegetated with creosote and provides significant wildlife habitat. The Water District failed to transfer this compromise of the mountain toe delineation onto their own maps following both the field meeting and the 29 April 81 meeting. Corps staff failed to point out this oversight to the Water District.

5. Following the 29 April 1981 meeting, Corps staff discovered that the area between the agreed-upon levee alignment and the revised mountain toe line of 18 March provided only 17.3 acres for mitigation, and not the 20 acres that we are committed to. Subsequent discussions with the Water District identified a possible solution to this dilemma, material for construction of the levee might be obtained by excavating 2.5 acres of the terrace shown on the accompanying map. This concept appeared promising to all since the water

SPLPD-BP
SUBJECT: Coordination with the Coachella Valley Water District Regarding Mitigation for the West Magesa Canyon Channel Project, Rancho Mirage, California

District had already condemned land for the project and would have to amend the action in order to shift the levee. The SWS (Dick Zembal, Laguna Niguel Field Office) informally agreed that the mitigation concept would be an acceptable means of providing additional acreage.

6. A meeting was held in Rancho Mirage on 6 July 1981 to discuss: (1) provision of additional acreage in order to increase the mitigation area to 20 acres, (2) the agreed June 1981 mitigation agreement, and (3) planting for enhancement and revegetation of the mitigation area. In attendance were William Longenecker, Tom Levi, and Bob Helwig of the CWD and Chris Kromick, Kathy Kuyasz, and John Foxworth of the Los Angeles District Corps of Engineers.

7. The CWD brought a blue-line map showing the original, revised mountain toe line, the 29 April 1981 levee alignment, and an area for proposed excavation that would bring the mitigation area to 20 acres. In the 6 July 1981 meeting, because the Water District's maps failed to show the revised mountain toe line, the area of their map that was proposed for excavation was already included on our maps as part of the mitigation area. The Water District also included the area of the lower part of the mitigation area. It was explained that inclusion of the lower part of the mitigation area was not acceptable and that our discussions and memoranda had always stated that 20 acres would be provided between the toe of the mountain and the levee.

8. Following the 6 July meeting, a copy of the blue-line map showing the Corps' suggested excavation area was sent to the CWD. On 12 July 1981 the CWD provided the L.A. District with a copy of the map showing the proposed excavation area and the area between the original and revised mountain toe lines. The Water District's calculation of the mitigation area shown on the map was approximately 21.5 acres due to the inclusion of the debris basin on a right-of-way. A copy of the map was returned to the Water District with a note that the mitigation area would be acceptable once the right-of-way which would be used for parking and wash area of the embankment toe was excluded. A 22 July 1981 letter from the Water District transmitted a revised drawing of the levee alignment and mitigation area with the embankment right-of-way excluded. In a 30 August 1981 letter to the Water District, the Corps expressed acceptance of the 22 July mitigation area.

9. Review and Refinement of the Mitigation Agreement. Discussion of the points of the Mitigation Agreement at the 6 July meeting was based on an outdated June 1981 version of the agreement. The authority of the wording changes requested by the CWD did not change the meaning or intent of the affected points. Changes were made at a July 1981 meeting at which the Corps requested by the Water District at which the Corps requested by the Water District's approval. It was coordinated these changes with Dick Spruill, Ronner Helwig, and Jim Surra. Discussion of point 2 of the June 1981 revision

SP-100-AP
SUBJECT:

Coordination with the Comella Valley Water District Regarding
Mitigation for the West Magnesia Canyon Channel Project,
Rancho Mirage, California

of the mitigation agreement is covered in paragraph 10 of this memorandum. All changes are reflected in a 26 August 1981 Mitigation Agreement transmittal to the Water District on 10 August 1981 with copies to the City of Rancho Mirage, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game.

11. Planting of the Mitigation Area. Prior to the 6 July 1981 meeting, a very rough planting cost estimate and a June 1981 version of the mitigation agreement were mailed to the Water District. Both the cost estimate and June 2 of the June 1981 version of the agreement call for planting of 500 non-gallon size plants per acre in areas disturbed during construction of the West Magnesia levee by the Water District. Both also call for planting 125 non-gallon size plants per acre in areas to be enhanced. The Water District challenged these numbers at the 6 July meeting and suggested that these numbers be provided by a neutral party with expertise with desert plants. The Corps and the USFWS agreed at a 2 August 1981 meeting that input from desert plant experts would be very helpful in developing the planting design for the mitigation area. The City would determine the final planting design with input from a desert plant experts and in coordination with the USFWS and the CWD.

12. At the 6 July 1981 meeting, the Water District also expressed objections to the concept of enhancement planting saying that it had not been discussed before. References to this concept in the draft EIS were pointed out. These references had been added in response to comments made in the cover letter to the FWS Final Report.

13. Since the Water District has agreed to provide an area for mitigation that will meet or exceed the planting issue appears to be the final mitigation issue.

KATHLEEN KUNYAZ
Environmental Coordinator
Environmental Planning Section



United States Department of the Interior

FISH AND WILDLIFE SERVICE

BIOLOGICAL SERVICES
24000 AVILA ROAD
LAGUNA NIGUEL, CA 92677

September 11, 1980

District Engineer
Los Angeles District
Corps of Engineers
P.O. Box 2711
Los Angeles, California 90053

Re: Planning Aid Report, Rancho Mirage (Magnesia Spring Canyon)
Flood Control Project

Dear Sir:

This is a planning aid report of the U.S. Fish and Wildlife Service (FWS) in accordance with the Fiscal Year 1980 Agreement between our agencies. It provides our preliminary assessment of the 7 proposed alternatives for flood protection for the City of Rancho Mirage. This report is of a planning aid nature and does not constitute a report within the meaning of Section 2b of the Fish and Wildlife Coordination Act (16 Stat. 401 as amended; 16 U.S.C. 661 et seq.).

Major FWS involvement in this project began in June 1980 with the agency and public meetings to review the status of the project. Subsequent meetings and telephone conversations with Jeff DeZellar and Richard Schubel of the Los Angeles District, Corps of Engineers (Corps), Tom Paulik, Dave Drake, and Jack Spruill of California Department of Fish and Game (CDFG), and review of the Reconnaissance Report and Public Information brochure have been the major sources of information available to the FWS for preparation of this preliminary report. We have reviewed 7 project alternatives in this report; 4 structural measures sectionally considered by the project engineers as indicated by their inclusion in the Reconnaissance Report, and 3 alternatives including non-structural measures that were later added for the public workshop and included in the public information brochure. Field investigations were conducted by FWS personnel alone and in conjunction with personnel of the CDFG between June and August 1980. The species lists contained within this report include species observed by FWS personnel at the project location only. More comprehensive lists of expected species are available from studies conducted just a few miles south of the project site in stellar habitat (CUOI, undated). The following brief biological inventory and impact assessment is provided to aid in your planning efforts by identifying

areas of outstanding biological value, the presence of sensitive species within the project area, and conceptual mitigation and compensation measures.

Existing Conditions

The vegetation of the project area is largely a mixture of elements of the creosote bush scrub and wash woodland types as described by Ruth (in Barbour and Major, 1977). The extent vegetation has been typed as enriched desert scrub in the Draft Santa Rosa Mountains Wildlife Habitat Management Plan (USDI, undated). Eighty-five species of vascular plants were identified from the project area (Appendix A). The canyon walls near the mouth of Magnolia Spring Canyon are steep and rocky. Abundant perennial plants here include creosote (*Larrea tridentata*), brittle-bush (*Artemisia arbuscula*), and *Aristida adscendens*, with less common burro-weed (*Artemisia canescens*), *Hoffmannseggia microphylla*, and *Egagropis laevis*, and uncommon barrel cactus *Ferocactus wislizeni*. Rocky outcrops support plants such as arrow leaf (*Pleuracantha pluriseti*), linear-leaved golden-bush (*Agriopappus linearifolius*), desert tobacco (*Nicotiana trigonophylla*), and rock daisy (*Helianthus emeryi*), along with uncommon *Mammillaria tetrametalla*. The wash bottom between the lower falls and the existing levee is largely disturbed through the lower lying main drainage portion due to floodwater movement, past county flood control activities, and minor off-road vehicle travel. Consequently, this main drainage portion of the wash is mostly devoid of perennial plant cover. Above this area in the wash, often along the sides where islands of soil have built up, plant cover is contributed by species including creosote bush (*Larrea tridentata*), catclaw (*Acacia greggii*), desert-lavender (*Hyptis emeryi*), cholla (*Yucca elaeagnifolia*), *Artemisia arbuscula*, mesquite (*Prosopis juliflora*), and *Acacia greggii*. Below the existing levee, silver cholla (*Yucca elaeagnifolia*) occurs in the wash with abundant creosote bush and several other plant species including creosote and desert-lavender on raised islands of alluvium.

The weather was extremely warm during all field visits. Consequently, even during the nighttime hours, reptile activity was very low. Only 10 species were observed (Appendix B), but many more undoubtedly occur in the project area. The most common reptiles observed on the project site were side-blotched lizards (*Uta stansburiana*), western whiptails (*Cnemidophorus tigris*), and spiny-tailed lizards (*Crotaphytus wislizeni*). The last two species were most common on the flat, sparsely vegetated wash bottom, while the side-blotched lizards were extremely abundant at the interface of the canyon slopes and wash bottom.

Many clumps of silver cholla were examined and found to contain remnants of the nests of various passerines undoubtedly including black-throated sparrows, sage sparrows, and house finches (Appendix C). Large numbers of Gambel's quail were observed in the wash on every visit, particularly

along the canyon slope-wash interface where small but dense thickets of catclaw of mesquite provide cover and abundant food. Many of the quail were young of the year. Nesting probably occurs in these same dense clumps of catclaw and mesquite as well as in desert-lavender and species of smaller shrubby plants that are overgrown with thick tangles of brambles providing the needed density of cover. The verdin was the most commonly observed passerine on the project site. At least a pair of verdins nested this past season in the area between the lower falls and the existing levee. Ball shaped nests of the verdins were found in the upper branches of desert-lavender, smoke tree, and catclaw. The breeding activities of several other species of birds were observed in this same area: two pairs of Say's phoebe; a pair of prairie falcons; young; two family groups of cactus wren; and a pair of prairie falcons with two fledglings. Many additional species of birds are expected to use the project area and environs at least intermittently. The shelter and water of the canyon, and the cover, food, and perch sites provided by the larger shrubs and shrub clumps in the wash and out on the floodplain, would draw birds to this area.

Based on data from 100 trap nights, the commonest mammals observed (Appendix D) on the project site were small mammals including long-tailed pocket mice (*Perognathus formosus*), spiny pocket mice (*Perognathus spinatus*), and desert woodrat (*Neotoma lepida*) in rocky areas and San Diego pocket mice (*Perognathus salinus*) and Merriam's kangaroo rat (*Dipodomys deserti*) in the wash and on flatter, less rocky areas. The Antelope ground squirrel (*Ampermophilus leucurus*) appeared ubiquitous, while the black-tailed hare (*Lepus californicus*) was observed everywhere but on the more steeply sloping terrain. Only a few individuals of the California ground squirrel (*Spermophilus beecheyi*) were observed in boulders near water. The presence of predatory mammals was documented through signs (tracks and scat). Evidence of the presence of ringtail (*Bassarictus astutus*) and bobcat (*Lynx rufus*) was found along the stream above the falls. Hunting individuals of both species probably wander through the project site on an intermittent basis. Signs of kit fox (*Vulpes macrotis*) and coyote (*Canis latrans*) were observed in the wash near the canyon mouth. Two bighorn sheep (*Ovis canadensis*), a ram and an ewe were observed walking a ridge toward water on two different occasions. Sheep sign was very abundant along the stream in the canyon, particularly above the lower falls, but some sign was present even below here.

Species of Special Concern

Species of special status which were documented as occurring in the project area and are fully protected by the State of California include the kit fox and ringtail. The golden eagle is known to occur in this general area and would be expected to hunt occasionally over the project area. A successful golden eagle eyrie was recorded in 1979 in the northern portion of the Santa Rosa Mountains. The golden eagle is

tentatively listed as sensitive by the Bureau of Land Management (USDI, undated) and is also protected under the Bald Eagle Act of 1940 (16 U.S.C. 668-669; 54 Stat 290).

At least one species of plant occurs in the project area that is included on the California Native Plant Society's (CNPS) list of very rare and rare and endangered plants (Powers, 1976). *Gladiolus elaeagnifolius* (Dittus) was identified from the wash between the lower falls and the adjacent levee. This species is considered rare, but distributed widely enough that immediate potential for extinction or extirpation is low. It is also considered endangered (CNPS) in part and the vigor of extant populations is unknown at present.

The prairie falcon has been retained on the Audubon Society's Blue List (Arbitt, 1977) (the Blue List is an early warning list for those species which are showing significant decline throughout much of their range). A possible factor in the decline of populations is cited as disturbance around nest sites. A pair of prairie falcons has nested high on the canyon wall near the lower falls for at least the past 3 years. Two young birds were observed with the adults this year. Successful nesting depends to a large extent on a readily available food supply, necessitating nearby expanses of suitable hunting terrain.

The particular bighorn sheep (*Ovis canadensis*) is included on CNPS's list of rare species and on the Federal list of candidate endangered and threatened species. The Santa Rosa Mountains support the largest remaining population of this race in the United States (USDI, undated). The range here provides adequate forage for large herds of bighorns, particularly since only minimal competition exists from cattle, horses, or deer (Herritt, 1976). The primary natural factor limiting bighorn populations in the Santa Rosa Mountains has been determined as the availability of summer water by Blong and Pollard (1964). However, human encroachment has begun to make serious inroads on the bighorn habitat in this range (Blong, 1967; Tervis, 1959; Tervis, 1961). Human disturbances and land use practices are major factors now limiting bighorn populations. Human disturbance apparently was responsible for a major reduction in bighorn utilization of a watering area in the Santa Rosa Mountains (Blong and Pollard, 1967; Blong and Pollard, 1968). A portion of this critical area is now under the control of the U.S. Forest Service (USFS) and is part of the Santa Rosa Mountains National Monument. A portion of this critical area is now under the control of the USFS as the Napa Valley Spring Ecological Reserve and is closed to public access from June 15 through September 30 each year. The Reserve lands and a much larger surrounding area have been determined as "vital to bighorn sheep," a designation under Bighorn Habitat Classification System (USDI, undated) given to areas that are most critical to bighorn survival.

Future Conditions Without the Project
Should flood protection not be provided through a Corps project, conditions would either remain much as they are now or conditions would change dramatically as a result of additional flood control measures financed by the current owner of the property that lies between the existing levee and the residence area. With no action by the property owner, it is anticipated that additional flood protection measures would be implemented by local agencies and residents to provide increased protection for existing residences. This probably would involve the beefing up of the existing levee/channel system and would result in little loss to the wildlife resources of the area. If, however, flood control measures are financed by the property owner, they would probably be just adequate to convince the city to approve subdivision of the downstream lands, allowing subsequent development of a portion of those lands (approximately 150 acres) into residential property. This would result in a net loss of something less than 150 acres of wildlife habitat. Individuals of, and habitat for, many species of plants and animals would be destroyed or adversely affected. Species of special concern residing in or intermittently utilizing this area that would be adversely affected include most notably the bighorn, hit fox, ringtail, prairie falcon, possibly the golden eagle, and Dittus's sagehen. Because of the expense involved, the flood proofing provided by private financing would probably be far less efficient than that which would be provided by a Corps project. Consequently, any development that followed might be slightly less intense in that a larger buffer zone might be necessary between the development and the canyon mouth. Thus, on a short term basis at least, less wildlife habitat might be destroyed. Additionally, because of lower initial costs, the developer might use earthen levees and channels rather than concrete and thus maintain some additional habitat at least for annual plants.

Future Conditions With the Project - Plans 1 and 2
Alternatives 1 and 2 include a combination of debris basin and concrete channel. The impacts associated with these two alternatives are nearly identical. Chief among the concerns is the probability of disturbance to bighorn sheep and a resultant disruption and decrease in bighorn utilization of adjacent vital habitat. Such disturbance would be most likely both during construction of the project and during periodic debris removal and maintenance operations subsequent to project completion. Additionally, the replacement of the existing earthen levee and channel with concrete structures would remove habitat for a variety of annual plants, which provide forage for a great number of organisms. Depending upon the exact location of the debris basin and channel, some small stands of perennial vegetation would be destroyed. In such desert wash habitat where perennial plant cover is sparse, many species of insects, reptiles, small birds, and mammals concentrate in these little islands of vegetation. Individuals of Dittus's sagehen might be destroyed depending upon the location of the debris basin, the area that will be covered by pooled water or debris, and the duration of inundation by water.

One of the largest impacts to wildlife would be the conversion to residential development of approximately 150 acres of floodplain subsequent to and resulting directly from the flood protection provided by the project. Along with the direct removal of the enriched desert scrub vegetation and the destruction of habitat and individuals of many species of plants and animals, several sensitive species would be adversely affected. The northern portion of the Santa Rosa Mountains is recognized as an area of significant raptor activity (BBI, undated). Removal of a large tract of suitable hunting terrain is a negative impact of this proposed project that would adversely affect raptor use of the area. Of special concern is the potential for disruption of nesting of the nearby resident pair of prairie falcons and the likelihood of the potential for loss of the area by golden eagles. Additionally, hunting terrain for kit fox in the area would be greatly reduced.

Another important consideration is the potential conflict with CHFC policies concerning land use for the Magdalena Spring Ecological Reserve. The diversion dike would abut the Reserve property, thus water or debris might back up into Reserve lands. Also, access to the Reserve could be affected by the project.

Proposed Preservation/Compensation Measures

Potential mitigation or compensation measures should include land acquisition and incorporation into the existing Ecological Reserve; two buffer zones should be left in undisturbed native vegetation and set aside for wildlife. There should be a strip between the housing development and the road along the channel and a large plot between the diversion dike and the development. In addition, a wide belt of large native perennials should be planted and maintained between the road along the channel and the buffer zone, including mostly the productive catclaw and mesquite. Other considerations should include that no construction of flood control structures or maintenance operations be conducted between June 1 and September 30, a critical time for big game. Since CHFC must maintain seasonal public access to the Ecological Reserve, a turnaround and small parking area (8-10 cars) should be provided at the diversion dike end of the channel road. Fencing should be incorporated at the turnaround to prevent private vehicle passage beyond this point at all times and to prevent pedestrian passage from June through September each year (an additional gate at the other end of the road would be desirable).

Future Conditions With the Project - Plan 3-7

The remainder of the alternative plans were determined by the Corps to be unfeasible and so are considered only briefly here. The structural plans 3-5 would make a housing development imminent on the remainder of the floodplain and environmental impacts would, therefore, be similar to those outlined above for Plans 1 and 2. Plans 3-5 have the slight advantage of using some earthen structures, resulting in additional habitat for plants. Additionally, plans 3 and 5 would not back water or

as much debris into the canyon, reducing disturbance to the Ecological Reserve and big game with a reduced need for upstream maintenance. Plan 4, however, calls for an earth fill dam that would cause extensive water and debris backup, resulting in a great amount of disruption for upstream including probable vegetation changes and the necessity for heavy maintenance operations. Plans 6 and 7 call for floodplain management and flood proofing measures, respectively. These plans would have minimal impact on the environment. Floodplain management would result in saving the remaining floodplain for wildlife.

Ranking of the Plans Incorporating Suggestions for Slight Alterations
The 7 alternatives discussed above comprise the range of options proposed for flood protection (although only one of these basic options is considered economically and engineeringly feasible) for the City of Rancho Mirage. In keeping with our objectives to protect fish and wildlife resources, various environmentally oriented laws, and to only support projects with the least environmentally detrimental impacts, we provide the following ranking of alternatives starting with the most environmentally sound, ending with the most detrimental, and incorporating suggestions for slight modifications.

1. Combination of Plans 6 and 7 Along With Maintenance of the Existing Levee-Channel System
This combination would require floodplain management and flood proofing measures including the maintenance of earthen levees and a channel. This would result in the least environmental impacts of any of the alternatives, particularly since no further development would be allowed on the floodplain. The suggested combination would appear to be far less costly than other alternatives and a workable alternative since it incorporates a channel/levee system now in place that has worked in the past except during years of very intense flooding. The existing structures might be raised and widened, the channel might be widened and deepened to accept much larger flows, and a backup levee or levees might be added to increase the efficiency of this existing flood protection system.
2. Design Similar to Plan 3 or 5 and Incorporation as Much Use of Earthen Structures as Possible
The concept is one of a levee or levees to direct flood flows at the mouth of the canyon into a channel. The advantage of this design would be minimal backup of materials into the canyon, but a major disadvantage would be the loss of the floodplain to residential development. Minimal use of earthen rather than concrete structures would result in additional habitat for plants, at least annuals, and so increase wildlife utilization and value.

3. Plan 1 or 2, but incorporating as Much Use of Earthen Structures as Possible

This design calls for a debris basin and channel. The disadvantages of this design are the backup of materials adjacent to vital habitat for bighorns and the resultant necessity for extensive maintenance operations in the same area, and the loss of wildlife habitat resulting from conversion of the floodplain to residential development. Maximal use of earthen rather than concrete structures would result in additional habitat for plants, at least animals, thereby increasing wildlife utilization and value.

4. Plan A - An Earthen Fill Bay

This is an alternative in the least environmentally sound of all since it would cause extensive water and debris backup into the canyon, resulting in a great amount of disruption for upstream including probably vegetation changes, the necessity for eventual large maintenance operations, and minimal general disturbance potential for the natural habitat. Additionally, the floodplain would be lost to residential development.

In conclusion, the Service strongly supports floodplain management and flood proofing alternatives that can be implemented by local entities, particularly those direct and indirect wildlife habitat losses are minimized. Only by discouraging the further development of flood prone areas can we hope to curtail what are often counterproductive land use practices and stop unnecessary and alarmingly accelerating losses of public wildlife resources. We look forward to continued cooperation in this planning effort for flood protection for Rancho Mirage.

Sincerely yours,

Ralph C. Prieske

Ralph C. Prieske
Field Supervisor

cc: CWC, Chino, CA (Attn: Steve Drake)
CWC, Mayfield, CA (Attn: Tom Paulsen)
CWC, Long Beach, CA (Attn: Jack Sprell)
FWS, Los Angeles, CA (Attn: Jeff Muller)

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Appendix A - Vascular Plants (continued)

Deserting Plants of Mammoth Spring Canyon Mouth and Environs

[illegible]

Appendix 4 - Vascular Plants (continued)

Species and Family ²	Wash Bottom	Stream-side/Seep	Rocky Slope/Outcrop	Mounded Alluvium in Floodplain
<u>RAIACEAE</u> - Willow Family				
<u>Sphaeralcea ambigua</u> Gray	x			
ssp. <u>rosea</u> (N. & J.) Kearns				
<u>MORACEAE</u> - Mulberry Family				
* <u>Ceanothus velutinus</u> L.	x			
<u>MYRTACEAE</u> - Four-O'Clock Family				
<u>Boerhaavia stricta</u> L.	x			
var. <u>intermedia</u> (Jensen) Kearns & Peebles				
<u>Mirabilis bigelovii</u> Gray				
var. <u>retrofracta</u> (Walters) Nees				
<u>ORCHIDACEAE</u> - Evening-Primrose Family				
<u>Camissonia heathii</u> (Dougl.) in Book	x			
ssp. <u>condensata</u> (Nees) Raven				
<u>Camissonia brevipes</u> (Gray) Raven	x			
ssp. <u>gilliesii</u> (Nees) Raven				
<u>Camissonia ciliatophylla</u> (Torr.) Raven	x			
ssp. <u>cardiophylla</u>				
<u>Camissonia claviformis</u> (Torr. & Pres.) Raven	x			
ssp. <u>aurantiaca</u> (Wats.) Raven				
<u>PAPAVERACEAE</u> - Poppy Family				
<u>Echeveria alba</u> Wats.	x			
<u>PLANTAGINACEAE</u> - Plantain Family				
<u>Plantago lanceolata</u> Eastw.	x			
var. <u>foetida</u> (Walters) Jeps.				
<u>POLEMONIACEAE</u> - Phlox Family				
<u>Eriogonum diffusum</u> (Gray) Mason	x			
Gill & sp.				

Appendix A - Vascular Plants (continued)

	Section and Family 2	
	PONCILLAE - Grass Family	
	*Agrostis stolonifera L.	
	var. major (Good.) Vaseell	
	Aristida adacensisensis L.	
	<u>Bromus rubens L.</u>	
	*Pennisetum setaceum (Persk.) Chiov.	
	*Polypogon monspeliensis (L.) Desf.	
	*Schizanthus verbaue (L.) Thell.	
Mud Bottom	" "	x
Stream-side/Seep	" " " " " "	x
Rocky Slope/Cutcrop	" " " " " "	x
Mounded Alluvium in Floodplain	" " " " " "	x

Other-entire species

The species list is comprised of those taxa observed during field trips and undoubtedly can be expanded through additional field surveys. However, the majority of the species of plants that will be affected by the project are represented in the list. Voucher specimens were collected and are housed in collections at the Laguna Miguel Field Office.

² Nomenclature is that of Munz (1974)

APPENDIX B

Amphibians and Reptiles Observed At The Mouth Of Miguale Spring Canyon And Environs

REPTILIA - True Toads	
Red-spotted toad	<u>Bufo punctatus</u>
UTILIA - Treefrogs and Allies	
California treefrog	<u>Hyla californica</u>
CROCODILIA: Cactos	<u>Coleonyx variegatus</u>
Reared Cactos	<u>Dipsosaurus dorsalis</u>
ICHTHIA: Lizards	<u>Lacertilia obesa</u>
Reared lizards	<u>Callisaurus draconoides</u>
Chestnut	<u>Crotaphytus collaris</u>
Leopard-tailed lizard	<u>Sceloporus magister</u>
Collared lizard	<u>Sceloporus occidentalis</u>
Reared spiny lizard	<u>Uta stansburiana</u>
Western fence lizard	<u>Petrosaurus mearnsi</u>
Side-blotched lizard	
Red-tailed lizard	
TEILIA - Whiptails and Allies	
Western whiptail	<u>Cnemidophorus tigris</u>

APPENDIX C

Birds Observed At The Mouth Of Miguale Spring Canyon And Environs

ACCIPITRIDAE	
Red-tailed hawk	<u>Buteo lineatus</u>
FALCONIDAE	
Prairie falcon	<u>Falco mexicanus</u>
American kestrel	<u>Falco sparverius</u>
PHALANIDAE	
Canyon quail	<u>Lophortyx gambelii</u>
Mountain quail	<u>Oreortyx pictus</u>
COLUMBIDAE	
White-winged dove	<u>Zenaidura macroura</u>
Mourning dove	<u>Zenaidura macroura</u>
Ground dove	<u>Columbigallina passerina</u>
CUCULIDAE	
Roadrunner	<u>Geococcyx californianus</u>
STRIGIDAE	
Great horned owl	<u>Bubo virginianus</u>
APODIDAE	
White-throated swift	<u>Aeronautes aztecus</u>
TROCHILIDAE	
Anna's hummingbird	<u>Calypto nana</u>
Tyrannidae	
Say's phoebe	<u>Sayornis saya</u>
CORVIDAE	
Common raven	<u>Corvus corax</u>
PARIDAE	
Verdin	<u>Auriparus flaviceps</u>
TROGLODITIDAE	
Cactus wren	<u>Campylorhynchus brunneicapillus</u>
Rock wren	<u>Salpinctes obsoletus</u>

The list includes only those species observed on field trips, June-August 1961. Several additional species are expected to frequent the area at least on an intermittent basis. Most of these expected species can be deduced from information contained in the undated Draft Santa Rosa Mountains Wildlife Habitat and Management Plan compiled by the Riverside District of the Bureau of Land Management and the California Department of Fish and Game.

APPENDIX D

Mammals Observed At The Mouth Of
Majestic Spring Canyon and Environs

SIALIINAE	
Mockingbird	Mimus polyglottos
La Canto's thrasher	Tamias lacerator
SYLVIINAE	
Black-tailed gnatcatcher	Poliophtila melanura
LAMIDAE	
Loggerhead shrike	Lanius ludovicianus
ICTERINAE	
Northern oriole	Icterus galbula
FALCILLINAE	
House finch	Carpodacus mexicanus
Black-throated sparrow	Ampelisco bilineata
Sage sparrow	Ampelisco belli
Brewer's sparrow	Sporophila breweri

LEPORIDAE - Hares and Rabbits	<u>Lepus californicus</u>
Black-tailed hare	
SCIURIDAE - Squirrels	<u>Amospermophilus leucurus</u>
Antelope ground squirrel	<u>Spermophilus beecheyi</u>
California ground squirrel	
MYRTACIDAE - Pocket Mice, Kangaroo Rats,	<u>Perognathus fallax</u>
San Diego pocket mouse	<u>Perognathus spinatus</u>
Spiny pocket mouse	<u>Perognathus formosus</u>
Long-tailed pocket mouse	<u>Dipodops merriami</u>
Marriam kangaroo rat	
CALICITIDAE - Grizzled Woodrats	<u>Neotoma lepida</u>
Desert woodrat	
CANIDAE	
Kit fox	<u>Vulpes macrotis</u>
Coyote	<u>Canis latrans</u>
PROCYONIDAE - Raccoons	<u>Basarictacus astutus</u>
Ringtail	
FELIDAE - Cats	<u>Lynx rufus</u>
Bobcat	
Bovidae - Cattle, Sheep, Old World Antelopes, Goats	
Bison	<u>Ovis canadensis</u>

The list includes only those species observed on field trips, June-August 1960. Several additional species are expected to frequent the area at least on an intermittent basis. Most of those expected species can be deduced from information contained in the updated Draft Santa Rosa Nevada Wildlife Habitat and Management Plan compiled by the Riverside District of the Bureau of Land Management and the California Department of Fish and Game.

The list includes only those species observed on field trips, June-August 1980. Several additional species are expected to frequent the area at least on an intermittent basis. Most of these expected species can be deduced from information contained in the updated Draft Santa Rosa Mountains Wildlife Habitat and Management Plan compiled by the Riverside District of the Bureau of Land Management and the California Department of Fish and Game.



United States Department of the Interior

FISH AND WILDLIFE SERVICE ECOLOGICAL SERVICES

24000 Avila Road
Laguna Miguel, California 92677

September 29, 1982

Commander

Los Angeles District
Corps of Engineers
P.O. Box 2711
Los Angeles, California 90033

Re: Magdalena Spring Creek, Rancho Mirage, Small Flood
Control Project, Riverside County, California

Dear Colonel Taylor:

Enclosed are two (2) copies of our Fish and Wildlife Coordination Act Report on the effects your Magdalena Spring Creek, Rancho Mirage, Small Flood Control Project, Riverside County, California, would have on fish and wildlife resources.

If not mitigated, the major potential impacts associated with the implementation of the Corps of Engineers' (CE) selected alternative, Plan 1, would include: the significant alteration of about 150 acres of undisturbed productive desert wash/creekside brush scrub habitat and most of the associated wildlife values; a significant contribution to regional cumulative loss of range and habitat for birds of prey; potentially significant effects on peninsular bighorn sheep use of the project area environs; and effects on public access to and use of a State of California Ecological Reserve.

The draft Fish and Wildlife Coordination Act Report was submitted for your review in June 1981. We requested that you evaluate the recommendations listed in the draft report and provide a response to each of our recommendations by formulating a CE mitigation proposal that incorporated concepts from our recommendations and took into account project economics, local concerns and constraints, and the concerns of the California Department of Fish and Game (CDFG) and other involved agencies. The CE's proposed mitigation would not affect all wildlife resources associated with the CE recommended plan, Plan 1, whereas the Fish and Wildlife Service's (FWS) recommended mitigation would have effect most of the losses. But, considering local constraints, the FWS would not oppose the project if the CE's mitigation proposal incorporated the following recommendations:

1. The mitigation lands on the east side of the alluvial cone will comprise 20 acres or more.

1. Leave construction adjacent to the 20-acre area will not affect more than 5 acres of that 20-acre area. In other words, the existing vegetation on at least 15 acres will not be disturbed.
2. The CE will plant native plants in the 20-acre area and irrigate those plantings for up to two years or until the majority have obviously taken. Plantings will minimally include 20 palo verde trees, 200 chaparral, and 50 cat claw per acre on at least 7 acres. The palo verde trees should be at least 5 gallon size.
3. Any development on the hillside above the east wash 20-acre mitigation area must be kept to a minimum. Any allowed development occurring during the life of the project must insure no impacts on the mitigation area and no net impacts on bighorn sheep. All potential impacts upon bighorn sheep from development on the slopes within the project area will be fully mitigated at the time of that development.
4. The wildlife easement giving control of the lands upstream of the debris basin to the State of California will be signed and finalized prior to any construction activities on the project.
5. Construction of the debris basin embankment and construction activities upstream of the embankment will be timed to avoid the period June 15 - September 30.
6. Maintenance of the debris basin and upstream portion of the channels by the Coachella Valley Water District (CVWD) or others will, except under extreme emergency conditions, avoid the critical dry period for bighorn sheep normally from June 15 to September 30. A definition of "extreme emergency conditions" and a maintenance schedule that will help avoid having such conditions arise will be worked out between the CDFG, the CE, and the CVWD and written into the wildlife easement agreement or some other binding written agreement prior to project construction.
7. Debris disposal sites to be used during maintenance activities conducted by the CVWD will be identified and agreed upon by the CE, FWS, CDFG, and CVWD prior to any construction activities.
8. Necessary maintenance of the East Magdalena Spring Channel by the CVWD or others will affect the vegetation on no more than 4 acres. Within those 4 acres, clumps of woody perennial vegetation will be avoided such that some are removed. This recommendation is facilitated by the fact that very little debris is expected to accumulate in the East Channel.
9. The CE will strongly recommend that a hedgerow be planted and maintained along the length of the ensuing development. Palo verde and chaparral should be dominant plantings therein. Such a row will benefit wildlife and could act as a screen between housing and the channel roads.



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE



MACRESIA SPRING CREEK, RANCHO MIRAGE

FISH AND WILDLIFE
COORDINATION ACT REPORT



REGION ONE

The FWS would support the CE selected plan (Plan 1), provided that our recommendations, as outlined in the Mitigation Section of our Report, are adopted to offset project-associated losses of wildlife habitat and values.

For your planning purposes, the FWS should be intimately involved in the development of the project operation and maintenance manual and in the resolution of other currently undecided issues that would or could affect public wildlife resources. When your schedule permits, please contact us so we may assist your development of a plan for our continued involvement. If there are any questions, please call on Mr. Dick Zumbal at (714) 838-4278 or PWS 796-4276.

Sincerely yours,

[Signature]
Ralph C. Piusula
Field Supervisor

Enclosures

cc: CDF, Sacramento, CA
CDF, Reg. 5, Long Beach, CA
San Gabriel, CDF, Lodi, CA
CE, Env. Planning, Los Angeles, CA
(Attn: Laura Tschudi)

DEPARTMENT OF FISH AND GAME
1026 K STREET
SACRAMENTO, CA 95814
(916) 225-5531

William D. Steeney, Area Manager
U. S. Fish and Wildlife Service
2000 College Way, Room 2-2740
Sacramento, California 95825

Dear Mr. Steeney: Bill

We have reviewed the Joint Fish and Wildlife Coordination Act Report - Small Flood Control Project, Rancho Mirage. The proposed project is located within the City of Rancho Mirage on the east slope of the Santa Rosa Mountains in western Riverside County. We are providing the following comments for your consideration.

The document provides a careful and accurate assessment of both the direct and indirect impacts on wildlife resources. We believe that the various structural flood control alternatives discussed in this report can be implemented in a manner that would minimize impacts to the wildlife values associated with the study area. Our primary concern regarding the proposed flood control improvements has been directed at the potential for detrimental impacts to Pajero Springs State Ecological Reserve.

The Pajero Springs Reserve was established in 1975 to preserve an important water source for particular bighorn sheep. Due to the close association of the Reserve with urban areas of the Coachella Valley, this area is closed to the general public from June 15 to September 30 to facilitate bighorn use of the water source. Public use of the Reserve is encouraged during the remainder of the year when bighorn are dispersed from the area.

We believe it is important to recognize, as the Coordination Report indicates, that implementation of the flood control improvements will accelerate urbanization of the remaining undeveloped lands on the Pajero floodplain. We therefore concur that it is necessary and important to include the maintenance of the existing public access to the reserve property in the project planning and implementation. It is our view that this objective should be consistent with the existing resource objectives.

In addition, the Department concurs with the Service's recommendation to provide natural buffer areas between the project area and surrounding urban development. We believe, however, that the entire fish and wildlife habitat from the structural improvements and adjacent to the biological Reserve should receive the highest priority. Finding accomplishment of this need, we think that an additional buffer zone downstream from the flood control improvements would be necessary and appropriate.

Thank you for the opportunity to review and comment on the subject report. We look forward to further coordination with the Fish and Wildlife Service and the Corps of Engineers as the planning process proceeds. If you have any questions regarding these comments, contact Fred A. Warbley Jr., Regional Manager, Region 5, at 350 Golden Shore, Long Beach, California 90802; telephone number (213) 590-5113.

Sincerely,

John
Director

PROJECT

This document constitutes the Fish and Wildlife Coordination Act (FWCA) Report of the U.S. Fish and Wildlife Service (FWS) regarding the proposed flood control project for Magueta Spring Creek, Rancho Mirage, Riverside County, California. It has been prepared under the authority of the Fish and Wildlife Coordination Act, P.L. 85-624, section 2(b), and in accordance with the spirit and intent of the National Wildlife Conservation Policy Act, P.L. 91-664. The draft of this report was submitted to the Los Angeles District Office of Engineers (CE) and the California Department of Fish and Game (CDFG) for review, and their letters of comment are included herein. As required by law, the FWCA Report will accompany the CE project report forward.

The study for flood control in Magueta Spring Canyon was conducted under the Small Flood Control Project Authority under the provision of Section 105 of the Flood Control Act of 1948, as amended. It was accomplished in accordance with the Water Resources Council's Principles and Standards.

The goals of the FWS in its study involvement are: 1) to participate with the CE to develop alternatives that would solve the identified problem and maintain or enhance wildlife resources; 2) identify and evaluate the impacts that each of the principal alternatives would have on fish and wildlife resources, habitats, and their utilization by the public; and 3) to research and methods for offsetting those impacts that would occur from construction of each project alternative.

Work performed in preparation of this report is commensurate in detail with the fund transfer and work request detailed by the FWS Fiscal Years 1981 and 1982 scopes of work for FWS planning input relative to this project. The FWS findings are based upon project data furnished prior to May 5, 1981, and include the 1981 Reconnaissance Report of November 1979, the CE's updated Public Notice for Bidding, and updated specifications provided by CE Project Biologist, William Van Peters and by CE Assistant Project Manager, L. Arts, on April 24, 1981. Biological field data were obtained in cooperation with the CDFG and CE. The planning aid information provided earlier is supplemented with data collected during 16 additional field days from the period December 3, 1980 to April 29, 1981. The wildlife resources of the project site were evaluated principally through direct observations, live-trapping (220 trap nights for small mammals), vegetation analysis (22-100 meter line intercepts), and counts of wintering bird and breeding bird densities. Pertinent existing literature was consulted and included the CE funded site specific biological investigations of Lawrence La Pre (Contract DACW 90-80-M-1793). Review comments received on the draft report from the CE and the CDFG were considered in preparation of the final report.

FISH AND WILDLIFE COORDINATION ACT REPORT

Small Flood Control Project
Magueta Spring Creek, Rancho Mirage
Riverside County
California

Prepared for the

U.S. Army Corps of Engineers
Los Angeles District

by the

U.S. Fish and Wildlife Service
Division of Ecological Services
Laguna Niguel, California

Ralph C. Pisapia, Field Supervisor
Richard L. Zambel, Project Biologist and Author

September 1982

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A. DESCRIPTION OF PLANNING AREA

The planning area is situated within the city limits of Rancho Mirage, which is located along the east flank of the Santa Rosa Mountains on the southwest side of the Coachella Valley, Riverside County, California, approximately 7 miles southeast of Palm Springs. Much of the housing in Rancho Mirage has been placed on approximately the lower 80 percent of the 720-acre alluvial fan that was formed by drainage out of Magnesia Spring Canyon (Figure 1). The canyon drains an area of approximately 6 square miles with measured flow rates approaching 7,000 cfs. At the top of the fan, near the mouth of Magnesia Spring Canyon, an earthen levee currently diverts most of the canyon drainage down an earthen channel that courses 1.4 miles along the northeast side of the alluvial fan downstream to the Whitewater River channel.

The vegetation of the project area is typical for this region of the Colorado Desert with a mixture of creosote bush scrub and wash woodland elements on the alluvium and a less diverse type of creosote bush scrub on the steep hillsides bordering the alluvial fan. The lower portion of Magnesia Spring Canyon is heavily utilized by wildlife because of the availability of water. The general area is known for its concentrations of birds of prey and the upper part of the planning area comprises an important watering area for the rare peninsular bighorn sheep (*Ovis canadensis* *crenabates*). The CDFG established the approximately 124-acre Magnesia Spring Ecological Reserve in 1975 to preserve the vital bighorn water source known as Magnesia Spring (Figure 2). A primary purpose of the Reserve is to regulate public access by encouraging nonconsumptive use during most of the year, while closing the Reserve to access by the general public during the dry season from June 15 to September 30, a critical time for bighorn.

B. DETAILED PLAN DESCRIPTION

The seven alternatives that have been proposed for flood protection for Rancho Mirage are separately described below. Five of the alternatives would provide protection from the standard project flood (200 year event) through structural means including channel, debris basin, and/or dam. The final two alternatives involve nonstructural measures including floodplain management and flood proofing. The CE recommended alternative (Plan 1) consists of a debris basin and rectangular concrete channel.

1. Plan 1 - Standard project flood protection would be provided by a debris basin and rectangular concrete channel. This is the CE recommended plan and it has recently been altered to include a double spillway system to allow direct discharge down the channel (Figure 3). A debris basin with an earth-fill embankment approximately 36 feet high and 800 feet long would be constructed at the mouth of Magnesia Spring Canyon. The top of the embankment would be positioned at 511 feet in elevation. A 190-foot spillway designed for probable maximum discharge would act as the main outlet, while low flow discharge would be through an inlet tower and outlet works. The spillway elevation is now proposed at 488 feet. The fill for the embankment,

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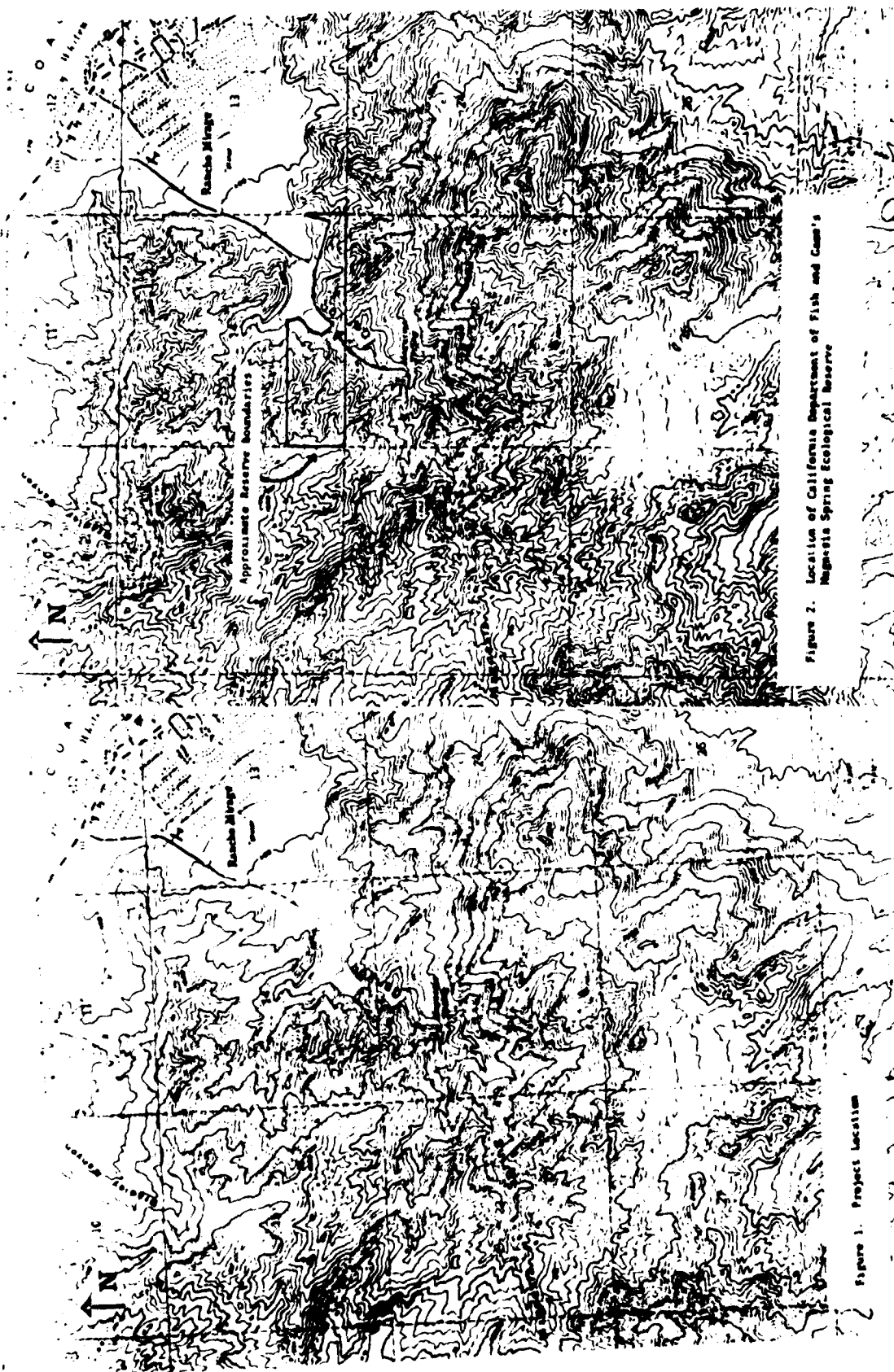


Figure 2. Location of California Department of Fish and Game's Angeles Spring Ecological Reserve

Figure 1. Project Location

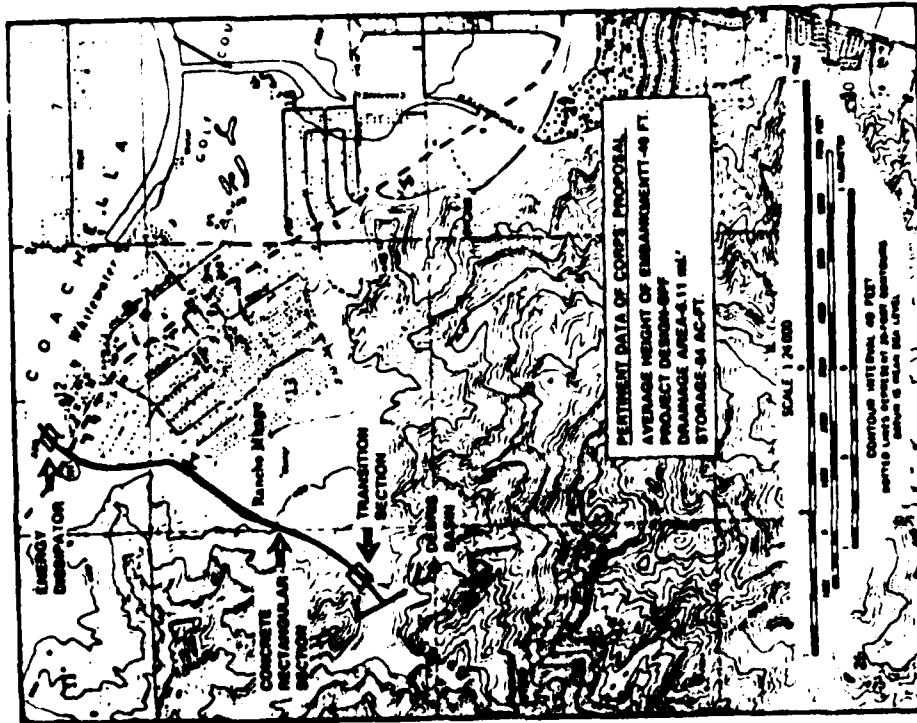


Figure 3 - Approximate Project Alignment for Plan 1 - Rectangular Concrete Channel and Levee Basin

approximately 85,100 cubic yards, would be excavated from above the embankment, roughly to the existing 310 foot contour. A rectangular concrete channel, 8 feet deep, 30 feet wide, and approximately 1.4 miles long would convey standard project flood flows from the debris basin down the west side of the alluvial fan to the Whitewater River. An energy dissipator would be located in the far end of the channel at the outlet transition section.

2. Plan 2 and Plan 2a - Plan 2 is essentially the same as Plan 1 except that the concrete channel is trapezoidal with 2 to 1 side slopes and a 20-foot bottom width (Figure 4). Plan 2a is a modification of Plan 2 that incorporates a necessary rectangular design feature (to accommodate an energy dissipator and transition to the Whitewater River) for the lower 0.55 miles of channel. The rectangular portion of the channel would be the same as that described for Plan 1.

3. Plan 3 - Standard project flood protection would be provided by a single levee at the mouth of the canyon and an unwetted low flow channel down the west side of the floodplain (Figure 5). The earth-fill levee would have grouted rock revetment and be 10 feet high for approximately the first 0.3 miles and then 5 feet high to the Whitewater River. A series of groins at the inlet would protect the levee from erosion. An entrenched earth-bottom channel would carry low flows and provide for sediment deposition during high flows along the west side of the levee. A concrete transition section and diversion levee would lead into a drop structure at the outlet.

4. Plan 4 - Standard project flood protection would be provided by an earth-fill dam at the mouth of Magnesia Spring Canyon. The proposed dam would be approximately 1,000 feet long and 11 1/2 feet high (Figure 6). The spillway would be designed to pass the probable maximum flood. A downstream channel would not be necessary, since the discharge could be regulated so as not to exceed nondamaging flows.

5. Plan 5 - A trapezoidal concrete channel with 2:1 side slopes, 8 feet deep, 20 feet wide at bottom, 32 feet wide at top, and 1.4 miles long, would be constructed to convey standard project flood flows from the mouth of Magnesia Spring Canyon to the Whitewater River (Figure 7). An inlet levee would divert flows into the channel, and a transition section would be necessary at the outlet to prevent clogging as the sediment load settles out. Because of the large sediment loads being transported, the Highway 111 bridge would require additional protection or modification.

6. Plan 6 - This is the floodplain management alternative, consisting of a flood warning system, floodplain regulation, and flood insurance. This alternative would primarily be the responsibility of the local community. The flood warning system would be designed to give early warning of flood potential to local residents and could be a part of an overall system for the entire Whitewater River basin. The system would be designed and implemented by the CE, although operated and maintained by local agencies with assistance from the National Weather Service.

The floodplain regulation measure would require a zoning ordinance to prohibit further development in the 100 year floodplain. According to the CE,

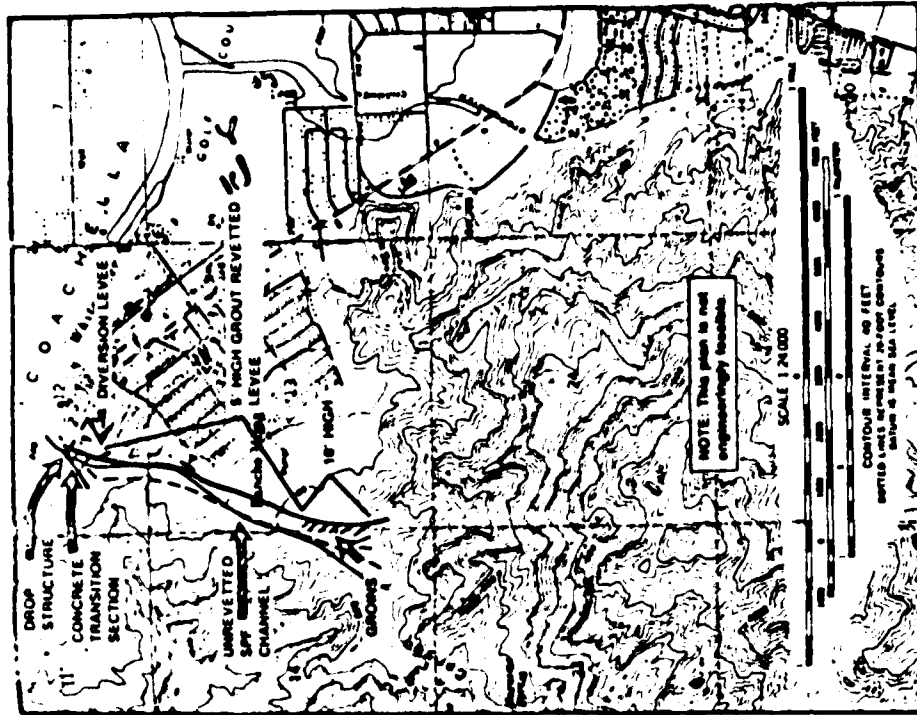


Figure 3 Approximate Project Alignment for Plan 3 - Levee and Channel

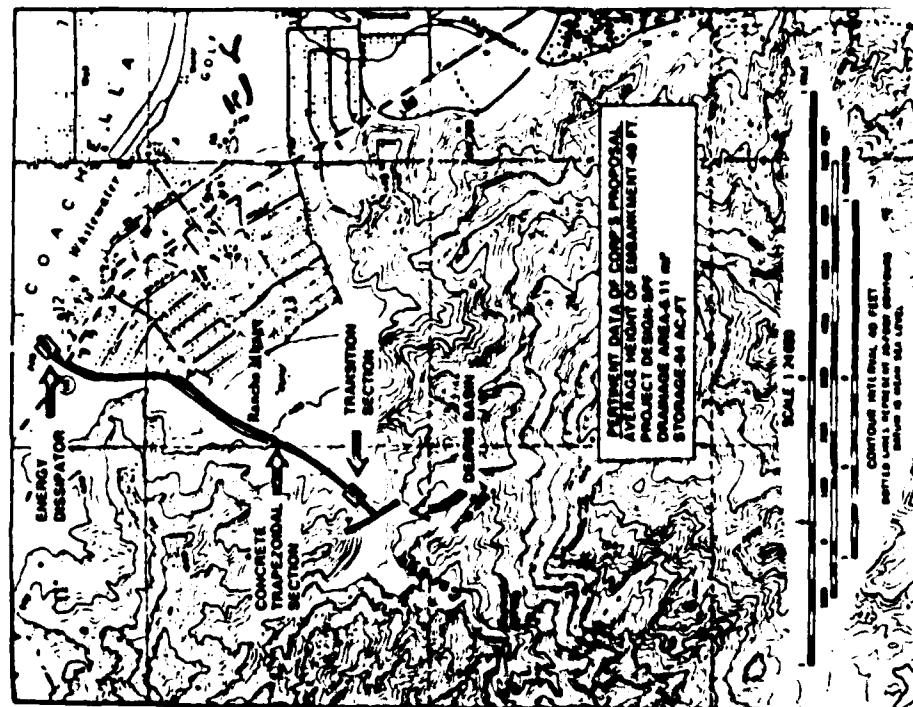
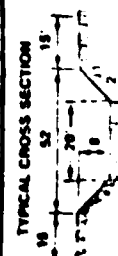
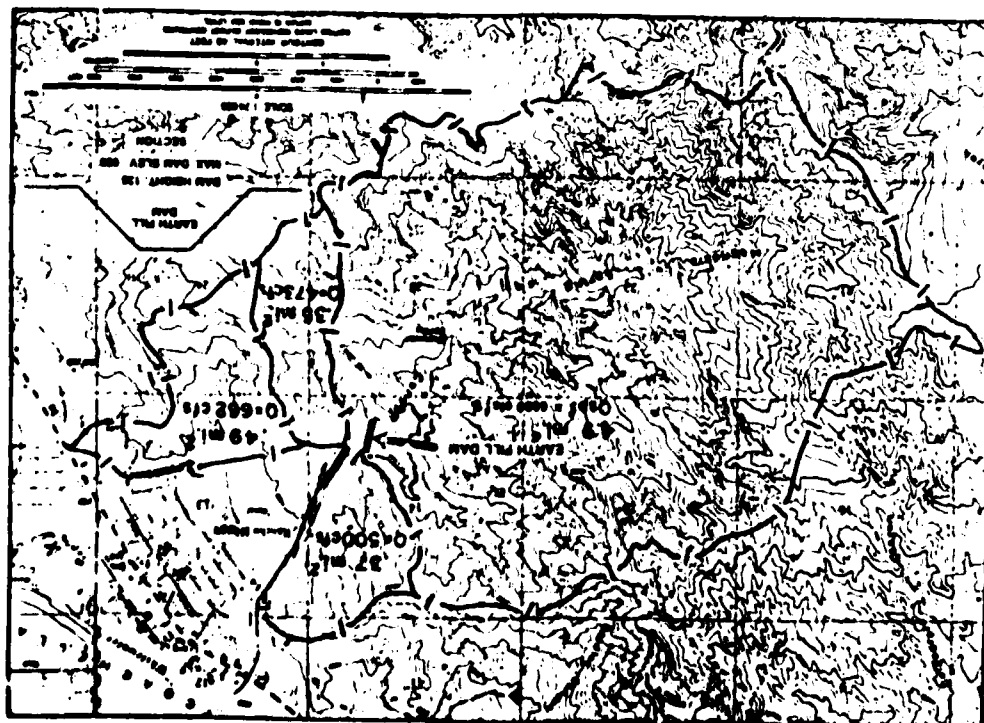
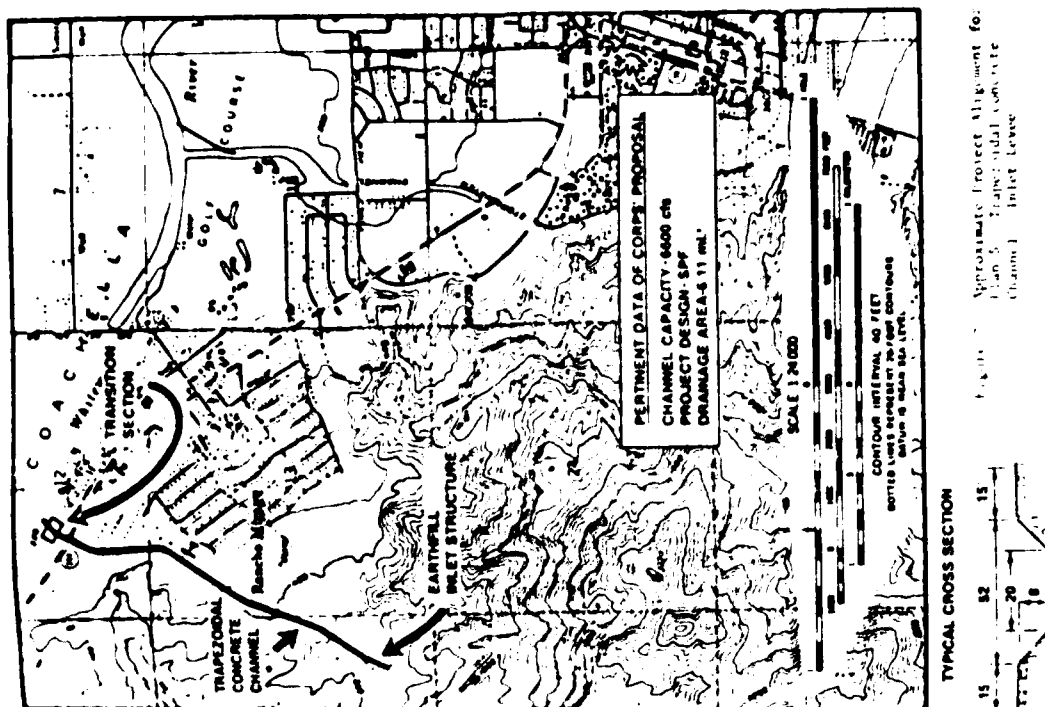


Figure 4 Approximate Project Alignment for Plan 4 - Traps and Channel





3. **Plan 7** - This alternative involves the flood proofing of existing and future structures with flood walls. Flood proofing would not reduce the frequency of flooding, but would protect structures from flood damage up to a 100 year flood.

1. Future Without Project

The aquatic and terrestrial environments are so intricately associated in the project area that they will be considered jointly hereafter.

[illegible]



View northeast along the earthen channel from the top of the hill.



View east to the base of the hill.

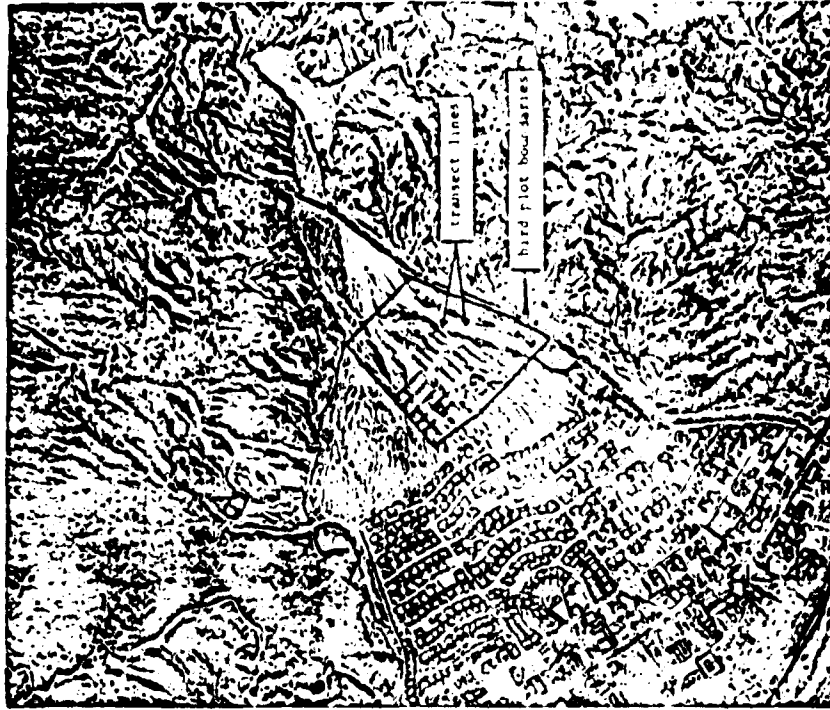


Figure 9. Locations of plant transects and bird study plot.

TABLE 1. Composition of perennial plants on the rocky alluvial deposit in the floodplain of Magnesia Spring Canyon¹

	Length Encountered (a)	% Cover	Number of Encounters	Relative Frequency %
<i>Larrea tridentata</i>	26.34	2.65	19	18.8
<i>Hymenoclea salsola</i>	17.34	1.75	21	20.8
<i>Babbia juncea</i>	10.86	1.09	14	13.9
<i>Hoffmannseggia</i>				
<i>microphylla</i>	6.7	0.67	8	7.9
<i>Salina schottii</i>	4.67	0.47	5	5.0
<i>Ambrosia dumosa</i>	1.47	0.15	2	2.0
<i>Stephanomeria pauciflora</i>	0.85	0.09	2	2.0
<i>Opuntia echinocarpa</i>	0.41	0.04	2	2.0
<i>Mucolla farinosa</i>	0.3	0.03	1	1.0
<i>Physalis crassifolia</i>	0.2	0.02	1	1.0
dead perennial	14.52	1.45	26	25.7
Totals	84.06	8.41	101	100.1

¹Data are from 10-100m line intercepts. See figure 9 for transect locations. Data collected 13-15 January 1981.

TABLE 2. Composition of perennial plants on the sandy alluvium in the floodplain of Magnesia Spring Canyon¹

	Length Encountered	% Cover	Number of Encounters	Relative Frequency %
<i>Hymenoclea salsola</i>	63.4	6.34	47	31.1
<i>Salina schottii</i>	21.07	2.11	12	7.9
<i>Brandegea bigelovii</i>	20.22	2.02	13	8.6
<i>Babbia juncea</i>	18.99	1.9	20	13.2
<i>Hyptis emoryi</i>	12.05	1.21	7	4.6
<i>Larrea tridentata</i>	8.5	0.85	3	2.0
<i>Acacia greggii</i>	6.62	0.66	5	3.3
<i>Opuntia echinocarpa</i>	3.25	0.33	6	4.0
<i>Salina spinosa</i>	1.78	0.18	3	2.0
<i>Eriogonum inflatum</i>	1.00	0.1	1	0.7
<i>Cucurbita palmita</i>	0.5	0.05	1	0.7
<i>Mirabilis bigelovii</i>	0.1	0.01	1	0.7
dead perennial	30.4	3.04	32	21.1
Totals	187.88	18.8	151	100

¹Data are from 10-100m line intercepts spaced 25m apart. See figure 9 for transect locations. Data collected 13-15 January 1981.

Twelve species of reptiles have been observed on the project site and several others would be expected. The most commonly observed were side-banded lizards (*Basiliscus*), western whiptails (*Cnemidophorus tigris*), and spiny-tailed lizards (*Crotaphytus wislizeni*).

The efficacy of the planning area was evaluated by assessing the bird use of the habitat between the existing flood control works and residential areas during the winter and spring periods. A representative 50-acre plot (Figure 9) was censused with spot-mapping techniques (Anonymous 1970, Van Wagon 1972). Six counts were made on the plot during the winter period and an average of 134 birds (287/100 acres) were observed on each visit (Table 3). The commonest of the 26 species observed during the census period were Gambel's quail (*Lophortyx gambelii*), white-crowned sparrow (*Zonotrichia leucophrys*), rock wren (*Salpinctes obsoletus*), house finch (*Carduelis mexicanus*), black-throated sparrow (*Amphispiza bilineata*), vesper sparrow (*Amphispiza bilineata*), mourning dove (*Zenaidura macroura*), western bluebird (*Sialia mexicana*), black-tailed gnatcatcher (*Polioptila melanura*), yellow-rumped warbler (*Dendroica coronata*), and Costa's hummingbird (*Calypte costae*). Six counts were also made during the breeding period and ten species were observed breeding on the plot in an estimated density of 43.5 territorial males or females (87 territorial males or females/100 acres) (Table 4). The most common of the breeding birds were black-throated sparrow, Gambel's quail, vesper sparrow, mourning dove, and cactus wren (*Amphispiza bilineata*). Twelve nests were found on the plot: vesper sparrow, 5; black-throated sparrow, 3; cactus wren, 2; loggerhead shrike (*Lanius ludovicianus*), 1; housefinch, 1. Visitors comprising 25 species of birds competed intermittently with the breeding birds on the plot for food, cover, and perch sites.

Although the water available to plants on the floodplain has been reduced by the existing flood control works, the extent of the habitat is still exceptionally productive as indicated by bird use. The densities and diversities of wintering and breeding birds on the floodplain in the project area are generally greater than those found in the more common habitats of this arid region. Altland (1974) for example, studied winter bird use of a 40-acre plot of creosote bush scrub (located just east of Highway 74 on Carriage Trail, Palm Desert, California, roughly 3.5 miles south of the Magnesia Spring floodplain study plot) and documented 12 species with an average density of 55 birds/100 acres. Carlson (1979) studied wintering bird use of a diverse desert shrub habitat containing abundant ocotillo (*Yucca elaeagnifolia*) and cholla (*Opuntia* spp.) (located approximately 6 miles north of the planning area just east of Highway 74, 5.5 miles south of State Highway 74/111 junction) and found 18 species with an average density of 103 birds/100 acres. Carlson (1980) found breeding bird use on the same plot in this diverse habitat (10 species, 91 territorial individuals/100 acres) that was quite similar to that observed on the floodplain in the planning area. Most of the habitats that afford better conditions for wildlife (as generally indicated by bird density and diversity) in the Coachella Valley area are more water associated, and in terms of naturally occurring habitats, range from better developed wash woodland (such as that found in Bear Creek Wash to the south of the planning area) to desert riparian (such as the palm marsh).

TABLE 3. Winter-bird use of the Magnesia Spring Canyon floodplain

Common Name	Scientific Name	Total Count	Average Count	Average Birds/100 Acres
Gambel's quail	<i>Lophortyx gambelii</i>	317	53	105
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	96	16	32
Rock wren	<i>Salpinctes obsoletus</i>	55	9	18
House finch	<i>Carduelis mexicanus</i>	55	9	18
Black-throated sparrow	<i>Amphispiza bilineata</i>	50	8	16
Verdin	<i>Auriparus flaviceps</i>	33	6	12
Mourning dove	<i>Zenaidura macroura</i>	26	4	8
Western bluebird	<i>Sialia mexicana</i>	22	4	8
Black-tailed gnatcatcher	<i>Polioptila melanura</i>	24	4	8
Yellow-rumped warbler	<i>Dendroica coronata</i>	21	4	8
Costa's hummingbird	<i>Calypte costae</i>	16	3	6
Black's wren	<i>Tyrannus bewickii</i>	15	3	6
Say's phoebe	<i>Sayornis saya</i>	12	2	4
Marsh wren	<i>Campylorhynchus brunneicapillus</i>	14	2	4
Cooper's hawk	<i>Accipiter cooperii</i>	3	1	2
Red-tailed hawk	<i>Buteo jamaicensis</i>	4	1	2
Common raven	<i>Corvus corax</i>	6	1	2
Large thrasher	<i>Oreoscoptes montanus</i>	3	1	2
Ruby-throated kinglet	<i>Regulus calendula</i>	4	1	2

TABLE 3. (cont.)

<u>Common Name</u>	<u>Scientific Name</u>	<u>Total Count</u>	<u>Average Count</u>	<u>Average Birds/100 Acres</u>
Loggerhead shrike	<u>Lanius ludovicianus</u>	5	1	2
Lesser goldfinch	<u>Spinus psaltria</u>	3	1	2
Prairie falcon	<u>Falco mexicanus</u>	1	•	•
American kestrel	<u>Falco sparverius</u>	1	•	•
Great horned owl	<u>Bubo virginianus</u>	1	•	•
Common flicker	<u>Colaptes auratus</u>	2	•	•
Blue-gray gnatcatcher	<u>Polioptila caerulea</u>	2	•	•
Totals	26 species	793	134	267

Counts taken: Dec. 3, 4; Jan. 13, 14, 15; Feb. 11, 1981.
 Average 121 minutes per count; 3 early morning, 3 mid-morning
 counts, all 720-1215 hrs; additional 2 visits after dark,
 average 40 min. each.

TABLE 4. Bird use of the Magnesia Spring Canyon floodplain during the breeding season.

<u>Breeding Birds</u>	<u>Scientific Name</u>	<u>No. of Territorial Males or Females</u>	<u>No. of Territorial Males or Females/100 Acres</u>
Pack-throated sparrow	<u>Amphispiza bilineata</u>	15	30
Cashell's quail	<u>Lophortyx gambelii</u>	8.5	17
Verdin	<u>Auriparus flaviceps</u>	7	14
Mourning dove	<u>Zenaidura macroura</u>	3	6
Cactus wren	<u>Campylorhynchus brunneicapillus</u>	3	6
Costa's hummingbird	<u>Calypte costae</u>	2	4
House finch	<u>Carpodacus mexicanus</u>	2	4
Mockingbird	<u>Mimus polyglottus</u>	1	2
Black-tailed gnatcatcher	<u>Polioptila melanura</u>	1	2
Loggerhead shrike	<u>Lanius ludovicianus</u>	1	2
Totals	10 species	43.5	87

TABLE 4. (cont.)

Visitors	Scientific Name	Maximum No. Observed on Any One Visit	Total Observed Over Census Period
Fairie falcon	<u>Falco mexicanus</u>	1	1
White's quail	<u>Lophortyx gambelii</u>	18	42
Hooded dove	<u>Zenaidura macroura</u>	18	43
Ground dove	<u>Columbigallina passerina</u>	1	1
Barn owl	<u>Tyto alba</u>	1	1
Scrub-will	<u>Phalaenoptilus nuttallii</u>	1	1
White-throated swift	<u>Aeronautes saxatalis</u>	4	9
Western kingbird	<u>Tyrannus verticalis</u>	1	1
White-throated flycatcher	<u>Myiarchus cinerascens</u>	5	7
Say's phoebe	<u>Sayornis saya</u>	1	2
Violet-green swallow	<u>Tachycineta thalassina</u>	3	3
Common raven	<u>Corvus corax</u>	5	5
Common crow	<u>Corvus brachyrhynchos</u>	1	1
King wren	<u>Salpinctes obsoletus</u>	3	3
Black-chopie	<u>Phainopepla nitens</u>	2	3
Nashville warbler	<u>Vermivora ruficapilla</u>	2	2
Yellow-rumped warbler	<u>Dendroica coronata</u>	2	4
Hooded oriole	<u>Icterus cucullatus</u>	1	1
Northern oriole	<u>Icterus galbula</u>	4	4

TABLE 4. (cont.)

Visitors	Scientific Name	Maximum No. Observed on Any One Visit	Total Observed Over Census Period
Brown-headed cowbird	<u>Molothrus ater</u>	2	2
House finch	<u>Carpodacus mexicanus</u>	27	76
Lesser goldfinch	<u>Spinus psaltria</u>	4	10
Lawrence's goldfinch	<u>Spinus lawrencei</u>	2	2
Brewer's sparrow	<u>Spizella breweri</u>	2	4
White-crowned sparrow	<u>Zonotrichia leucophrys</u>	7	8
Totals	25 species	118	236

Counts taken: March 25, 26; April 7, 9, 28, 29, 1981; average 115 mins. per count; 5 early morning, 0600-0845 hrs., 1 late evening count, 1715-1900 hrs; additional 2 visits after dark, average 45 mins. each.

habitat is located on or in association with floodplain areas. A great proportion of the acreage of floodplains in the upper Coachella Valley, however, has been drastically altered for human use and related developments.

The northern part of the Santa Rosa Mountains including the planning area is recognized as a raptor concentration area (BLM and CDPC 1980). This was reflected in the high level of observed predatory bird use of the Magnesia Spring Canyon and environs. Several factors combine to make these environs exceptional for raptorial birds including available water in the canyon, good foraging habitat along the canyon, hills, and alluvial fan, and suitable perch and nest sites along the inaccessible rocky outcrops and cliffs. The birds of prey observed within the planning area included red-tailed hawk (*Buteo lineatus*), prairie falcon (*Falco sparverius*), Cooper's hawk (*Accipiter cooperii*), American kestrel (*Falco sparverius*), great-horned owl (*Bubo virginianus*), and barn owl (*Otus asio*). The red-tailed hawk and prairie falcon are known to nest and the great-horned owl, barn owl, and American kestrel probably nest on the cliffs in the lower canyon. The prairie falcon and the red-tailed hawk nesting sites are located on the cliff faces in the vicinity of the lower falls. Exceptionally large populations of mourning doves and Gambel's quail serve as important food sources, particularly for the prairie falcon and Cooper's hawk. The occurrence of abundant prey so near to the nest site of the prairie falcon is an important determinant of the level of successful nesting and survival of young. The prairie falcon, Cooper's hawk, barn owl, and American kestrel have been retained on the Audubon Society's Blue List (Arbitt 1979) (the Blue List comprises an early warning alert for those species exhibiting significant population declines throughout much of their ranges).

The golden eagle (*Aquila chrysaetos*) was not observed during field work, but nest sites are known from Cathedral Canyon and Deep Canyon, just to the west and south, respectively, of the project area. All of the habitat requirements of this species are found in the project area, and since eagles forage over a very large range, individual birds would at least be expected to hunt occasionally over the project site. The golden eagle is proposed for listing as sensitive by BLM (BLM and CDPC 1980) and is also protected under the Bald Eagle Act of 1940 (16 U.S.C. 668-668d; 54 Stat. 250).

The common nocturnal rodents of the project area included long-tailed pocket mice (*Perognathus parvus*), spiny pocket mice (*Perognathus spinatus*), and desert woodrat (*Neotoma lepida*) in mostly rockier habitat, and Merriam's kangaroo rat (*Dipodomys merriami*) in the washes and on flatter, less rocky terrain. The antelope ground squirrel (*Ammodontomys leucurus*) was ubiquitous, while the black-tailed jackrabbit (*Lepus californicus*) was observed everywhere but on the more steeply sloping terrain. Counts taken during bird census work indicated rough minimum population estimates of 17 (24/100 acres) antelope ground squirrels and 8 (16/100 acres) black-tailed jackrabbits on the 50 acre alluvial fan plot. Signs of ringtail (*Bassarictus astutus*) and bobcat (*Lynx rufus*) were observed in the canyon above the falls. Hunting individuals of both species probably wander occasionally through the project site. Sparse signs of kit fox (*Vulpes macrotis*) were observed in the wash near the canyon mouth. It is probably hunted infrequently along the wash.

and out on the alluvial fan. The kit fox and ringtail are fully protected by the State of California. Coyotes (*Canis latrans*) were directly observed hunting along the alluvial fan (two individuals) and also near the canyon mouth (one individual). Several individuals (a maximum of 4 at a time) were occasionally heard along the slopes bordering the project area. Coyotes probably hunt throughout the project area on a regular basis.

The use of Magnesia Spring Canyon and the surrounding hills and washes by peninsular bighorn sheep (*Ovis canadensis crummbates*) is extensive. Habitat requirements provided in the project area include the single most critical factor, water, as well as suitable escape terrain and at least adequate forage. A minimum of 16 and a maximum of 21 different bighorn were observed along the canyon between the upper and lower seeps by La Pre (1980) during the summer of 1980. Sheep use of the planning area includes the lower canyon and hillside, the side canyon and wash to the north, and to a lesser extent, the wash bottom down to the vicinity of the existing levee. During certain years foraging bighorn would be expected to utilize the washes and the alluvial fan extensively, but on an intermittent and highly seasonal basis, dependent upon the availability of various foods (Nelson and Sumner 1980). Under normal circumstances, sheep foraging on the flatter terrain would not be expected to roam further than about 200 yards from steep escape terrain (Pers. Comm. B. Blong, CDPC, 5 January 1980). The peninsular bighorn sheep is included on CDPC's list of rare species and is a candidate for the Federal Endangered Species List. The Santa Rosa Mountains support the largest population of this race in the United States (BLM and CDPC 1980). The range provides adequate forage for large herds of bighorn, particularly since only minimal competition exists from cattle, burro, or deer (Merritt 1974).

The primary natural factor limiting bighorn populations here has been determined as the availability of summer water (Blong and Pollard 1968). However, human encroachment has begun to make serious inroads on the bighorn habitat in this range (Blong 1967, Tevis 1959, Tevis 1961). Human disturbances and land use practices are major factors now limiting bighorn populations (Nelson and Sumner 1980). Human disturbance apparently was responsible for a major reduction in bighorn utilization of a watering area in the Anza Borrego Desert State Park (Jorgensen 1974) and also caused temporary abandonment of the Magnesia Spring area (Blong 1967, Blong and Pollard 1968). A portion of this important area is now under the control of the CDPC as the Magnesia Spring Ecological Reserve and is posted as closed to public access from June 15 through September 30, the critical dry period. Due to CDPC manpower limitations and visitor persistence, closure is only partially attainable at present. The Reserve lands and a much larger surrounding area have been determined as "vital to bighorn sheep", a designation under the Bighorn Habitat Classification System (BLM and CDPC 1980) given to areas that are most critical to bighorn survival.

Should flood protection not be provided by a CE project, conditions would either remain much as they are now, or conditions would change dramatically as a result of additional flood control measures financed by the current owner of the property that lies between the existing levee and the residence

area. With no action by the property owner, it is anticipated that additional flood protection measures would be implemented by local agencies and residents to provide increased protection for existing structures and property. This would mostly involve improvements to the existing levee/channel system and would result in little loss of wildlife resources. Should flood control measures be financed by the property owner, those measures would probably be adequate to obtain city approval for subdivision and residential development of a portion of the approximately 150-acre core of land that lies above the existing residences. This action would result in a net loss in wildlife resources. Because of the high intensity of the flooding here and the consequentially large expense involved in providing adequate flood protection (for the life of the proposed project), we have assumed no future development of the floodplain without a CE project. The CE has determined that the alternatives involving the breasting-up of levees and/or channel systems would not provide adequate flood protection. These are the types of alternatives that are probably economically feasible for the current property owner. Our assumption of future conditions with no development is apparently shared by the CE, since the computation of location benefits was based upon benefits from development of the entire 150 acres of alluvial fan.

The area that would be influenced by the CE project is predominantly privately owned land. The site of the existing flood control channel and levees is included in the right-of-way required for the proposed project and is currently under flood control easement and privately owned. The State owned ecological reserve abuts the project area on the southwest.

c. Endangered Species - On December 22, 1980, the CE requested from the FWS a list of the proposed and listed endangered and threatened species that may occur within the Magnesia Spring Canyon proposed project area. A reply (S250 #1-81-SP-82) stated that there are no listed or proposed threatened or endangered species currently known to occur within the project area. However, the following candidate species were included in the reply: giant red velvet mite (*Diplocephalus pectoratorius*) and peninsular bighorn sheep (*Ovis montanus*). Also, the reply strongly recommended the facility of avoiding possible future conflicts by pursuit of informal consultation concerning the two candidate species.

Sand dune habitat, suitable to the giant red velvet mite was not observed in the project area and the bighorn is discussed elsewhere throughout this report.

2. Future With Project
a. Plan 1, Plan 2, and Plan 2a - The similarities between these three proposed alternatives allow concurrent analyses of future biological conditions.

By providing greatly increased flood protection, these alternatives would necessarily reduce flood flows and seepage on the alluvial fan. This will mean further reduction in the productivity of the vegetation on the fan along with a net reduction in the long-term carrying capacity of the extant habitat for wildlife. Waterfowl that result in seed dispersal, seed stratification, and seedling establishment of certain species will be eliminated.

This will be only partly offset by the concomitant reductions in scouring. Placement of an earth-fill embankment along with upstream excavations approximately to the existing 110-foot contour will alter 12.7 acres of mostly sandy wash of which 4.6 acres are now covered with perennial plants of the creosote bush association. 2 acres of hillside which now harbor shrubs seasonally harbor stands of sparsely dense annual and herbaceous perennial plants. Some value will be provided by the excavated debris basin as open space and periodic habitat for annual and widely spaced perennial plants. The 6.1 acre parcel should be restorable to near pre-project conditions in time, given an expected maintenance operations schedule similar to that in effect now. The wildlife values now existing in the desert wash association and creosote bush scrub habitats will be lost with eventual minor replacement by periodically disturbed habitat for annuals and short-lived perennials on some of the acreage involved.

The rectangular concrete channel (Plan 1) will require permanent alteration of approximately 10.2 acres of mostly coarse sandy channel bottom and sides consisting of annual and mostly herbaceous perennial plant habitat, including few widely spaced shrubs, mostly young smoke tree and creosote. The trapezoidal concrete channel (Plan 2) would require permanent alteration of approximately 15 acres consisting mostly of annual plant habitat, but including some widely spaced shrubby perennials. The combination concrete channel (Plan 2a) would result in permanent alteration of approximately 12.5 acres of mostly annual plant habitat, but including some shrubs.

Concrete channelization of the watercourse from the debris basin to the Whitewater River channel will preclude the reestablishment of desert wash plants. Minimal wildlife values will be retained along the edges of the channel and channel road, where some habitat for plants will be colonized if not disturbed too frequently. The concrete channel, particularly the rectangular design, will constitute a barrier and potential hazard to wildlife.

Once flood protection has been provided, the 150-acre upper core of the alluvial fan is scheduled for development into residential property. This will result in the short-term loss of virtually all wildlife values there, including concentrations of resident and migratory birds that are greater than average for this region. There will eventually be some replacement of habitat for a few species on a long-term basis, depending upon the land-use and planting practices of the new residents. This replacement value would likely amount to roughly 5-10 percent of the values existing now. Hunting territory for large carnivores will be lost including the current frequent utilization by coyotes and infrequent use by kit foxes. The range and habitat of raptors in the project area will be adversely affected. Hunting terrain for hawks, falcons, and owls will be reduced by project placement along the wash and by the inevitable development of the alluvial fan. Although the acreage lost represents only a portion of the larger raptor's hunting territory, the cumulative impact remains undervalued in the would be significant. Since few alluvial plains remain undeveloped in the upper Sonoran Valley, the occurrence of suitable hunting terrain and abundant prey adjacent to the prairie falcon's territory is an important determinant in the level of successful nesting and rearing of young. Reduction

or removal of this nearby food source will result in the larger energy expenditures involved with hunting successfully from a reduced prey population or traveling further to locate prey and in longer periods away from the nest. Although nesting activity in the planning area may not be totally excluded, a net reduction in the level of reproductive success would be expected. Similar limitations are expected to reduce post-project use of the planning area by other raptorial species.

One of the significant adverse impacts of the project concerns the potential effects on bighorn sheep. Intermittently utilized habitat that may be important during certain years will be temporarily lost and repeatedly disrupted in the upper wash and permanently lost along the upper fringes of the alluvial fan. Movement of sheep along the wash between the lower spring and north side canyon and along the facing slopes and ridges will be precluded for a time during project construction and maintenance activities. The sheep will probably not use the lower spring for watering during construction or maintenance activities. The animals would be expected to water in the upper canyon and palm grove rather than abandon the area unless water was not available there. During very dry years, water would only be available at the lower spring. In moderately dry years, water also available at the palm grove might not support the entire local bighorn population for the entire summer. If the sheep are kept away from the lower spring by construction or maintenance activities during a dry year, the potential worst case effects could include partial or total abandonment of Magnesia Spring Canyon, overcrowding at other water sources, and reduction of the herd from the effects of overcrowding and lack of water.

Encroachment of increased human activity, due to urbanization on the fan, also has the potential for detrimental effects on bighorn. This species requires large, relatively undisturbed areas to sustain healthy populations. Excessive human use of an area has been known to cause abandonment or drastically reduced use if that area by bighorn.

An important, long-term beneficial impact of the project for bighorn sheep would be the elimination of off-road vehicle travel in the upper wash.

The project also has the potential for affecting access to the CDPC-managed Ecological Reserve. The CDPC is mandated to encourage nonconsumptive public use of the Reserve during much of the year, but also must attempt to enforce closures during the dry season, the critical time for bighorn. A beneficial project impact could be realized by aiding CDPC in better achievement of these access goals.

Within the debris basin, periodic inundation by floodwaters, repeated disruption of the habitat by substrate and sediment removal, and accumulation of that removal by machines that are proven weed seed carriers will be conducive to the proliferation of perturbation-dependent plants. Such plants, including Russian thistle (*Salsola iberica*), puncture vine (*Tribulus terrestris*), and tamarisk (*Tamarix ramossissima*) have little wildlife value when compared to native species.

b. Plan 3 - The impacts associated with this alternative would generally be the same as those described for Plans 1-2a except for those differences enumerated below. The impacts associated with construction activities at the mouth of the canyon would be lessened, but those associated with maintenance activities would be increased since the necessary frequency of maintenance would be increased, although some of the increased maintenance would be located further downstream. There would be greater preservation of open space values including annual and short-lived perennial plant habitat since the channel would be unlined. There would be less backwater inundation as compared to the effects of a dam or debris basin, although upstream disturbance would be similar since the necessary excavations would apparently be identical to those required for Plans 1 through 2a. Approximately 6 acres of vegetation of the desert wash association would be lost due to channel widening. The earthen channel would not constitute a barrier or hazard to wildlife. Off-road vehicle travel up the channel to the vicinity of the spring would still be possible.

c. Plan 4 - The future biological conditions with this alternative would be much the same as with Plans 1 or 2 except for significantly higher inundation levels which would alter a greater area of wash habitat, and the lack of channel-related impacts. The spread of noxious weeds would probably be greater and inundation would alter approximately 16 acres of vegetation of the desert wash association, 19 acres of sandy habitat for annuals and short-lived perennials, and 10 acres of creosote bush scrub along the bottoms of the slopes. Three individuals of glandular dioxys would be destroyed by inundation.

d. Plan 5 - The expected future conditions would be the same as with Plan 3, but with the additional impacts resulting from a trapezoidal concrete channel which were discussed above in Plan 2. Additionally, the habitat loss associated with channel widening would not occur under this alternative.

e. Plan 6 - Biological conditions under this nonstructural alternative would remain much as they are now. The upper alluvial fan would remain undeveloped, thus preserving the existing wildlife values there, since development would be prohibited in the 100 year floodplain. The problem of disruption of bighorn sheep activity by human use of the area, including off-road vehicle travel in the upper wash during the dry season, would not be alleviated through the implementation of this plan.

f. Plan 7 - Future biological conditions would be similar to those described for Plan 6 except that the remaining alluvial fan would not be as fully protected from development.

D. SUMMARY OF IMPACTS

1. Plan 1, Plan 2, and Plan 2a

a. Terrestrial - Elimination of flooding on the alluvial fan will wear a net reduction in long-term productivity and carrying capacity for wildlife. Construction of the embankment and excavation of the debris basin will result in a temporary loss of 6.5 acres of sandy wash habitat

for annual plants and a few widely spaced shrubs, a permanent loss of 4.6 acres of potential of the desert wash association, and 2 acres of creosote bush scrub. The rectangular, trapezoidal, and combination concrete channels of Plans 1 through 2a would eliminate approximately 10.2, 14, and 12.5 acres, respectively, of sandy annual plant habitat which includes some widely spaced perennials of the desert wash association and creosote bush scrub community. A concrete channel, particularly the rectangular design, will constitute a barrier and hazard to wildlife. A significant impact associated with these alternatives would occur on the alluvial fan where inevitable post-project residential development would result in the loss of about 150 acres of a mixture of desert wash association and creosote bush scrub. All of the associated wildlife values would also be lost with eventual replacement of only a small portion of those values (estimated at 5 to 10 percent of existing values). The values lost would include bird concentrations that are somewhat larger than those observed in the less diverse habitats that are more common in the upper Coachella Valley. The project would contribute significantly to the regional loss of range and habitat for birds of prey. Construction or maintenance activities might disrupt raptor nesting activity, particularly of the prairie falcon. A major impact of these alternatives would be the potentially significant effects on bighorn sheep use of the planning area environs, particularly during construction and maintenance activities. The project could affect public access to the CDRC Ecological Reserve. Disruption of conditions and the substrate in the debris basin would probably result in the proliferation of various weeds.

b. Unavoidable - The proposed debris basin and embankment would eliminate 4.6 acres of plants of the desert wash association and 2 acres of creosote bush scrub. The channels would eliminate 10.2, 14, and 12.5 acres (Plans 1 through 2a, respectively) of mostly annual and short-lived perennial plant habitat. Subsequent development on the floodplain would eliminate 112.5 acres of mixed desert wash association and creosote bush scrub habitat (these acreage figures are based on adoption of FWS recommendations, see Mitigation Plan 1). There would be some disruption of bighorn sheep movements and habits and a loss in hunting terrain and habitat for raptors and large carnivores.

2. Plan 3

a. Terrestrial - The impacts associated with this alternative would be nearly identical to those described for Plan 2, but without the adverse effects of a concrete channel. The adverse effects of backwater inundation would be reduced. Placement of the levee and groin along with excavations would eliminate 4.4 acres of plants of the desert wash association and widening of the channel would eliminate 6 acres (assuming an average widening of 30 feet) of widely spaced mixed elements of the desert wash association and creosote bush scrub community.

b. Unavoidable - The levee and groin placement and excavations would eliminate 4.6 acres of plants of the desert wash association and widening of the channel would eliminate 6 acres of mixed shrubs of the desert wash association and creosote bush scrub community. Subsequent development

in the floodplain would eliminate 106.5 acres of enriched desert scrub vegetation with adoption of FWS recommendations, see Mitigation Plan 1). There would be some disruption of bighorn sheep movements and habits and a loss in hunting terrain and habitat for raptors and large carnivores.

3. Plan 4

a. Terrestrial - The impacts associated with this alternative would be nearly identical to those outlined for Plans 1 and 2, but without the adverse effects contributed by a channel. Also, approximately 16 acres of vegetation of the desert wash association and 10 acres of creosote bush scrub would be eliminated by repeated foundation and sedimentation. An additional 19 acres of sandy wash habitat for annual and short-lived perennial plants would be highly disturbed or eliminated. A greater proliferation of weeds would be associated with the implementation of this alternative, particularly Tamarisk. Three individuals of glandular daisies would be destroyed.

b. Unavoidable - Inundation and sedimentation levels would eliminate 16 acres of vegetation of the desert wash association and 10 acres of creosote bush scrub. Repeated disturbance would greatly disrupt or eliminate an additional 19 acres of sandy wash habitat for annual and short-lived perennials. Subsequent development on the floodplain would eliminate 106.5 acres of enriched desert scrub vegetation with adoption of FWS recommendations, see Mitigation Plan 1). There would be some disruption of bighorn sheep movements and habits and a loss of hunting terrain and habitat for raptors and large carnivores.

4. Plan 5

a. Terrestrial - The impacts of this alternative would be identical to those described for Plan 3, but with the additional adverse effects of a trapezoidal concrete channel, as in Plan 2) and without the impacts associated with channel widening.

b. Unavoidable - This alternative would eliminate 4.6 acres of desert wash vegetation and 14 acres of mostly annual plant habitat. Subsequent development on the floodplain would eliminate 112.5 acres of enriched desert scrub vegetation with adoption of FWS recommendations, see Mitigation Plan 1). There would be some disruption of bighorn sheep movements and habits and a loss of hunting terrain and habitat for raptors and large carnivores.

5. Plan 6

a. Terrestrial - Biological conditions would remain much as they are now including the continued disturbance of watering bighorn by offroad vehicles in the upper wash. The alluvial fan would remain undeveloped thus preserving the existing wildlife values there.

b. Unavoidable - None identified.

6. Plan 7

a. Terrestrial - Impacts would be similar to those associated with Plan 6 although the alluvial fan would be less well protected from development.

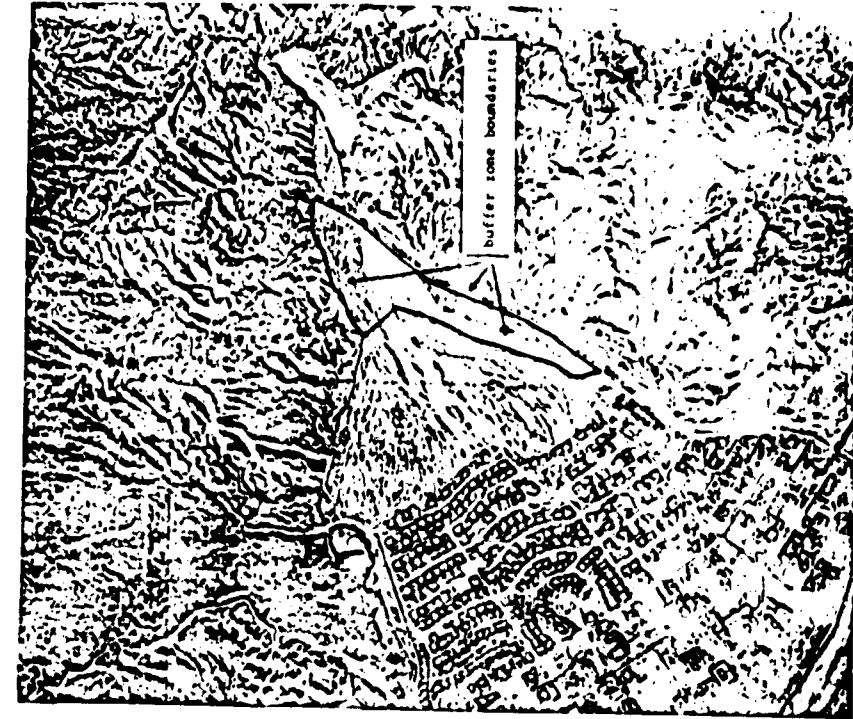


Figure 10 Location of recommended buffer zone

c. Unavoidable - None identified.

2. MITIGATION PLAN

The mitigation plan was developed to address major impacts to selected individual or groups of species and their habitat in the attempt to retain the existing level of productivity and wildlife carrying capacity in those areas which could be impacted by the proposed project alternatives. This could not be practically achieved on or near the project area on a species by species, nor acre basis considering the intensity of development in the upper Coachella valley, the correspondingly high land costs, and the lack of expensive suitable compensation lands adjacent to the project site.

1. Plan 1, Plan 2, and Plan 3a - The loss of the equivalent of 130 acres of enriched desert scrub habitat on the alluvial fan (150 acres of existing habitat minus acreage equivalent of values eventually regained after maturity of landscaping computed at 8.0 percent of existing values) could be reduced by approximately 1/4 by the acquisition and preservation for wildlife of 37.5 acres that extend to a belt along the existing channel road from just above the school to a broadened triangular shaped portion located at the top of the fan. This habitat belt would preserve some existing wildlife values and also act as a buffer zone between ensuing development and big game scrub habitat, partly compensating for the effects on big game from the encroachment of urbanization. This acreage would also partly offset the loss of habitat for raptors and carnivores. The buffer zone should include the small existing northwestern-southwestern wash, as well as the low-lying wash bottom in the upper triangular portion of the fan (Figure 10). The existing vegetation should be left intact.

To further offset losses on the fan, planting should be done in the buffer zone with those wash dwelling natives that will contribute as much productivity as possible in terms of cover, food, and a good mix of stature including palo verde (*Cercidium floridum*), mesquite, acacia, mesquite, palo verde (*Prosopis juliflora*), with saltbush (*Atriplex polycarpa*), along the higher edges. Plantings should be accomplished in a wide belt along the two sides of the smaller existing wash and continue in somewhat wider belts along the edges of the expanded portion of the buffer zone to the top of the fan. Planting the edges of these existing washes should maintain soil moisture availability while hopefully minimizing the care-taking necessary to ensure establishment of the desired greenbelts. The scheme of planting the buffer edges would also result in adequate open habitat while maintaining edge effect. A realistic goal would be the attainment of about 25-30 percent cover contributed by perennials (including shrub stems per acre including 10 to 15 palo verde per acre. Productivity and habitat values for wildlife should be greatly increased by the wash community resulting from this planting scheme, thereby offsetting in the quality of habitat a large portion of the remaining losses of wildlife values on the alluvial fan. The extent that the remaining loss is offset, however, depends entirely upon the species and success of the scheme finally implemented and maintained.

In formulating the general design for mitigation presented herein, bird diversity and density were utilized as generally indicative of habitat carrying capacity for wildlife. The planting scheme was envisioned for greater vegetational diversity, emphasizing a greater proportion of important food-bearing plants than that found in the wash habitat in lower Creas to the south of the project site. Greater bird diversity and densities to three times those observed in the enriched desert scrub in the planning area were repeatedly observed in lower Creas. Consequently, achievement of the proposed planting concept should result in a threefold increase in bird density and the expected greater diversity within the resulting nature habitat. The wildlife values thus attainable would represent roughly three times those previously existing or the equivalent of 112 acres of enriched desert scrub. These values would be preserved on site under the suggested mitigation plan, but only 37.5 acres of land would be required. The resulting habitat would provide abundant prey for raptors and carnivores, further offsetting the impacts of habitat losses for these groups of species. Further specifics of the planting operation should be worked out in the future by CE, PWS, and CDPC representatives.

The balance of the habitat lost on the floodplain should be offset by purchase, deed restricting, or zoning of 26 acres of similar alluvium for wildlife as near as possible to the project site. The small drainage bottom along the northwestern side of the channel would be preferred location. Any lands used for the dumping and/or storage of debris within the buffer zone would not be conducive to the desired level of productivity therein. If debris is to be stored or dumped in the buffer area, as well as area as possible should be clearly delineated, that site only should be used, and a comparable acreage should be added to the buffer zone downstream.

To mitigate for the habitat losses associated with placement of the debris basin, embankment, and channel, an equal acreage of land along the upper wash, northern side canyon, and the facing cliff slopes should be purchased or set aside by other means and included within the CDPC Reserve. This would further aid in the preservation of heavily used bighorn sheep habitat and allow greater regulation over uses of the spring environs that are disruptive to bighorn. The acreage by alternative would be 16.6 acres (Plan 1), 20.6 acres (Plan 2), or 19.1 acres (Plan 2a). These acreages include 6.6 acres of perennial vegetation destroyed by upstream project works and 10.2 acres (Plan 1), 14 acres (Plan 2) or 12.5 acres (Plan 2a) of sandy wash habitat eliminated by concrete channelization.

To alleviate the potential hazard to wildlife and people of a concrete channel, a fence should be placed along the southeastern side of the channel.

To avoid the potentially significant effects on bighorn sheep, an action associated with construction or maintenance of the proposed project features should be accomplished between June 15 and September 30 each year, from and including the embankment site up canyon.

To avoid unnecessary disruption of habitat and loss of wildlife values, the confines of the project area for both construction and maintenance purposes (the debris basin in particular), should be clearly defined and no disruption of habitat should occur outside the designated area, where possible, perennial vegetation along the sides of the debris basin should be left intact.

The alteration of intermittently utilized bighorn habitat in the upper wash, otherwise unmitigated short-term wildlife value losses (during construction, maintenance, and while plantings take), and noise disruption to wildlife at the spring should be mitigated by the development of a permanent water source in the canyon. This could be accomplished inexpensively and would be a boon to bighorn as well as the wildlife of the area in general. One concept would involve the placement of a partly buried tank close enough to upper wash or side canyon access that during very dry years, the tank could be filled from a water truck. Another possibility would be the use of low-flow seasonal runoff in the canyon to fill an artificial tank or partly covered tanks hollowed in bedrock somewhere in the lower canyon. Still another concept would be the alteration of the CDPC waterhole rendering it permanent during all years and giving it a much larger holding capacity. The details should be worked out, before project construction, amongst CE, PWS, and CDPC representatives.

To help regulate the expected increase in public use of the CDPC Ecological Reserve, a vehicle-proof barrier should be installed at the embankment site and/or at the lower end of the channel-side road near the school. The barrier(s), along with the debris basin embankment (which will inherently stop private vehicle travel in the channel and up the wash) will effectively stop private vehicle travel into the areas where disturbance to bighorn sheep would occur. Gates that will effectively stop foot traffic should also be installed so that complete closure to the public can be accomplished during the dry season. A small turnaround and parking for 8-10 cars should be provided at the appropriate location. The details of this can be worked out in the future, before project construction, between CE, CDPC, and PWS.

2. Plan 3 - The mitigation plan for this alternative would be the same as that described for Plan 1 through 2a except for the lack of considerations for a concrete channel and differences in the acreage involved with placement of project features. To offset the impacts associated with the habitat altered by groin and levee placement, and channel widening, 10.6 acres (includes 4.6 acres of perennial vegetation eliminated at the mouth of the canyon and 6 acres eliminated along the channel) should be purchased along the upper wash (as in Plan 1) and included in the CDPC Ecological Reserve.

3. Plan 4 - To mitigate for losses of habitat and wildlife values associated with the equivalent of the 138 acres of enriched desert scrub on the alluvial fan, the existing channel should be added into the buffer zone as described for Plan 1 (but with slightly reduced acreage). The buffer zone should be made to comprise 46 acres, offsetting losses of habitat or the fan by about one-third. To further offset losses, culverts should be placed under the road to allow water released from behind the

channel combination alternatives (Plans 1-2a) would provide adequate flood protection, and with FWS recommendations would insure preservation of a large portion of the wildlife values now existing on the project site.

Consequently, with the inclusion of FWS mitigation recommendations, we could support any of the following alternatives, including the CE recommended plan, Plan 1.

1. Plan 1, Plan 2, and Plan 2a

a. That the report of the District Engineer, CE, include the conservation of fish and wildlife resources among the purposes of the project. (To insure that all project associated impacts upon biological resources are offset.)

b. That a buffer zone be established between the canyon mouth and expected future development by the acquisition and preservation for wildlife of 37.5 acres along the upper alluvial fan below the embankment. (To partially offset habitat losses by ensuring development on the alluvial fan.)

c. That plantings of highly productive native perennial plants be accomplished and tended along the buffer zone. A desert wash community that attains 25-35 percent shrub cover and 500-650 shrubs per acre would approximate the desired goal. (To maintain natural wildlife values on site, further offsetting wildlife value losses on the alluvial fan.)

4. That the planting program in the buffer zone be accomplished prior to or concurrent with project construction. (To minimize short-term losses of biological values.)

a. That 26 acres of similar alluvial fan habitat be purchased or otherwise preserved for wildlife adjacent to the project site. (To offset most of the remaining losses of wildlife values on the alluvial fan.)

f. That no dumping or storage of debris be done in the buffer zone since such action would be counter-contributory to the desired level of productivity therein. If storage of debris is necessary in this area, the acreage required would not constitute a portion of the buffer zone. (To encourage and maintain desired level of high productivity in the buffer zone.)

g. That 16.8 acres (Plan 1), 20.6 acres (Plan 2), or 19.1 acres (Plan 2a) be purchased or otherwise acquired and preserved for wildlife along the upper wash and be included in the CBPC Ecological Reserve. (To offset habitat losses and other impacts associated with placement and maintenance of project works.)

h. That the channel's southeastern side be fenced. (To alleviate potential hazards to people and wildlife.)

i. That no construction or maintenance activities be performed from the embankment site up canyon between June 15 and September 30 each year. (To avoid potentially significant effects on bighorn sheep.)

dam to reach all of the wash bottoms in the buffer zone. Plantings should be done in the buffer zone, including the existing channel as described for Plan 1. Periodic controlled releases of water from the dam would be used to ensure the establishment of the desired desert wash vegetation. The expected threefold increase in wildlife values resulting from the increased diversity, density, and productivity of perennial plants (see buffer zone discussion under Plan 1) would eventually mitigate the wildlife value loss equivalent of nearly all of the loss of enriched desert scrub on the fan. No dumping of debris should be allowed in the buffer zone since this would counter the desired level of productivity therein.

To mitigate the losses of 16 acres of desert wash vegetation and 10 acres of creosote bush scrub accrued by placement of the dam and upstream foundation, and repeated disturbance of 15 additional acres of open sandy wash, 35 acres should be purchased or otherwise guaranteed for wildlife in perpetuity along the facing cliffs and ridges adjacent to the upper wash and along the northern side canyon. These lands should be included in the CBPC Ecological Reserve.

To avoid the potentially significant effects on bighorn sheep during the critical dry season, no project construction or maintenance should be accomplished between June 15 and September 30 each year, from and including the dam site up canyon.

As partial mitigation for the unavoidable establishment and spread of nonnative weeds, some plantings and maintenance of more desirable species such as cottonwood (*Populus fremontii*) should be accomplished along the banks of the riparian zone.

Public access to the Ecological Reserve should be facilitated with features also allowing seasonal closure (as described for Plan 1).

The three individuals of glandular titmice that would be inundated by water impoundment should be removed to a suitable arboretum prior to project construction.

4. Plan 3 - The mitigation plan for this alternative would be the same as for Plan 2 except for the acreage involved with placement of project features. To offset the impacts associated with diversion levees and concrete trapezoidal channel placement, 18.6 acres should be purchased along the upper wash and included in the CBPC Ecological Reserve (as in Plan 2).

5. Plan 6 and Plan 7 - Specific mitigation requirements for these alternatives are unnecessary since it is anticipated that the existing wildlife values would persist.

F. RECOMMENDATIONS

Plans 6 and 7 would seemingly result in the least environmental impact of all alternatives, but according to the CE would not provide the necessary level of flood protection in an economic manner. The debris basin and

j. That the confines of the project site be clearly defined and adhered to. (To avoid unnecessary alteration of habitat.)

k. That a permanent water source be developed for wildlife in the lower canyon. (To offset a portion of remaining unmitigated impacts.)

l. That public access to the Ecological Reserve be facilitated in cooperation with needs expressed by CDPC including (to partially mitigate impacts on big game due to encroachment of urbanization):

1) Allowing no further vehicular travel by the general public in the upper wash by construction of appropriate barriers.

2) Effecting complete closure of the Reserve to the public during the dry season each year by providing the gates necessary to stop foot traffic.

3. Providing an appropriately placed gravel parking area for 8-10 cars.

a. That the specifics of the mitigation recommendations be worked out cooperatively by CE, PWS, and CDPC to follow the effect of use of the mitigation plan and that modification of mitigation jointly be necessary by CE, PWS, and CDPC be accomplished and funded by CE. (To insure that project related losses are adequately mitigated and to improve reliability of mitigation recommendations for similar projects in the future.)

2. Plan 3

a. That recommendations a, b, c, d, e, f, g, h, i, j, k, l, m, and n, as described under Plans 1-2a, also be accomplished for Plan 3, if constructed.

b. That 20 acres of similar alluvial fan habitat be purchased or otherwise preserved for wildlife adjacent to the project site. (To offset a portion of the losses of habitat on the alluvial fan.)

c. That 10.6 acres be purchased or otherwise acquired and preserved for wildlife along the upper wash and be included in the CDPC Ecological Reserve. (To partially offset habitat losses and other impacts associated with groin and levee placement and channel widening.)

3. Plan 4

a. That recommendations a, c, d, e, f, g, h, i, j, k, l, m, and n, as described under Plans 1-2a, also be accomplished for Plan 4, if constructed.

b. That a buffer zone be established between the canyon mouth and expected future development by the acquisition and preservation for

wildlife of 46 acres along the upper alluvial fan below the dam and including the existing channel. (To partially offset habitat losses on the alluvial fan.)

c. That periodic releases of water from the dam be utilized to insure maximum productivity of plants in the buffer zone. Concurrently, that culverts be placed to insure that waterflows reach all wash bottoms in the buffer zone. (To further offset habitat losses on the alluvial fan.)

d. That 35 acres be purchased or otherwise acquired and preserved for wildlife along the upper wash and be included in the CDPC Ecological Reserve. (To partially offset habitat losses and other impacts associated with dam placement and backwater inundation.)

e. That plantings and tending of appropriate native species of perennial plants be done along the banks of the impoundment. (To partially mitigate the spread of noxious weeds.)

f. That any individuals of glandular ditanis now occurring within the expected inundation levels be transplanted to a suitable arboretum prior to project construction. (To avoid the destruction of individuals of a rare plant species.)

4. Plan 5

a. That recommendations a, b, c, d, e, f, g, h, i, j, k, l, m, and n, as described under Plans 1-2a, also be accomplished for Plan 5, if constructed.

b. That 10.6 acres be purchased or otherwise acquired and preserved for wildlife along the upper wash and be included in the CDPC Ecological Reserve. (To partially offset habitat losses and other impacts associated with levee and channel placement.)

5. Plan 6 and Plan 7

No specific recommendations are made relative to these alternatives because they would essentially result in no action and wildlife values would be expected to remain relatively unchanged.

6. Alternative Mitigation Proposal

Regarding the CE proposed mitigation features transmitted by letter dated August 12, 1987, we would not oppose project construction provided our additional recommendations are incorporated. These are detailed in our enclosed response to that proposal and in the transmittal letter to this report.

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21, 1961

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port indicates, increase urban-maintenance claims. We believe the maintenance project planning be consistent

the direct

Area Manager

2-

In addition, the Department concurs with the Service's recommendations to provide natural buffer areas between the project area and subsequent urban development. We believe, however, that the entire wash area upstream from the structural improvements and adjacent to the Ecological Reserve should receive the highest priority. Pending accomplishment of this need, we concur that an additional buffer zone downstream from the flood control improvements would be necessary and appropriate.

Thank you for the opportunity to review and comment on the subject report. We look forward to further coordination with the Fish and Wildlife Service and the Corps of Engineers as the planning process proceeds. If you have any questions regarding these comments, contact Fred A. Northley Jr., Regional Manager, Region 5, at 350 Golden Shore, Long Beach, California 90802; telephone number (213) 590-5113.

Sincerely,

[Signature]
Director



DEPARTMENT OF THE ARMY
UNITED STATES OF AMERICA
WASHINGTON, D.C. 20315

MAIL ROOM
MAIL ROOM

16 July 1961

Area Manager
U.S. Fish and Wildlife Service
2700 Cottage Way, Room E-2740
Sacramento, California 95825

Dear Sir:

This is in reply to the draft Fish and Wildlife Coordination Act Report for the proposed small flood control project in Lagunas Spring Canyon for the city of Rancho Viejo, Riverside County, California dated June 1961.

Your transmittal letter requests receipt of the District's comments by 15 July 1961. An incomplete list of comments is attached to this letter. A complete list cannot be provided at this time owing to unresolved mitigation issues relating to habitat loss compensation. We believe that a mutually satisfactory solution can be reached. The District requests a meeting with your staff to discuss the potential alternative mitigation packages. Mr. E. Puyas of this office will contact your staff to arrange a meeting. A complete list of comments will be forwarded subsequent to that meeting.

We have agreed to a final discussion and resolution of issues.

Sincerely,

Very truly,
Your obedient servant

FORREST ALLEN
Chief, Engineering Division

U.S. Fish and Wildlife Service
Ecological Services
24000 Avila Road
Laguna Hills, California 92653
ATTN: Mr. Ralph Pisapia



DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT OFFICE, CORPS OF ENGINEERS
P. O. BOX 2771
LOS ANGELES, CALIFORNIA 90008

WPD-EP

Comments on FWS Coordination Act Report on West Magnesia Canyon Flood Control Project.

- P. 41. Para. 1, (West Magnesia Spring Canyon)
P. 41. Para. 2, should read--CE Assistant Project Manager, I. Airt
P. 1. Para 2, should clarify that the watering area is in the canyon rather than on the cone.
P. 7, figure 4, add "Approximate" Project Alignment
P. 8, figure 5, see above
P. 11, figure 7, see above
P. 12. Para. 1, eliminate "This overall system ... before Congress"
P. 12. Para. 2, ff, flood damage "up to 100 yr. flood"
P. 36-37, regarding impacts on sheep--let's provide water through guseler somewhat removed from site and/or enlarge pool.
P. 43. Para. 1, First sentence is confusing. Specify how numbers (138 acres, 8.0 percent) arrived at.
P. 43. Present the rationale for the buffer area shown.
P. 48. Para. 1. The fee is very sparsely vegetated at present. Why is it necessary to create the equivalent of "enriched desert scrub"?
P. 51. change "but would not provide the necessary level of flood protection" to "would not provide flood protection to existing development in an economic manner."

12 AUG 1982

Area Manager
U.S. Fish and Wildlife Service
2800 Cottage Way, Room E-2740
Sacramento, California 95825

Dear Sir:

This letter transmits our Memorandum for Record detailing the points of the mitigation package developed in coordination with your Laguna Miguel field office and other concerned agencies for the proposed small flood control project on Magnesia Spring Creek, Rancho Miraga, Riverside County, California. This mitigation package has been developed in recognition of your June 1981 draft fish and wildlife Coordination Act Report prepared for this proposed project. A 16 July 1981 letter to your office provided an incomplete list of comments on your draft report and indicated that unresolved mitigation issues prevented the District from providing a complete response at that time. We believe these issues have been resolved and this District requests that the final Fish and Wildlife Coordination Act Report be prepared to consider the mitigation package presented in the attached memorandum. Should you or your staff have any questions concerning the contents of the memorandum, please contact Kathy Kuyasz at FTS 798-5421 or Chris Kronick at FTS 798-5462. We would appreciate receiving the final report as soon as possible.

Sincerely,

1 Incl
As stated

CARL F. ELLSON
Acting Chief, Planning Division

SMC:U EP

2 August 1982

MEMORANDUM FOR THE RECORD

SUBJECT: Features of Mitigation Package for the Project Proposed for
Magneolia Spring Creek, Rancho Mirage, California

The mitigation package for the Magneolia Spring Creek Flood Control Project developed in coordination with the Coachella Valley Water District, City of Rancho Mirage, U.S. Fish and Wildlife Service, and California Department of Fish and Game is as follows:

1. Preservation and enhancement of approximately 20 acres on the east side of the alluvial cone between the Coachella Valley Water District's proposed levee and the toe of the mountains.

a. Material for levee construction may be acquired within the 20 acres. Disturbance of the 20-acre area should be kept to a minimum. The Corps of Engineers will revegetate the 20-acre area with native plant species during its construction activities and irrigate for a period of up to 2 years should significant habitat values disturbed by construction of the levee fail to reestablish. Revegetation efforts will utilize native species such as palo verde, mesquite, and beloperone.

b. The 20 acres would be enhanced by the increased availability of water provided by the levee which will act to concentrate runoff and by a gated 36-inch pipe extending from the debris basin to the east channel. The gate will be adjusted so that the pipe is able to deliver 50 cfs and closed only during emergencies and maintenance operations. Maintenance of the pipe will be the responsibility of the Coachella Valley Water District.

c. The City of Rancho Mirage will assure that at least a 50-foot-wide strip of open-space will be provided along the east levee between the levee and any future development on the cone. In addition, at least a 300-foot-wide strip of open-space will be insured by the City along the slopes east of the mitigation area between any future development and the mitigation area.

d. All parties recognize the importance of protecting wildlife habitat within the 20-acre mitigation area on the east wash and pledge their efforts in the future towards that goal. Of particular importance to the wildlife using the mitigation area is the hillside directly to the east and the possibility of future development there. Any such development must be kept a minimum of at least insure minimal impacts on the mitigation area.

2. Land on the alluvial cone upstream of the debris basin embankment will be put under the control of the State of California by means of a wildlife

CC: Ralph C. Pisapia, Field Supervisor
U.S. Fish and Wildlife Service
Ecological Services
24000 Arilla Road
Laguna Hills, CA 92657

Mr. Fred Martiney, Regional Manager
California Department of Fish and Game
350 Golden Shore
Long Beach, California 90802

Mr. Lowell O. Necha, General Manager-Chief Engineer
Coachella Valley Water District
P.O. Box 1056
Coachella, California 92236

Mr. Dave Dixon, City Manager
City of Rancho Mirage
69-825 Highway 111
Rancho Mirage, California 92270

SP-17

2 August 1982
SUBJECT: Features of Mitigation Package for the Project Proposed for
Magnesia Spring Creek, Rancho Mirage, California

ecosystem. The Coachella Valley Water District will have fee title to the facilities. Enforcement of law and order upstream of the debris basin embankment will be the shared responsibility of the local law enforcement agencies and the California Department of Fish and Game.

3. Possible disturbance of the bighorn sheep caused by Corps of Engineers construction activities at the upstream end of the cone, including debris basin excavation and embankment and spillway construction, will be mitigated by enhancing water source(s) in Magnesia Spring Canyon prior to construction activities. The design and placement of the enhanced water source(s) will be determined by the Corps of Engineers in cooperation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game. The Corps has allocated \$15,000 for this purpose. Any maintenance of the enhanced water source(s) will be the responsibility of the California Department of Fish and Game, acting as an agent of the local sponsor. To minimize impacts to the bighorn sheep, construction activities will be scheduled, to the maximum extent practicable, to avoid the period from 15 June through 30 September.

4. Maintenance of the debris basin and upstream portions of the channels by the Coachella Valley Water District will, to the maximum extent practicable, be timed to avoid the critical dry period for bighorn sheep from 15 June to 30 September.

5. Potential construction-induced noise disturbance of school activities at the Rancho Mirage Elementary School and of residents living near the channel alignment will be mitigated, to the maximum extent practicable, by avoiding construction activities adjacent to the school during school hours and during the signage hours.

6. Disposal of debris from the basin during maintenance activities conducted by the Coachella Valley Water District will comply with applicable Federal regulations especially those concerned with the protection of significant cultural resources and endangered or otherwise significant plant and animal species.

7. Operation and maintenance of the East Magnesia Spring Channel by the Coachella Valley Water District will take wildlife values into consideration and will, to the maximum extent practicable, preserve the wildlife values that establish there.

8. Vehicle access to the Magnesia Springs State Ecological Reserve will be provided for representatives of the California Department of Fish and Game and private vehicles under California Department of Fish and Game's direct supervision by way of an easement along the channel and any debris basin service roads or by any other compatible roadways that provide for parking of several vehicles near the debris basin.

SP-17

2 August 1982
SUBJECT: Features of Mitigation Package for the Project Proposed for
Magnesia Spring Creek, Rancho Mirage, California

9. Public foot access to the Magnesia Springs State Ecological Reserve via the channel service road (or other comparable roadway) and debris basin will be permitted except during the period from 15 June through 30 September. Closing of access to the Reserve will be the responsibility of the California Department of Fish and Game.

10. A turn-around and parking area for several cars will be provided by the Corps of Engineers at the upper end of the channel service road for use by authorized vehicles.

11. Fencing will be provided on both sides of the channel in accordance with Corps of Engineers regulations, safety requirements, and environmental concerns. Fencing on the west side of the channel will be of a type that is unlikely to catch the hooves of bighorn sheep. Gates will be provided to limit vehicle and foot access to the service road and debris basin.

12. The Corps of Engineers will provide wire mesh fencing along the downstream toe of the debris basin embankment to prevent unauthorized access to the embankment and the debris basin. Excess rock from channel excavation will be placed along the toe of the downstream embankment to act as a further barrier to vehicles.

13. Some excess excavated soil material will be placed on the downstream face of the embankment. The downstream face will then be planted with some native vegetation to minimize erosion and improve aesthetics.

14. Any of these mitigation features carried out prior to the construction of this project are understood by all parties to mitigate the wildlife impacts of this project.

KATHLEEN KIRBY
Environmental Coordinator
Environmental Planning Section

B. AGENCY VIEWS ON PWS RECOMMENDATIONS AND PWS RESPONSE

The CDFG's letter of July 21, 1991 provided review comments on the draft PWS report for the Small Flood Control Project, Rancho Miraga (Muguelia Spring Canyon). Their letter essentially expressed concurrence with the PWS analysis of the project and recommendations, provided that their priority concerns were accommodated regarding access and control of a buffer area comprising the entire wash upstream of the debris basin. Their concerns have been addressed.

The CE's letter of July 16, 1991 provided an incomplete list of review comments, due to unresolved mitigation issues, on the same draft PWS report. The comments provided have mostly been incorporated herein where word changes are suggested; the answers to the remaining questions and calls for clarification were provided in the draft report available upon attentive reading and are still contained herein. Subsequent to the July 16, 1991 letter, we were requested by CE staff to delay submitting a final PWS report until they were able to consult with others including the CDFG.

The CE's letter of August 12, 1992 and attached Memorandum for Record of August 2, 1992 completed the CE's review of the draft PWS report of June 1991 and requested submission of our final report. The memorandum presents a mitigation package for the proposed project which took into account PWS recommendations made in the draft PWS report, project economics, local concerns and constraints, and the concerns of the CDFG and other agencies. The CE proposed mitigation would not offset all wildlife value losses associated with the proposed project, but considering local constraints, the PWS would not oppose the project if that mitigation package incorporates the following recommendations:

1. The mitigation lands on the east side of the alluvial cone will comprise 20 acres or more.
2. Levee construction adjacent to the 20-acre area will not affect more than 5 acres of that 20-acre area. In other words, the existing vegetation on at least 15 acres will not be disturbed.
3. The CE will plant native plants in the 20-acre area, and irrigate these plantings for up to 2 years or until the majority have obviously taken. Plantings will minimally include 20 palo verde trees, 200 chaparrals, and 50 cat claw per acre on at least 7 acres. The palo verde trees should be at least 5 gallon size.
4. Any development on the hillside above the east wash 20-acre mitigation area should be kept to a minimum. Any allowed development occurring during the life of the project must insure no impacts on the mitigation area and no net impacts on bighorn sheep. All potential impacts upon bighorn sheep from development on the slopes within the project area will be fully mitigated at the time of that development.

5. The wildlife easement giving control of the lands upstream of the debris basin to the State of California will be signed and finalized prior to any construction activities on the project.

6. Construction of the debris basin embankment and construction activities upstream of the embankment will be timed to avoid the period June 15 - September 10.

7. Maintenance of the debris basin and upstream portion of the channels by the CWD will, except under extreme emergency conditions, be timed to avoid the critical dry period for bighorn sheep normally from June 15 to September 10. A definition of "extreme emergency conditions" and a maintenance schedule that will help avoid having such conditions arise will be worked out between the CDFG, the CE, and the CWD and written into the wildlife easement agreement or some other binding written agreement prior to project construction.

8. Debris disposal sites to be used during maintenance activities conducted by the CWD will be identified and agreed upon by the CE, PWS, CDFG, and CWD prior to any construction activities.

9. Necessary maintenance of the East Magness Spring Channel by the CWD or others will affect the vegetation on no more than 4 acres. Within those 4 acres, clumps of woody perennial vegetation will be avoided such that none are removed. This recommendation is facilitated by the fact that very little debris is expected to accumulate in the East Channel.

10. The CE will strongly recommend that a hedgerow be planted and maintained along the ensuing development. Palo verde and chaparrals should be dominant plantings therein. Such a row will benefit wildlife and could act as a screen between housing and the channel roads.

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INTRODUCTION

This report is an inventory and analysis of biological resources of the site of the Rancho Mirage Flood Control Project, located at the top of the alluvial fan of Magnesia Springs Canyon, Riverside County, California. The Corps of Engineers has proposed seven alternatives for flood protection to the city of Rancho Mirage, most of them involving construction at the canyon mouth. The area is known for its use by Bighorn Sheep and birds of prey as well as for its occasional destructive floods.

Field surveys were conducted in August and September 1980. At this time of year there are few living annual plants and most perennial plants are dormant. Animal activity is very restricted due to the intense daytime heat. Breeding bird density cannot be determined. However, resident species of animals depend heavily on Magnesia Springs during the summer, particularly the Bighorn Sheep, so that the season was quite favorable for assessing importance of the region to this rare species. Still, the thoroughness of the inventory must be considered limited by the poor growing conditions and short activity periods of plants and animals during the summer.

RANCHO MIRAGE FLOOD CONTROL PROJECT:

BIOLOGICAL INVENTORY AND IMPACT ANALYSIS

Lawrence F. LaPre, Ph.D.
Contractor

Steve Boyd
Staff Botanist

September 1980

A major flood scoured the stream channel during the summer of 1979, destroying most of the vegetation and eliminating much wildlife habitat. The construction site for the flood control project is thus mostly barren of vegetation in the wash and occupies very limited acreage on the rocky hillsides. Few animal or plant species occur on the construction site. However, the rocky hillsides, alluvial fan, a small side canyon, and the gorge of Magnesia Springs Canyon provide good habitat for native plants and animals, and all these areas were surveyed in order to present a picture of habitat values in the greater project area.

ENVIRONMENTAL SETTING

Plant Communities and Habitat Types

The vegetation of the project area is dominated by the creosote scrub plant community (Munz 1974). There are two forms of this association here. There is rocky hillside creosote scrub and alluvial plain creosote scrub. Rocky hillside creosote scrub is characterized by rather small creosote bushes, Larrea tridentata, widely and evenly spaced over all but the steepest cliffs and hillsides. Associated with Larrea are numerous burseshaws, Ambrosia dumosa, brittlebushes, Encelia farinosa, cacti, and other smaller shrubs and herbs. On the steep cliffs a group of plants adapted to dwelling on cliffs predominates. These include the desert fir or pygmy cedar, Peucephyllum schottii,

arrow-leaf, *Pleuronotus pluriatus*, barrel cactus, *Ferocactus an hodes*, and many forget-me-not, *Cyrtanthe fecunda*. All these species occur in other habitats but are dominant only on steep rocky cliffs.

Alluvial plain creosote scrub tends to be more diverse. Larrea is much larger on the alluvial fan because of the greater amount of moisture in the ground. The vegetation of the fan is a collage with older, stabilized soils dominated by Larrea and less stabilized, sandy spurs dominated by catclaw, *Acacia greggii*, desert lavender, *Hyptis emoryi*, and indigo bush, *Dalea schottii*.

In the flood-prone canyon mouth and some of the larger drainages of the alluvial fan, catclaw/smoke tree wash vegetation is present. As the same suggests, this vegetation association is dominated by catclaw, *Acacia greggii*, smoke tree, *Dalea spinosa*, along with desert lavender, *Hyptis emoryi*. Other shrubs include cheesebush, *Hymenoclea salsola*, sweetbush, *Rebisia lundae*, and occasionally honey mesquite, *Prosopis glandulosa*.

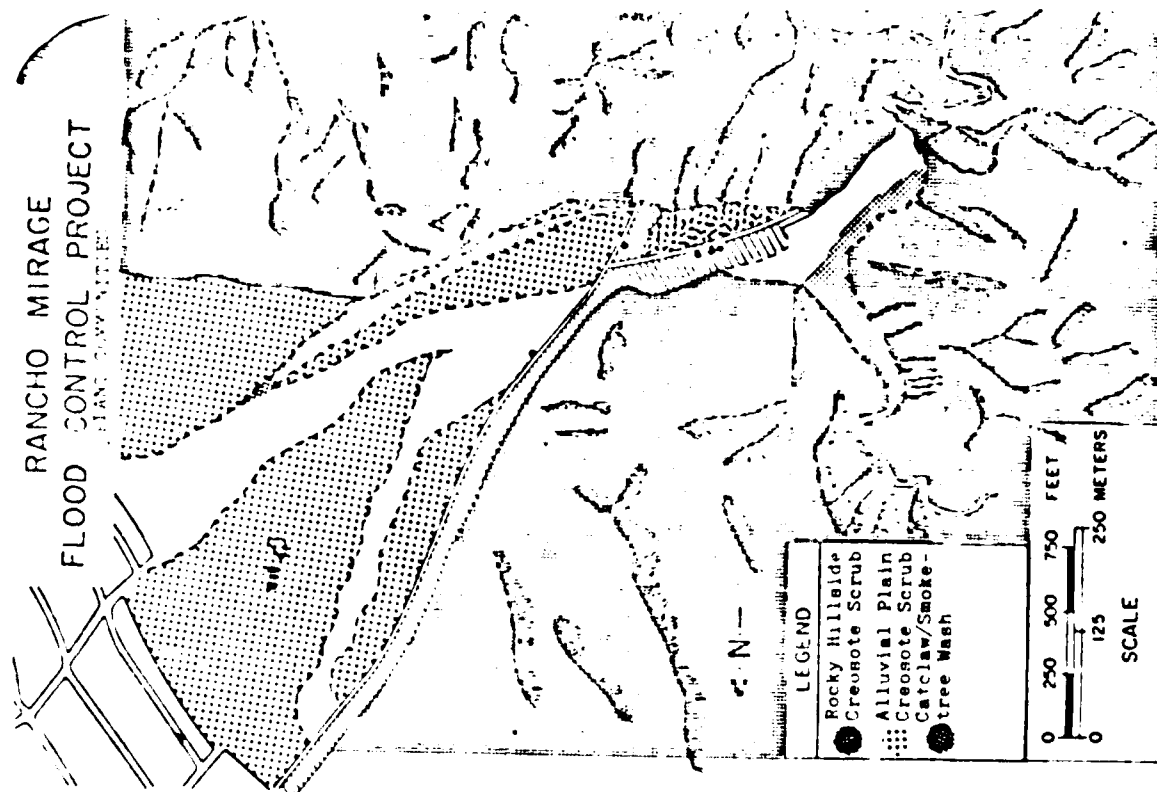
In areas where water comes to the surface, there is an assemblage of water-loving plants, such as California fan palm, *Washingtonia filifera*, arrow-weed, *Pluchea sericea*, California loosestrife, *Lythrum californicum*, narrow-leaved cattail, *Typha domingensis*, and honey mesquite, *Prosopis glandulosa*.

Flood Plain Succession

When a flood occurs, virtually all of the annual plants and a large percentage of the perennial vegetation in the path of the flood waters are removed. However, unless the flood is extremely severe, some of the larger catclaws and smoke trees and often most of the perennial vegetation survives. The sand laid down by the flood provides a seedbed for both annual and perennial plants, some of which require sand scarification before germination can take place. In those areas where perennial cover is removed, the dominant plants the first year are annuals. The first perennials to come up after a flood are cheesebush, *Hymenoclea salsola*, rush pea, *Holmesia microphylla*, and smoke tree, *Yucca elata*. The cheesebush matures faster but seems to be less resistant to periodic flooding than smoke tree. Eventually other sandy wash plants become established. The time frame for this process is not fully known and is probably dependent on the periodicity and intensity of subsequent floodings. At any one time various parts of the wash community are in different stages of succession. This is the situation in the numerous braided stream channels on the alluvial fan.

Disturbance by Man

Unlike flooding, bulldozing removes not only the annual cover but also all of the perennial cover as well. This creates a seedbed for both annual and perennial plants as witnessed by the large numbers of sandbars,



Community Age and Stability

The alluvial fan plant community, creosotebush scrub, is of more permanence and contains species of greater longevity. Several creosote bushes showed basal root-crown splitting and outward clonal growth, giving age estimates of about 100-150 years (Vasek 1977). The age mixture of creosotebushes on the fan was very diverse, however, since differing portions of the vegetation were removed by flooding at different times. The existing vegetation of the fan probably represents the dominant type for this geographic setting. Recovery time for the plants of the alluvial fan after severe disturbance is much longer than for the desert wash community, since the perennials are generally longer lived and require slightly more well-developed soils than the bare sand of the stream channels.

Habitat Analysis

The current condition of the construction site provides very poor habitat for native plants and animals due to the soil disturbance, lack of shade or cover, and frequent disturbance by man. The wash receives transitory use by many large animals (Coyote, Bighorn Sheep, Great Horned Owl), but is nearly devoid of the smaller animal residents found in a mature desert wash community (Desert iguana, Fence-tailed lizard, Verdin, Black-tailed Catcatcher, many rodents, etc.). The limited regions of vegetation support small populations of several species of plants and animals which would expand into the developing wash community if left undisturbed for some time. The project area does provide feeding habitat for birds of prey, which would also be expected to improve

TABLE 1.

Comparison of Plant Species in Flooded vs. Bulldozed Areas

Floated

Hebbie juncea*
Amisumia calliomeia
Junca sp.
Salvia columbariae
Boerhaavia crenulata
Lymnecystis scissula*
Erucella latifolia*
Sedum barbatum
Cryptantha angustifolia
Holtmannopsis in microphylla*
Brassica rubra
Eriogonum reniforme
Eumecbia acutula
Lychnis atrorubens
Physalis crassifolia*
Plantago insularis
Dalea spinosa*
Chorizanthe rigida
Langloisia
Mimulus bigelovii
Petalonyx thurberii
Palafoxia linearis
Eriogonum serotinum
Eriogonum triflorum
Chorizanthe brevicornis

Floated

Hebbie juncea*
Amisumia calliomeia
Junca sp.
Salvia columbariae
Boerhaavia crenulata
Lymnecystis scissula*
Erucella latifolia*
Sedum barbatum
Cryptantha angustifolia
Holtmannopsis in microphylla*
Brassica rubra
Eriogonum reniforme
Eumecbia acutula
Lychnis atrorubens
Physalis crassifolia*
Plantago insularis
Dalea spinosa*
Chorizanthe rigida
Langloisia
Mimulus bigelovii
Petalonyx thurberii
Palafoxia linearis
Eriogonum serotinum
Eriogonum triflorum
Chorizanthe brevicornis

↑ indicates a perennial plant

III Perennial species

7 perennial species

with time. There is a striking paucity of reptiles on the construction plot, although many species can be found on similar alluvial fans and washes that have not been so recently flooded, as in Deep Canyon, Tahultz Canyon, or La Quinta.

Residential development on the alluvial fan has enhanced populations of Ground Squirrels and Gambel's Quail. There are perhaps more individuals of these birds than would be found under native desert conditions. These species, as well as House Finch, Pocket Gopher, California Ground Squirrel, and a few others survive very well where an edge effect is created by residential development bordering native desert terrain.

Human Use

Vegetation and wildlife of the project site are currently impacted by rather heavy human use. The most detrimental effects are caused by off-road vehicles. Both motorcycles and four-wheel drive vehicles enter the area on occasion, disturbing the quiet conditions and damaging the limited vegetation. The vehicle noise is exacerbated by echoing through the canyons, thus presenting a clearly upsetting force to wildlife at Magnesia Springs. Vehicles were seen on the plot both day and night, although not in large numbers.

The lowest part of the springs at the mouth of Magnesia Springs Canyon showed signs of heavy springtime use by sunbathers, hikers, and partying juveniles. Most disturbance took place directly underneath the prairie falcon eyrie. This use was successful in 1980, but human disturbance should be limited to protect the nest site in the future.

SIGNIFICANT BIOLOGICAL RESOURCES

Magnesia Springs

The most important biological feature of the project area is the presence of water in Magnesia Springs Canyon. During the field surveys water was flowing down the canyon and sank abruptly into the sand at the canyon mouth, at the base of a small (5 foot high) rock waterfall. Although water was not present on the project construction site, it was utilized by wildlife from the entire surrounding area. The limited number of water sources at low elevations in the Santa Rosa Mountains gives each one added importance during the dry hot summers.

The water of Magnesia Springs also supports a palm oasis at the source, and scattered palm occur downstream in the canyon. There are almost no other riparian tree species present, probably due to the recent flooding. However, some small stands of mesquite provide food, shade, and shelter to wildlife, and a few willow seedlings were found. Water-requiring herbs, such as yellow monkeyflower, catchfly gentian, and California locoweed, were also encountered growing near the stream.

Reptiles

Magnesia Springs Canyon and the surrounding environs provide exceptional habitat for predatory birds due to a combination of favorable topographic features. The springs in the canyon provide a reliable water source, the rocky hillside and alluvial fan constitute good feeding habitat, and the steep cliffs above the canyon and wash provide ideal nesting sites. The orientation of the cliffs is crucial to the successful breeding of raptor species. In two locations, at the mouth of Magnesia Springs Canyon and within the gorge near a dense mesquite thicket, the north-facing aspect of the cliffs creates a zone of almost permanent shade in the late spring and summer. The Prairie Falcon eyrie is located at the former site, and a Red-tailed Hawk nest is situated at the latter site. These species plus the American Kestrel and Haven were seen perching on the shaded cliffs during the field surveys. The palm grove at Upper Magnesia Springs provides a daytime roost for at least one Great Horned Owl. Most likely a resident pair nests nearby.

Favorable updrafts and panoramic views from the ridges above the wash at the construction site allow for heavy use for foraging by raptors, especially Red-tailed Hawks, Prairie Falcons, American Kestrels, and Cooper's Hawks. The abundance of Gambel's Quail and Mourning Doves near the canyon mouth provides a food source for Prairie Falcons and American Kestrels, both of which were seen attacking quail on the study site. Cooper's Hawk may also feed on doves and quail near the spring.

The rodent species found in regurgitated pellets of the Great Horned Owl are the same species found to be common on the construction site and the alluvial fan. Crayfish fragments indicate that the Great Horned Owl feeds well down the fan into the city of Rancho Mirage and probably originated at a golf course water trap. The local diet of resident Barn Owls is unknown, but they were heard foraging over the wash and alluvial fan.

Although Golden Eagles were not observed during this survey, nest sites are known from Cathedral Canyon and from Deep Canyon. These birds must occasionally forage in the Magnesia Springs region since they feed over a very large range and all components of their habitat requirements occur in the project area.

The American Kestrel was observed near the developed well on the alluvial fan and perched on a tree near the lower channel. This species is tolerant of human habitation, and a nesting pair probably occurs near the residential area, with another pair found further up Magnesia Springs Canyon.

The northern part of the Santa Rosa Mountains has been described as a raptor concentration area by the BLM (BLM 1980). Results of this study verify that statement and emphasize the importance of the region for resident predatory birds.

RARE, THREATENED, OR ENDANGERED SPECIES

Ditaxis adenophora

Ditaxis adenophora, a member of the spurge family, Euphorbiaceae, was discovered growing on some of the rocky canyon walls near the project site. The California Native Plant Society lists its occurrence as limited to one or a few highly restricted populations or present in such small numbers that it is seldom reported. It is endangered in part of its range, declining in numbers, but more or less widespread outside California. Its range is from southern Sonora to southwestern Arizona, northeastern Baja California, and the Coachella Valley.

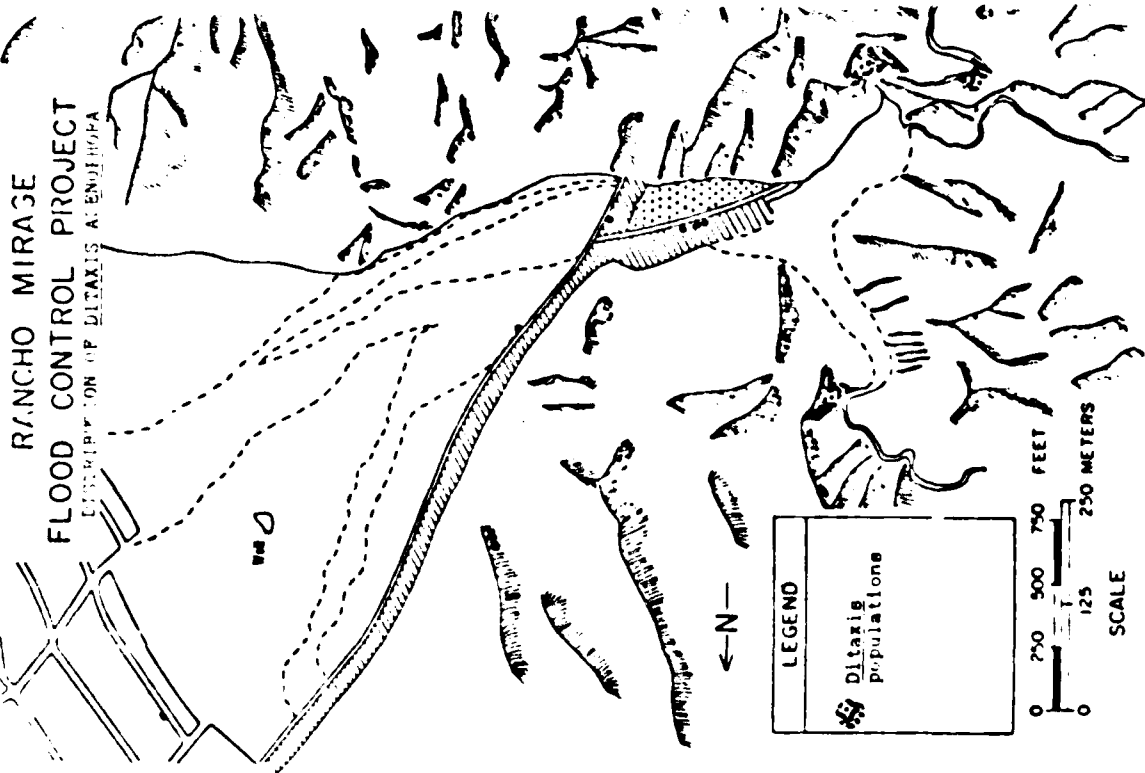
The area around the project site was searched thoroughly and three populations were located. These are indicated on the *Ditaxis* map. The habitat is steep canyon walls with acre-covered ledges. Two of the populations are on west-facing cliffs which are partly shaded and the third is on a more exposed south-facing cliff.

These populations represent a previously unknown location for this species. Fifty-five plants were counted on the cliffs at the mouth of Magnesia Springs Canyon, and fifty-eight individuals were counted in the side-canyon population. The third population, above the third falls in Magnesia Springs Canyon, was only recently discovered and has not yet been enumerated.

Bighorn Sheep

The peninsular Bighorn Sheep, *Ovis canadensis*, is listed as rare by the California Department of Fish and Game (DFG) and has been fully protected in California since 1873. It is not federally listed as threatened or endangered. Bighorn sheep use of Magnesia Springs Canyon and the surrounding hillsides and washes is extensive. The DFG has acquired an Ecological Reserve at the mouth of Magnesia Springs Canyon and developed a semi-permanent waterhole. Summer waterhole counts were conducted regularly in Magnesia Springs Canyon until 1976, when the helicopter count method was substituted. The Bureau of Land Management (BLM) has termed the canyon and surrounding hillsides "vital" habitat to Bighorn Sheep, the most critical category of sheep habitat classification (BLM 1980). The wash and a portion of the alluvial fan are classified as a "zone of deficiency," meaning that they receive irregular use by sheep and could be improved by providing more suitable conditions.

Sightings of Bighorn Sheep were made on eight separate visits (Table 2 and Bighorn Sheep Use Map). A minimum of sixteen and a maximum of twenty-two different sheep were observed near the springs, based on these sightings. There is no doubt that several sheep drink at the spring every day during the hot summer months. They approach the water from many locations. On survey days when sheep were not seen from the mouth of the canyon, they probably came to the water from access routes



that were out of view. For instance, on September 5 two yearling ewes came to the water at the palm grove at Upper Magnesia Springs but were not seen at all from the lower reaches of the canyon or from the project site at the mouth of the canyon.

However, a few access routes are definitely known. The almost continuous trail of droppings in the wash of the side canyon indicates that it is a heavily travelled route to the water at the mouth of Magnesia Springs Canyon. Several sightings of sheep were made at the top of the ridge immediately north and west of the canyon mouth. These sheep appeared to come to the ridgeline to first view the springs before descending. In another instance (July 28) two sheep were seen approaching the water along the cliffs bordering the side canyon on the west. These sheep travelled from north to south and descended to the wash about 250 meters north of the spring, then walked in the wash up to the water. One instance of a sheep approaching the water at the mouth of Magnesia Springs Canyon from the south, just above a dead palm tree, was also recorded.

Known lambing areas for Bighorn Sheep are about 1 1/2 miles northwest of the project site. Rutting territory is not precisely mapped, but any of the hillside immediately bordering Magnesia Springs Canyon may be used.

Several resting pads of Bighorn Sheep were located during field surveys. These were found along the shaded cliffs within Magnesia Springs Canyon (at the Red-tailed Hawk nest site), as was a well-defined access trail. One sleeping pad was located on the shaded cliffs of the side canyon (at the Dittails site). Both localities were shaded from the summer sun and were adjacent to suitable escape terrain (steep cliffs with uphill access away from the sleeping pads).

Sheep use of the lower wash and project construction site is occasional, as indicated by droppings. Droppings were found as far downhill as the existing cross-canyon dike and road, but not below on the alluvial fan. The sheep probably cross the wash intermittently, going to and from the rocky hillside to the north and south of the construction site.

The summer of 1960 was a year of abundant surface water flowing down Magnesia Springs Canyon. In very dry years the only available water for sheep is at the palm grove at the source of Magnesia Springs. The developed DFC waterhole probably provides some water in all but the driest years. Although considered a permanent water source, the quantity of water for sheep is variable and depends on annual rainfall.

The entire project area, except perhaps the alluvial fan, can be considered essential habitat for the Bighorn Sheep. Maximum use occurs during the late spring and summer, but some sheep probably can be found in the vicinity at any time of year. The Corps of Engineers should consider adverse impacts to the Bighorn Sheep at this location very carefully, since few sites in the Santa Rosa Mountains provide such favorable habitat for this rare species.

MAGNÉSIA SPRINGS BIGHORN SHEEP PROJECT

Known Sheep Sightings

July 28 - One. One ram (2/3 curl) and one ewe approached lower spring from cliffs above side canyon. Three others, one lamb, one mature ewe, and one young ewe (probably) joined the two from unknown direction at the base of the springs.

August 7 - Three. One mature ewe browsing on rocky hillside south of side canyon. One mature ewe above first falls in Mag. Spgs. Cyn. on hillside. One lamb on ridgeline above mouth of canyon.

August 14 - One. Young ram (1/2 curl) approached spring from NE above dead palm

August 21 - One. Mature ram (3/4-tail curl) on ridge above mouth of Mag. Spgs. Cyn.

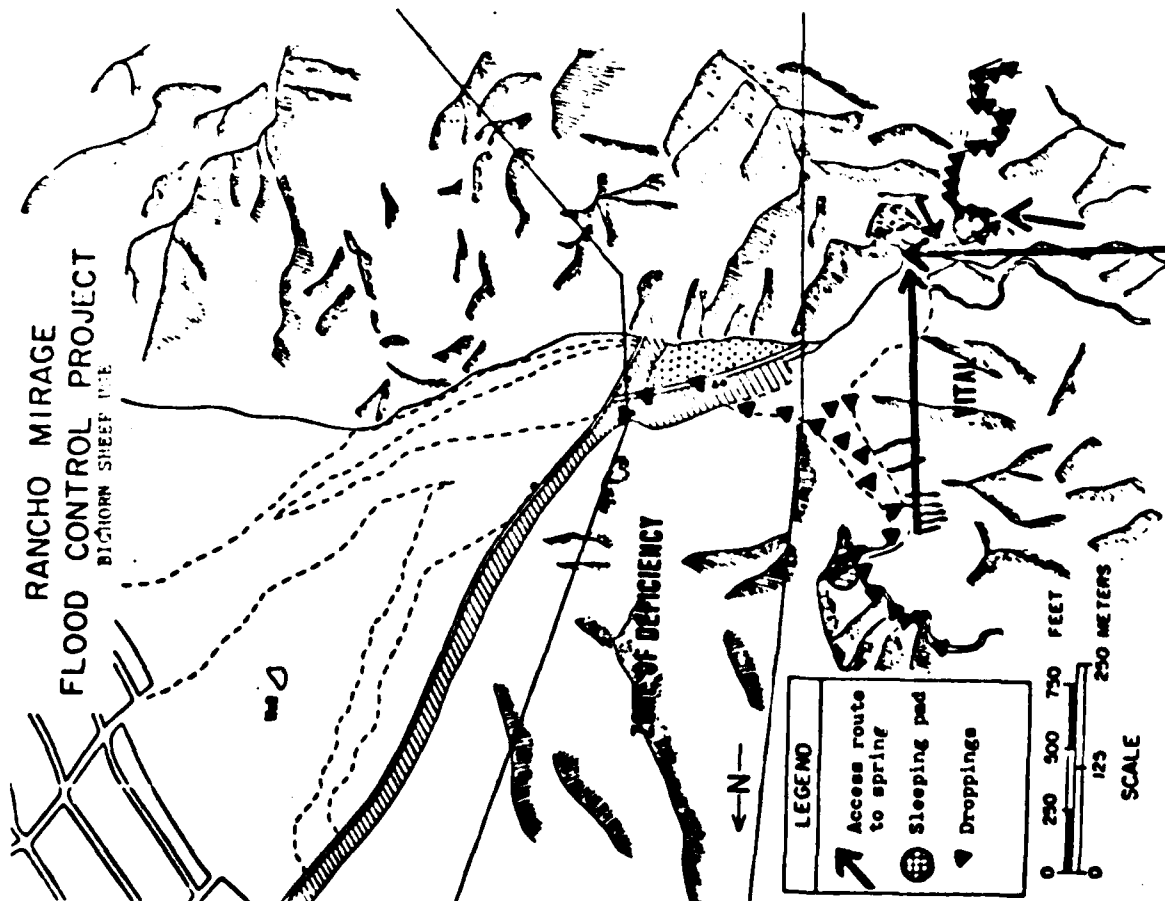
August 28 - One. Mature ewe above first falls in Mag. Spgs. Cyn.

September 5 - One. Mature ewe above first falls in Mag. Spgs. Cyn.

September 5 - Eleven. One mature ewe above second falls in Mag. Spgs. Cyn. Band of eight in canyon above third falls. Four rams (1 full curl, 1 half curl, 1 2-yr-old, 1 > 1/2 curl) and four mature ewes. Two yearling ewes approaching palm grove at upper Mag. Spgs.

September 7 - Two. Full-curl ram with blue collar (#8) on ridge near upper Mag. Spgs. and one ewe on ridge above fourth falls.

TOTAL - Sixteen recognizably different sheep is the minimum number seen near the springs. There were seven rams, eight ewes, and one lamb. If they are enumerated as mostly different individuals seen on each visit, the maximum number of sheep is twenty-one, with eight rams, eleven ewes, and two lambs.



IMPACTS OF THE PROJECT

Construction and operation of the flood control project, except for alternatives 6 and 7, would eliminate all native vegetation and virtually all habitat values within the construction and channel plots. Open space value of the upper wash would not necessarily be lost, however. Vegetation of the structure by the native desert wash plant community is not possible in most alternatives because of the concrete channel and maintenance requirements of a debris basin.

After completion of a debris basin, succeeding vegetation would consist mainly of annuals and short-lived perennials (including several introduced species) and probably a few shrubs. In the absence of flooding this vegetation would be expected to persist for a long time, perhaps two or three decades. The extensive earth-moving involved in construction is not conducive to re-establishment of long-lived perennial species which have greater habitat value for animals.

Flooding of various intensities and deposition of debris behind an earthen barrier would probably be more favorable to establishment of native desert wash species than the no-flood condition. This is because seeds would be washed into the basin, scarified, and deposited in a new seedbed. Cattail, mesquite, and a host of native annuals could be expected to sprout after a flood. However, removal of debris within the basin precludes their permanent establishment.

There is a possibility that construction and maintenance of the project will cause the spread of such noxious weeds as Russian thistle, *Salsola vermiculata*, and puncture vine, *Tribulus terrestris*. Both of these plants occur on the site in small numbers and repeated bulldozing or scraping will tend to exclude native species and promote these species. In fact, these introduced weeds may have been brought onto the site by construction equipment. Another species which may become a problem in the debris basin is tamarisk, *Tamarix canaliculata*, which occurs in large numbers in moist areas of Magnolia Springs Canyon. The impounding and infiltration of water in the basin after a flood could create ideal conditions for seedling establishment of this invasive woody shrub.

The flood control project under any alternative will not disturb individuals or populations of *Dipsosaurus dorsalis*.

Concrete channelization of the watercourse from the canyon mouth to the Whitewater River will be detrimental to wildlife and desert wash plants. Although the channel is poor habitat for native plants and animals now, it becomes a hazard when lined with steep concrete walls and generally prevents movement across the stream bed. This impact is lessened by the fact that the lower channel rarely contains enough water to provide a reliable source for the biota of the area.

All structural alternatives will have some adverse impact to the range and habitat of raptors in the project area. Feeding areas of hawks, falcons, and owls will be reduced by project construction in the

wash and by the inevitable development of the remaining alluvial fan. The latter is a growth-inducing impact of the project that must be recognized. Although the area of habitat lost (about 200 acres) is a rather small portion of most species feeding range, the cumulative contribution to habitat loss is fairly significant, since few alluvial fans in the upper Coachella Valley remain undeveloped. Further, the presence of suitable feeding areas near nesting sites plays an important role in successful nesting and rearing of young. The Prairie Falcons which nest at the mouth of Magnesia Springs Canyon hunt quail and doves occurring in the acacia and mesquite thickets near the arroyo. Removal of this food source does not preclude successful nesting, but requires longer hunting forages and more time spent away from the arroyo. This impact might be lessened by suitable mitigation measures, but probably not to a level of insignificance.

Noise and disturbance from construction activities in the upper wash could impair successful nesting by the Prairie Falcons by causing abandonment of the existing arroyo. The birds would probably select another site further from the canyon mouth, but no predictions can be made about nesting success at another location.

The construction and maintenance activities of structural alternatives will impair or eliminate use of the upper wash area by large carnivorous animals, such as the Kit Fox, Coyote, Bobcat, Roadrunner, and rattlesnakes. These species would probably resume their occasional use of the site after project completion. Removal of food sources for these species is a rather minor effect of the project, since few prey species occur directly on the construction plot now. However, the massive ground disturbance makes improvement of habitat for these species difficult or impossible. After completion, the open space value of the area for movements of large animals will be retained, although the alluvial fan will be lost.

Impacts on Bighorn Sheep behavior and habitat are perhaps the major adverse effects of the Rancho Mirage Flood Control Project. The noise and disturbance of construction at the upper wash site will result in temporary displacement of sheep movements in the area. This temporary displacement consists of (1) elimination of the wash as an area for transitory movement of sheep between the rocky hillside and (2) elimination of the lower spring for watering. Few, if any, sheep will come to drink at the mouth of Magnesia Springs Canyon while construction is taking place. Access routes to the water will probably shift to the upper parts of the canyon where visual contact is avoided and the noise is less noticeable. It is doubtful that the sheep would refuse to drink at Magnesia Springs because of construction in the wash. Instead, they are expected to move to water sources further up Magnesia Springs Canyon. OIV noise, which ranges to 95 decibels (BHM 1980) already occurs from motorcycles riding in the wash and is much louder than noise generated by construction equipment (EPA 1977), yet the sheep have not abandoned their water source.

The sheep will lose Magnesia Springs wash as occasional transitory habitat, and the project will result in more urban activity closer to their protected range. Human intrusion into bighorn habitat can have

important detrimental effects (De Forge 1972, Lewis 1959). Large areas of open space are apparently necessary to sustain optimal populations of this sensitive species.

The impacts of construction noise and disturbance may depend on the abundance of water in Magnesia Springs Canyon. In dry years with water restricted to the riparian zone and the palm oasis, there is much greater significance to each source of surface water. All animals compete for the limited amounts available, and noise disturbance near the lower sources could result in overutilization of the water at the palm grove. It is not known whether the water availability would be less than the minimum required for sheep survival in this scenario. However, construction impacts are predicted to be worse during dry years.

Long-term beneficial impacts to the sheep could result from the Rancho Mirage Flood Control Project. The wash is currently open for travel by off-road vehicles, which cause fairly severe disturbance in late spring and summer. To the extent that a debris basin, dam, or dike system blocked vehicle entrance to the mouth of Magnesia Springs Canyon, it would be beneficial to Bighorn Sheep by reducing disturbance.

Impacts by alternatives are summarized below:

Plans 1 and 2. Debris basin and concrete channel -- Adverse impacts include elimination of desert wash habitat, temporary displacement of Bighorn Sheep, noise disturbance to wildlife at Magnesia Springs, spread of introduced weeds, hazards to wildlife crossing the channel, and growth inducement with resulting loss of habitat on the alluvial fan. Raptorial birds will lose feeding habitat in the wash and fan. Construction noise may disturb nesting activities of the Prairie Falcon, California Ground Squirrels and Pocket Gopher may increase to nuisance proportions.

Plan 3. Diversion dikes and improved channel -- Construction impacts at the top of the alluvial fan would be somewhat less than Plans 1 and 2, but disturbance to wildlife at the spring, including displacement of sheep, would be more severe. This is due to the more frequent maintenance requirements of debris removal associated with Plan 3. The sloping channel wall with earth bottom would be less of a hazard or barrier to wildlife than an all-concrete structure. Establishment of some native desert wash plants along the watercourse would be possible.

Plan 4. Earthfill dam -- Adverse impacts would be the same as Plan 1 and 2, but without the detrimental effects of a newly built channel. This alternative presents a greater possibility for establishment of mesquite behind the dam. Since the inundation area is larger with this alternative, more wash habitat would be altered after major storms.

Plan 5. Diversion dikes and concrete channel -- Impacts would be the same as Plan 3, but with additional adverse impacts resulting from a concrete channel (as in Plans 1 and 2).

densely planted with mesquite or acacia, would be preferable. Such a thicker cover could provide some visual screen of the project and cover for doves and quail, which thrive near residential areas with adequate cover in adjacent desert land. Any such plantings which increase populations of doves and quail would benefit the Prairie Falcon.

Plan 6. Flood warning system and flood plain management -- This plan would cause no new adverse environmental impacts to the project area, nor would it improve the existing negative impacts of vehicle travel in the upper wash.

Plan 7. Flood proofing -- Same as Plan 6.

MITIGATION

The following measures are suggested for mitigating adverse impacts of the Rancho Mirage Flood Control Project and compensating for the inevitable loss of native desert habitat.

1. Limits of the construction zone should be carefully defined. Construction equipment should be prevented from operating any farther up the wash than necessary. New roads should utilize existing access road or channel and not disturb the unmodified northwest side of the channel.
2. Construction at the upper wash (construction plot) should be restricted or curtailed during the late spring and summer to avoid disturbance to the Bighorn Sheep and Prairie Falcons. Midsummer (July-September) is the most critical time for animals utilizing lower Mojave Springs. Perhaps work on the lower channel could proceed in the spring and summer and on the debris basin, dam, or levee during the fall and winter.
3. Any flood control system at the top of the alluvial fan should be made into a vehicle-proof barrier. This would improve the existing situation of human disturbance, but still allow for pedestrian recreational use of Mojave Springs Canyon.
4. Replacement habitat for the Bighorn Sheep could be purchased, either as an addition to the Ecological Reserve or as a substitute area elsewhere in the Santa Rosa Mountains.
5. The desert wash vegetation could be improved upstream from the project site. Replanting of the wash upstream from the construction plot with riparian species, such as cottonwood, fan palm, mesquite, desert willow, amoleberry, or palo verde, could improve habitat for many wildlife species. Removal of tamarisk from Mojave Springs Canyon and/or replacement with native species might be suitable compensation for lost and altered desert wash habitat.
6. For concrete channel alternatives, fencing of the channel might prevent wildlife from falling in and becoming trapped.
7. Establishment of a buffer zone below the structure on the alluvial fan should be carefully considered. A large area between new development and an earthen barrier will probably become only a disturbed piece of land supporting introduced weeds. A smaller zone,

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SURVEY METHODS

Four study plots were established in the region of the Rancho Mirage Flood Control Project. These were designated (1) the construction plot, (2) springs, (3) alluvial fan, and (4) channel (see Study Plot Location Map). A species list was made for each study plot, although most work was focused on the construction plot.

The area was visited on July 28, August 7, 14, 20, 21, 25, 26, 27, 28, September 2, 3, 4, 5, 7, 8, and 9, 1980. Most surveys started at sunrise, but six overnight trips were included. The study plots were censused at all times of the day and night, with the exception of mid and late afternoon.

Plant species of the project area were recorded during each visit, and identity of difficult species was verified at the herbarium of the University of California at Riverside. Voucher specimens were collected, mounted, and labeled for all those species for which there was suitable (i.e. living) material. Plant community analysis was performed mostly by the releve method (Mueller-Dombois 1974). Abundance ratings should be considered relative to the entire lower Magnesia Springs Canyon area.

Amphibians and reptiles were inventoried by daytime and nighttime transect walks and by gathering published and recorded information from the literature and museum records. Bird species were observed on transect walks throughout the area and recorded on site maps. Some family groups of previously nesting species were distinguishable and used for estimates of nesting density during spring.

Mammals were surveyed by transect walks and nighttime trapping of nocturnal rodents. Trapline results are given in Table 3 and the trap locations are recorded on the Mammal Live Trap Survey Map. In addition, records were gathered from the literature and from conversations with agency personnel (USFWS, BLM, DFG, Deep Cyn.). Abundant tracks, scats, and other signs of large mammals were evident in Magnesia Springs Canyon, and these indications of mammal activity were also recorded. The mammal coverage is considered good, except for species of bats, whose habits are largely unknown.

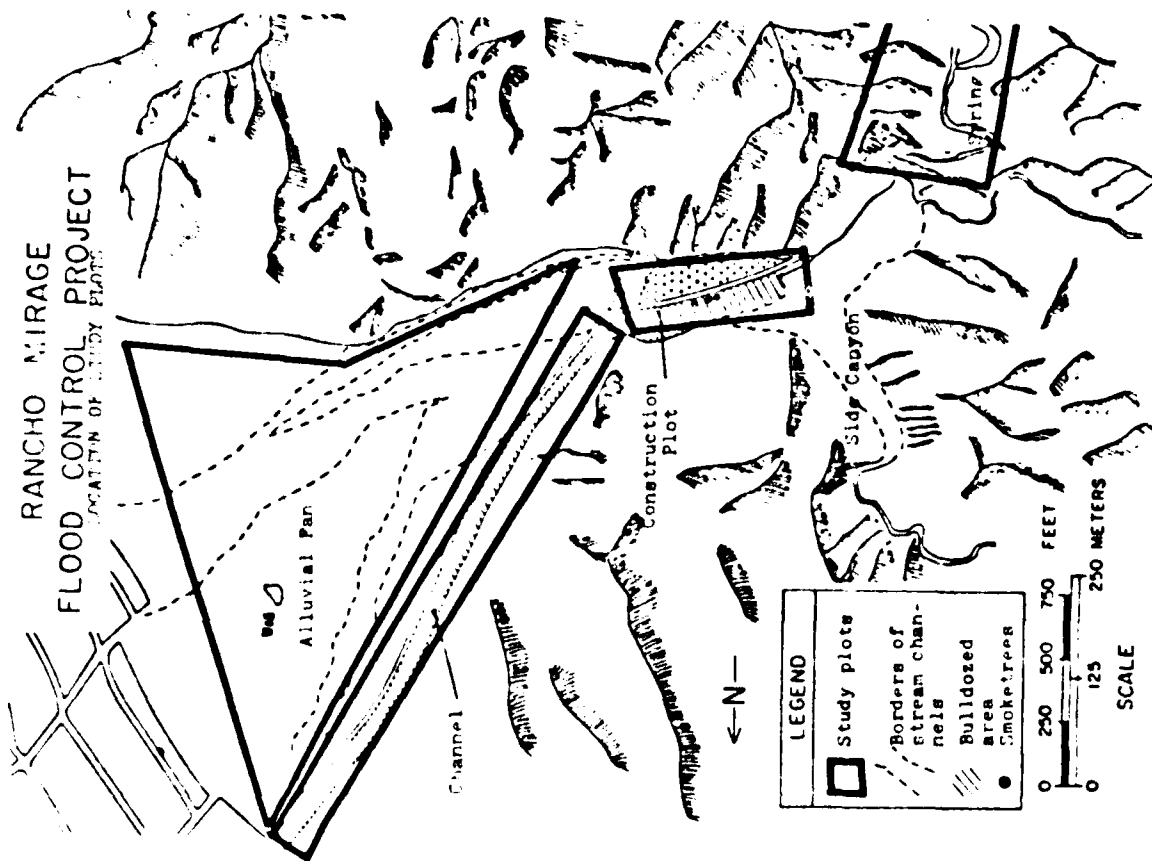
Overall, survey results are considered good for the summertime use of the project area. Some data are impossible to obtain during the summer, such as breeding bird territories, use by migrating birds, springtime activities of amphibians, reptiles, and mammals, and

APPENDIX

BIOLOGICAL INVENTORY

occurrence of many annual plants. Thus the survey should not be considered comprehensive, since activity of most plant and animal species is greater or more noticeable during other seasons of the year, particularly spring. However, the year-round resident species of the project site were probably all located and evaluated for abundance with reasonable accuracy. Since the construction plot is a recently flood-irrigated wash altered by bulldozing, few species of plants and animals are present in any season.

L. F. LaPré and Steve Boyd performed the majority of the survey work and were responsible for the collection of data and habitat analysis. Mr. Boyd compiled all plant lists and vegetation maps, while Dr. LaPré compiled all animal lists and faunal use maps. Jan Zabriske and Andy Sanders each visited the site on one occasion. Mr. Boyd and Mr. Sanders prepared plant voucher specimens from all study plots.



RAMON MIRAGE FLORA CONTROL PROJECT

Plants

Scientific Name	Common Name	Abundance	
		Rocky Hillside	Wash. & Fan
AGAVACEAE	AGAVE FAMILY		
<u>Agave deserti</u>	Desert Agave	I	
AMARANTHACEAE	AMARANTH FAMILY		
<u>Amaranthus tribracteatus</u>	Fringed Amaranthus		I
ARECACEAE	PALM FAMILY		
<u>Washingtonia filifera</u>	California Fan Palm	I	O
ASCLEPIADACEAE			
<u>Sarcocolla hillebrandii</u>	Rambling Milkweed	C	C
ASTERACEAE	SUNFLOWER FAMILY		
<u>Ambrosia dumosa</u>	Burnt Bush	C	T
<u>Baccharis pilularis</u>	Desert Baccharis		I
<u>Baccharis juncea</u>	Sweetbush	A	A
<u>Croton canadensis</u>	Horseweed		U
<u>Encelia farinosa</u>	Brittlebush	C	C
<u>Eriogonum fasciculatum</u>	Arctostaphylos		I
<u>Hymenocallis sp.</u>	Cheeseweed		A
<u>Lactuca serriola</u>	Wild Lettuce		T
<u>Palatopsis linearis</u>	Spanish Needle		C
<u>Peritoma sp.</u>	Rock Daisy	O	A
<u>Psoralea arguta</u>	Desert Fir	C	O
<u>Pluchea odorata</u>	Arrow Leaf	A	A
<u>Pluchea sp.</u>	Arrow Weed	I	O
<u>Psoralea arguta</u>	Desert Velvet		O
<u>Stephanomeria exilis</u>	Annual Mints	I	I

A. M. J. 1957

Obs = observed during site visits

Rec = recorded, known from the site by literature or museum records, followed by locality and reference. N.M. = San Bernardino County Museum specimens

Exp = expected, known to live in vicinity, and probably occurs on the site, based on rarity, habitat preferences, and nearby records

Poss = possible, occurrence on site is questionable, based on rarity, known distribution, habitat preferences, and nearby records

plot = construction plot

FLORAL INVENTORY KEY

A = Abundant. One of the dominant plants on the site

C = Common. General, found throughout area.

O = Occasional. Scattered here and there throughout area.

I = Infrequent. Scarce, hard to find.

T = Trace. Less than five individuals encountered.

RANCHO MIRAGE FLOOD CONTROL PROJECT

Plants - Page 2

Scientific Name	Common Name	Abundance	
		Fls. to Fr.	Fr. to Fr.
<u>Stephanomeria pauciflora</u>	Desert Straw	1	1
<u>Trifolium californicum</u>	Trifolium		0
<u>Viguiera deltoidea</u>	Viguiera		1
BRASSICACEAE	BRASSICA FAMILY		
<u>Arabis tessellata</u>	Fiddleneck		1
<u>Coltaria pinnata</u>	Coltaria		1
<u>Crotonanthus angustifolius</u>	Narrow-leaved Forget-Me-Not	1	1
<u>Crotonanthus angustifolius</u>	White-haired Forget-Me-Not	0	0
<u>Crotonanthus angustifolius</u>	Woody Forget-Me-Not	1	0
BRASSICACEAE	MUSTARD FAMILY		
<u>Descurainia pinnata</u>	Yellow Tansy Mustard	0	
CACTACEAE	CACTUS FAMILY		
<u>Ferocactus ornithodes</u>	Barrel Cactus	0	
<u>Mamillaria tetrasticha</u>	Fishhook Cactus	1	
<u>Opuntia arborescens</u>	Scorpion Cholla	0	0
<u>Opuntia basilaris</u>	Beavertail Cactus	0	
<u>Opuntia elaeagnifolia</u>	Gold Cholla	0	0
CHENOPODIACEAE	GOOSEFOOT FAMILY		
<u>Atriplex canescens</u>	Winged Saltbush		1
<u>Atriplex polycarpa</u>	Alkaline Saltbush		1
<u>Sarcobatus vermiculatus</u>	Russian Thistle		0
COMPOSITAE	MORNING GLORY FAMILY		
<u>Ipomoea sp.</u>	Dodder		1

RANCHO MIRAGE FLOOD CONTROL PROJECT

Plants - Page 2

Scientific Name	Common Name	Abundance	
		Fls. to Fr.	Fr. to Fr.
COMPOSITAE	GOOSE FAMILY		
<u>Brandegeeia bigelovii</u>	Brandegeeia		0
<u>Composita palmata</u>	Coyote Melon	0	0
ERICACEAE	ERICACEAE FAMILY		
<u>Ephebe nevadensis</u>	Joint Fir	1	1
ERICACEAE	SPURGE FAMILY		
<u>Pitaris adniphora</u>	Glandular Ditch	1	
<u>Euphorbia polycarpa</u>	Sandmat	0	A
<u>Euphorbia polycarpa</u>	Sandmat		A
FABACEAE	PEA FAMILY		
<u>Acacia greggii</u>	Cattail Acacia	0	A
<u>Boerhaavia diffusa</u>	Indigo Bush	0	0
<u>Boerhaavia diffusa</u>	Silky Boerhaavia	1	1
<u>Boerhaavia diffusa</u>	Smoketree		A
<u>Boerhaavia diffusa</u>	Bush Pea	A	A
<u>Boerhaavia diffusa</u>	Desert Rockpea		1
<u>Boerhaavia diffusa</u>	Hairy Lotus		1
<u>Boerhaavia diffusa</u>	Arizona Lupine	0	0
<u>Boerhaavia diffusa</u>	Honey Mesquite	1	0
GENTIANACEAE	GENTIAN FAMILY		
<u>Quercus gualticum</u>	Catchfly Gentian	1	1

RANCHO MIRAGE FLOOD CONTROL PROJECT

Plants - Page 4.

Scientific Name	Common Name	Abundance	
		Flowering	Leaf
PHLOEOXYLACEAE	WATERLEAF FAMILY		
<i>Phacelia crenulata</i>	Wedge-leaved Phacelia	1	1
ERABACEAE	ERABACEAE FAMILY		
<i>White Batrany</i>	White Batrany	0	0
LAMIACEAE	MINT FAMILY		
<i>Desert Lavender</i>	Desert Lavender	0	A
<i>White Sage</i>	White Sage	1	
<i>Chia</i>	Chia	0	1
STICHLIACEAE	STICK-LEAF FAMILY		
<i>Sand Blasting Star</i>	Sand Blasting Star	1	1
<i>Thurber's Sandpaper Plant</i>	Thurber's Sandpaper Plant		C
LOOSESTRIUM	LOOSESTRIUM FAMILY		
<i>California Loosestrife</i>	California Loosestrife	1	1
NYCTAGINACEAE	NIGHTSHADE FAMILY		
<i>Rock Nightshade</i>	Rock Nightshade	0	
<i>Apricot Nightshade</i>	Apricot Nightshade	1	1
PORTULACACEAE	PORTULACACEAE FAMILY		
<i>Mindville</i>	Mindville	0	
<i>Five-winged Ring-petal</i>	Five-winged Ring-petal		0

RANCHO MIRAGE FLOOD CONTROL PROJECT

Plants - Page 4.

Scientific Name	Common Name	Abundance	
		Flowering	Leaf
ERICACEAE	HEATH OR BERRY FAMILY		
<i>Betula</i>	Betula	1	1
<i>Myrica</i>	Myrica	1	1
<i>Myrica</i>	Myrica	0	0
<i>Myrica</i>	Myrica	1	1
PAPILLIACEAE	PAPILLIACEAE FAMILY		
<i>Little Gold Poppy</i>	Little Gold Poppy		1
PLANTAGINACEAE	PLANTAIN FAMILY		
<i>Wood</i>	Wood	1	0
GRAMINEAE	GRASS FAMILY		
<i>Six-week Three-awn</i>	Six-week Three-awn	1	1
<i>Needle Grass</i>	Needle Grass	0	0
<i>Six-week Grass</i>	Six-week Grass		1
<i>Fontell</i>	Fontell	0	0
<i>Bermuda Grass</i>	Bermuda Grass		0
<i>Salt Grass</i>	Salt Grass		0
<i>Fluff Grass</i>	Fluff Grass	A	1
<i>Fountain Grass</i>	Fountain Grass		C
<i>Beardgrass</i>	Beardgrass		0
<i>Abomas</i>	Abomas	C	0
POLEMONIACEAE	POLEMONIACEAE FAMILY		
<i>Desert Eriogonum</i>	Desert Eriogonum		1
<i>Broad-leaved Gilia</i>	Broad-leaved Gilia	1	1
<i>Lupinus</i>	Lupinus	1	1

RANCHO MIRAGE FLOOD CONTROL PROJECT

Plants - Page 6

Scientific Name	Common Name	Abundance	
		Wetlands	Woods
POLYGONACEAE	BUCKWHEAT FAMILY		
<u>Chenopodium brevifolium</u>	Brittle Spine Flower	I	I
<u>Chenopodium rigidum</u>	Rigid Spiny Herb	O	O
<u>Eriogonum fasciculatum</u>	Wild Buckwheat	T	T
<u>Eriogonum inflatum</u>	Desert Trumpet	C	T
<u>Eriogonum repens</u>	Kidney-leaved Buckwheat	I	
<u>Eriogonum thomsonii</u>	Thomas' Buckwheat	O	O
<u>Eriogonum trichosperum</u>	Little Trumpet		O
PTERIDIUM	CLOAK FERN FAMILY		
<u>Pteridium caudatum</u>	Perry's Cloak Fern	O	
SALICACEAE	WILLOW FAMILY		
<u>Salix sp.</u>	Willow		I
SCROPHULARIACEAE	FIGWORT FAMILY		
<u>Monkeya bigelovii</u>	Bigelow's Monkey Flower		I
<u>Monarda bigelovii</u>	Soop Spring Monkey Flower		O
<u>Monarda parryi</u>	Parry's Monkey Flower		I
<u>Monarda crinitiflora</u>	Ghost Flower		T
SOLANACEAE	NIGHTSHADE FAMILY		
<u>Solanum elaeagnifolium</u>	Anderson's Thornbush	T	T
<u>Solanum elaeagnifolium</u>	Wild Tobacco		C
<u>Solanum elaeagnifolium</u>	Desert Tobacco	A	A
<u>Solanum elaeagnifolium</u>	Thick-leaved Ground Cherry	C	C
TAMARICACEAE	TAMARISK FAMILY		
<u>Tamarix sp.</u>	Tamarisk		C

RANCHO MIRAGE FLOOD CONTROL PROJECT

Plants - Page 7

Scientific Name	Common Name	Abundance	
		Wetlands	Woods
TYPHACEAE	CATTAIL FAMILY		
<u>Typha domingensis</u>	Narrow-leaved Cattail		O
VISCOACEAE	MISTLETOE FAMILY		
<u>Quercus californica</u>	Mesquite Mistletoe		A
ZYGOPHYLLACEAE	CALTROP FAMILY		
<u>Fagonia laevis</u>	Smooth-stemmed Fagonia	A	I
<u>Larrea tridentata</u>	Crocoatebush		A
<u>Tribulus terrestris</u>	Puncture Vine		I

RANCHO MIRAGE FLOOD CONTROL PROJECT

Amphibians

Scientific Name	Common Name	Presence	Status
<u><i>Rana punctatus</i></u>	Red-spotted Toad	OBS	Common breeding species near water. Not on plot.
<u><i>Hyla cadaverina</i></u>	California Treefrog	REC	USFWS sighting.

RANCHO MIRAGE FLOOD CONTROL PROJECT

Reptiles

Scientific Name	Common Name	Presence	Status
<u><i>Lepidochelys variegatus</i></u>	Desert Banded Gecko	OBS	One visit on alluvial fan. Probably fairly common.
<u><i>Dipsosaurus dorsalis</i></u>	Desert Iguana	OBS	Occasional on plot and in channel.
<u><i>Saurornis obesus</i></u>	Chukwalla	EXP	Rocky hillsides only.
<u><i>Callisaurus draconoides</i></u>	Zebra-tailed Lizard	OBS	Occasional in washes.
<u><i>Crotaphytus collaris</i></u>	Collared Lizard	EXP	Probable on rocky hill-sides. Recorded from Deep Cyn., Palm Cyn., La Quinte.
<u><i>Uta stansburiana</i></u>	Side-blotched Lizard	OBS	Abundant.
<u><i>Hemidactylus marmoratus</i></u>	Banded Rock Lizard	OBS	Rocky cliffs only.
<u><i>Phrynosoma macleayi</i></u>	Desert Horned Lizard	POS	Fairly common nearby.
<u><i>Cnemidophorus tigris</i></u>	Western Whiptail	OBS	Neg. Eggs. Cyn., side canyon. Occasional
<u><i>Masticophis flagellum</i></u>	Coachwhip	OBS	One visit on plot.
<u><i>Crotalus cerastes</i></u>	Sidewinder	EXP	Probably occasional on fan and in washes.
<u><i>Sceloporus occidentalis</i></u>	Western Fence Lizard	REC	USFWS sighting
<u><i>Spizella monticola</i></u>	Desert Spiny Lizard	REC	USFWS sighting.

RANCHO MIRAGE FLOOD CONTROL PROJECT

BIRDS

Scientific Name	Common Name	Present	Status
<u>Cathartes aura</u>	Turkey Vulture	EXP	Occasional visitor
<u>Accipiter cooperii</u>	Coeper's Hawk	OBS	Regular visitor.
<u>Buteo jamaicensis</u>	Red-tailed Hawk	OBS	Resident pair with one juvenile. Nests in Mesquite Cyn.
<u>Aquila chrysaetos</u>	Golden Eagle	EXP	Occasional visitor.
<u>Falco sparverius</u>	American Kestrel	OBS	Two resident pairs, one in Mesquite Cyn., one near houses.
<u>Falco mexicanus</u>	Prairie Falcon	OBS	Resident pair with two juveniles. Nests at mouth of Mesquite Cyn.
<u>Cathartes aura</u>	Campbell's Quail	OBS	Common. Av. = 10 per visit. Breeds on plot.
<u>Oreortyx pictus</u>	Mountain Quail	RE.	USFW sighting
<u>Columba palumbus</u>	Mourning Dove	OBS	Common. May breed on plot. Dozens near stream.
<u>Columba passerina</u>	Ground Dove	OBS	Common near houses.
<u>Coccyzus californianus</u>	Bonaparte	OBS	Resident breeding species. Infrequent on plot.
<u>Bubo virginianus</u>	Barn Owl	OBS	Nocturnal. Feeds on plot and far.
<u>Bubo virginianus</u>	Great Horned Owl	OBS	Nests at palm grove. Feeds on plot and far.

RANCHO MIRAGE FLOOD CONTROL PROJECT

BIRDS - Page 2

Scientific Name	Common Name	Present	Status
<u>Phalaenoptilus nuttallii</u>	Phoebe	EXP	Common nearby (e.g. Deep Cyn.) but not seen or heard on plot.
<u>Geothlypis trichas</u>	Lesser Nighthawk	POS	Late spring breeding bird in desert areas.
<u>Aimophila</u>	White-throated Swift	EXP	Substrate habitat on rocky cliffs. Probably breeding resident in spring.
<u>Colaptes cafer</u>	Costa's Hummingbird	EXP	Certainly breeds near plot in spring. Numbers cannot be determined in summer.
<u>Selasphorus rufus</u>	Rufous Hummingbird	OBS	Migrant
<u>Sayornis saya</u>	Say's Phoebe	OBS	Resident pair in Mesquite Cyn.
<u>Ceryle alcyon</u>	Loon	OBS	Infrequent visitor. Probably breeds near plot.
<u>Auriparus flaviceps</u>	Verdin	OBS	Common breeding species. Nests in side cyn., on fan in Acacia.
<u>Selasphorus sialis</u>	Rock Wren	OBS	Common breeding bird on rocky hillsides.
<u>Salpinctes obsoletus</u>	Brewer's Wren	OBS	Fairly common on rocky hillsides.

MANHATTAN FLOOD CONTROL PROJECT

Birds, Page 2

Scientific Name	Common Name	Presence	Status
<u>Catherpes mexicanus</u>	Canyon Wren	OBS	Two or three pairs resident in Hag. Spgs. Cyn.
<u>Carpodacus mexicanus</u>	Cactus Wren	OBS	One seen re. larv. on plot. 2 families (USFWS)
<u>Poliopelia melanura</u>	Black-tailed Gnatcatcher	OBS	Common. Breeds on plot.
<u>Lanius ludovicianus</u>	Loggerhead Shrike	OBS	One resident bird on plot.
<u>Icterus cucullatus</u>	Hooded Oriole	OBS*	Nest at palm grove
<u>Icterus galbula</u>	Northern Oriole	REC	USFWS sighting.
<u>Carpodacus mexicanus</u>	House Finch	OBS	Several pairs breed near plot.
<u>Spinus psaltria</u>	Lesser Goldfinch	OBS*	One visit.
<u>Ammodramus hillensis</u>	Pink-bellied Sparrow	OBS	Common resident. Breeds on or near plot.
<u>Mimus polyglottus</u>	Mockingbird	REC	One breeding pair with young (USFWS).

MANHATTAN FLOOD CONTROL PROJECT

Mammals

Scientific Name	Common Name	Presence	Status
<u>Pipistrellus hesperus</u>	Western Pipistrelle	OBS	Abundant. Feeds over plot and fan.
<u>Antrozous pallidus</u>	Pallid Bat	EXP	Thunderbird CC 300' (Bvsn)
<u>Myotis mexicanus</u>	Mexican Free-tailed Bat	POS	Palm Cyn. (Elliot)
<u>Myotis lucifugus</u>	Pocketed Free-tailed Bat	POS	Four Calif. records. Type locality = Palm Spgs.
<u>Myotis grisescens</u>	Big Brown Bat	POS	Palm Cyn. 800' (Grinnell)
<u>Myotis californicus</u>	Yellow Bat	POS	One of three U.S. records is Palm Spgs. in <u>MANHATTAN</u>
<u>Lepus californicus</u>	Black-tailed Jackrabbit	OBS	Fairly common plot and fan.
<u>Citellus beecheyi</u>	California Ground Squirrel	OBS	Native to rocky hillsides. Pest species in bulldozed areas.
<u>Citellus leucurus</u>	Antelope Ground Squirrel	OBS	3-4 on plot, several on fan and hillsides.
<u>Perognathus formicivorus</u>	Long-tailed Pocket Mouse	OBS	Abundant on plot and fan.
<u>Perognathus eremicus</u>	Spiny Pocket Mouse	OBS	Occasional on plot and fan.
<u>Perognathus fallax</u>	San Diego Pocket Mouse	REC	USFWS record.

RANGE HERBAGE FLOOD CONTROL PROJECT

Mammals - Page 2

Scientific Name	Common Name	Presence	Status
<u>Dipodomys deserti</u>	Merriam Kangaroo Rat	OBS	Fairly common in sandy areas of plot and far.
<u>Perognathus leucurus</u>	Desert Pock Rat	OBS	Common.
<u>Citellus lateralis</u>	Coyote	OBS	Common over wide area. Utilizes spring heavily.
<u>Vulpes canis</u>	Gray Fox	EXP	Palm Cyn. 800' (Grinnell), Deep Cyn.
<u>Neotoma lepida</u>	Ringtail	OBS	Scats in Nag. Spgs. Cyn. Little-known species.
<u>Lynx baileyi</u>	Bobcat	EXP	Suitable habitat. Probably fairly common
<u>Ovis montanus</u>	Bighorn Sheep	OBS	Common. Daily use of springs. Droppings on construction plot.
<u>Vulpes montanus</u>	Kit Fox	REC	USFWS report

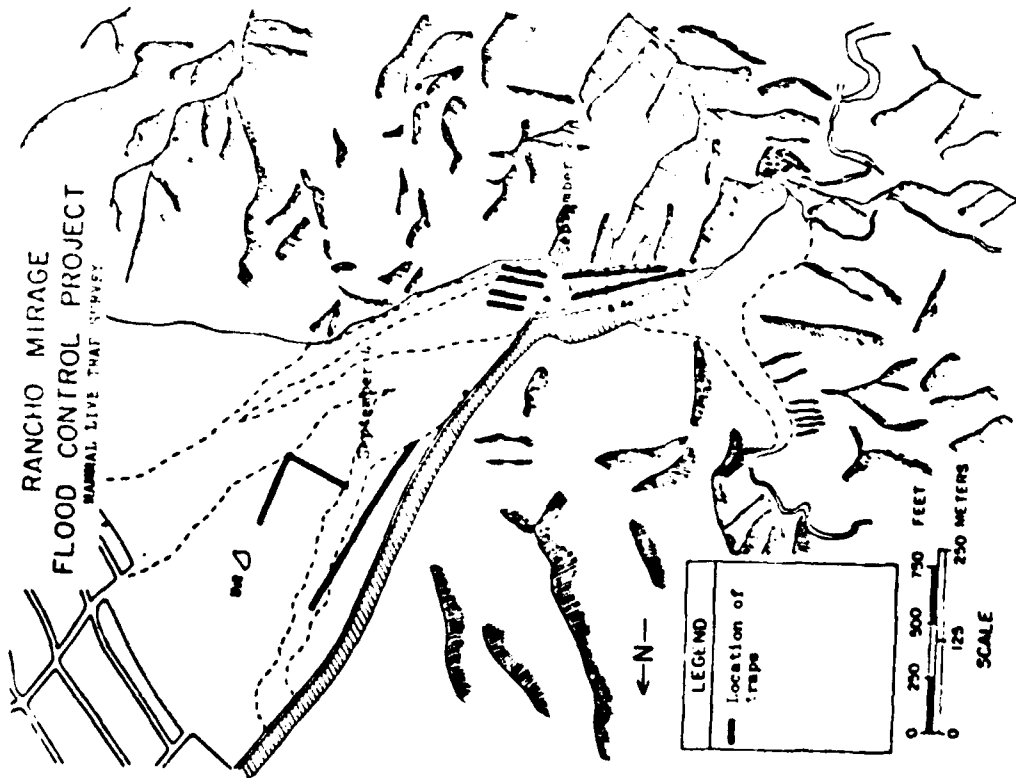


TABLE 1

Mammal Live-trap Survey

September 2, 1980 - 110 traps

Construction plot. 50 traps set in terrace (Gymnocladus) scrub west of dike. 50 traps set east of dike at top of alluvial fan in Acacia-Quercus terrace association.

Neotoma lepida 1
Dipodomys deserti 4
Perognathus parvus 2
Perognathus parvus 1

September 4, 1980 - 100 traps

Alluvial fan. Two long traplines, one running N-S along flood-scoured wash and one running E-W through semi-stable alluvial terraces with Yucca, Opuntia, and many annuals.

Neotoma lepida 1
Perognathus parvus 7
Dipodomys deserti 5
Citellus tereticaudus 1

.....

TOTAL 210 trap nights
26 rodents
12% success

Neotoma lepida 4
Dipodomys deserti 9
Perognathus parvus 2
Dipodomys deserti 10
Citellus tereticaudus 1

Identification of all species was verified by comparison with voucher specimens at the San Bernardino County Museum.

A CULTURAL RESOURCES RECONNAISSANCE
FOR THE RANCHO MIRAGE FLOOD CONTROL PROJECT
RIVERSIDE COUNTY, CALIFORNIA

ABSTRACT

Contained herein are the results of a cultural resource survey for the Rancho Mirage Flood Control Project conducted at the request of the U S Army Corps of Engineers, Los Angeles District, by Archaeological Resource Management Corporation (ARMC). The research area included a canyon drainage that is located in known Caballita Indian territory.

The investigation included an assessment of literature and records pertaining to this region and an on-foot reconnaissance of the project area. The literature search revealed that five archaeological sites were previously recorded within the study area. The on-foot ground survey resulted in the discovery of two previously unrecorded sites in addition to a single isolated site fragment. The field reconnaissance also disclosed the destruction of two of the previously recorded sites.

The cultural resources were examined and evaluated in terms of their research potential. Recommendations for mitigation measures have been proposed.

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INTRODUCTION

This report contains the results of a systematic cultural resource survey for the Rancho Mirage Flood Control Project that was performed by Archaeological Resource Management Corporation (ARMC), as requested by the U. S. Army Corps of Engineers, Los Angeles District.

The purpose of this project was to locate and evaluate any new or previously recorded cultural resources that might be impacted due to construction and improvement of the proposed debris basin and flood control channel. Primary and secondary impacts were considered as well as areas of expected inundation due to flood episodes. Inundation is expected to occur within the 600 foot contour line. This project is authorized under Public Law 91-190, the National Environmental Policy Act of 1969.

The project area is located in Magnesia Spring Canyon in the Coachella Valley. More specifically, the area encompasses the south-eastern quadrant of Section 14, Township 5 South, Range 5 East on the USGS Topographic Map, Rancho Mirage 7.5' Quadrangle (see Figure 1, Appendix A). The area surveyed consisted of approximately 160 acres.

This project was carried out in two phases: the first phase being a complete records and literature search, the second a cover field reconnaissance of the project area which was aimed at relocating previously recorded sites, discovering and recording any new sites, and an evaluation of the data involved. This was done in order to offer the appropriate mitigation measures.

The records search was performed by the Archaeological Research Unit, University of California, Riverside (UCRARC). The results follow in this report. The field work for this project was carried out in October, 1969 by an ARMC crew which consisted of Theodore Torres, Carol Demas, Patricia Terrell, Larry Sullivan and Anne Cleenger, who also served as field director. Dr. Clement Meighan, University of California, Los Angeles (UCLA), acted as Principal Investigator for this project.

As part of the scope of work for this project, attempts were made to solicit information from local Native Americans regarding their concerns and knowledge of any cultural resource that might be within the study area. Letters informing of the proposed cultural resource project were sent to the following persons:

- 1) Mr. Mark Nichola, Cabazon Band of Mission Indians,
- 2) Mr. Tom Lyons, Morongo Reservation,
- 3) Mr. Biff Andreas, Agua Caliente Reservation, and
- 4) Ms. Theodora Torre, Torres Martinez Reservation

To date no information or acknowledgement has been received from the Native American groups.

The results of the records and literature search indicated five archaeological sites had previously been recorded within the project area and two additional sites within one-half mile of the project area. During the field reconnaissance attempts were made to relocate the five previously recorded sites. Of these, three were successfully relocated while the two were found to have been destroyed. Additionally, two previously unrecorded archaeological sites were discovered within the project area during the course of this study.

ENVIRONMENTAL SETTING

The general culture area for the Cahulla has been defined as the inland basin between the San Bernardino Range and the Santa Rosa Mountains, extending southeast into the Colorado Desert as far as the northern end of the Salton Sea (Kroeber 1925:693-694). While the Cahulla were known to have inhabited various regions in the mountains, the pass, and the desert floor itself, this report will deal with a more specific environmental setting: that of Magnesia Spring Canyon near the community of Rancho Mirage, California (see Figures 1 and 2, Appendix A).

The project area, consisting of a moderate canyon-drainage and portions of adjacent alluvial fans, lies in the rain shadow of the Santa Rosa Mountains at elevations ranging between 300 and 700 feet. The drainage direction of Magnesia Spring Canyon is to the northeast where it follows an existing flood control channel and then meets the Whitewater River.

Climate in the area consists of long, hot dry summers, with temperatures often reaching extremes of 120° Fahrenheit. Winters are relatively mild with frost occurring in December and January only. High winds are common and annual precipitation averages between 3.5 to 5.5 inches, usually as a result of a winter rainstorm (Lando 1979:3, Wilke 1978:22). It appears that the climate has remained relatively stable over the past 10,000 years, while the environment experienced fluctuations due to the repeated drying and filling of ancient Lake Cahulla (Wilke 1978:22).

The project area is located within the lower Sonoran Life zone which contains the Creosote Bush Scrub Community and is characterized by small spiny trees, shrubs, and cacti (Lando 1979:3, Wilke 1978:28). Creosote bush (Larrea tridentata) and

bursera (Amorpha dumosa) dominate this plant community, while other trees and shrubs including the palo verde (Cercidium floridum), desert willow (Chilopsis linearis), cat claw (Acacia greggii), mesquite (Prosopis juliflora var. torreyana), screwbean (P. pubescens) and brittle bush (Encelia farinosa) are also present (Lando 1978:3, Wilke 1978:28). Bean and Saubel (1972) have indicated the importance of these plants to the aboriginal inhabitants regarding their subsistence activities.

Recent studies have also indicated the importance of the faunal community that is supported by the Creosote Bush Plant Community. Wilke (1978:31) states that this plant community supports the most diverse fauna of any plant community of the Salton Basin (Also Bean 1972). There exists here over 20 species of small mammals as well as numerous birds in addition to several carnivores including coyote (Canis latrans), gray fox (Urocyon cinereoargenteus), ringtail cat (Bassariscus astutus), bobcat (Lynx rufus), and the desert kit fox (Vulpes macrotis). In addition, the desert bighorn sheep (Ovis canadensis) is associated with the upper limits of the Creosote Bush Scrub zone (Wilke 1978:28-31).

The environment of the project area would have offered the prehistoric inhabitants a rich and varied resource zone for exploitation. Water, while not always abundant in an arid environment, would have been readily available to the prehistoric inhabitants of this region. Within Magnesia Spring Canyon itself is found water flowing from Magnesia Spring which is located a short distance up the canyon. The Whitewater River is located less than 14 miles to the northeast and several series of natural springs can be found along the San Andreas Fault line at the base of the Indio Hills, less than 5 miles to the northeast (Wilke 1978:22).

Ethnographically, the Cahulla were known to have dug well-in wells in order to ensure an ample supply of water for their villages (Bean 1972 73). Bean and Lewton 1965 10, Wilke and Lewton 1975 26). One of the earliest ethnographic recordings of this type of water procurement was made in 1936 by William Blake, an early U.S. Government Land Surveyor. Blake described a walk-in well in nearby Indian Wells as being as much as twenty-five feet deep, wide at the top and becoming much narrower at the bottom. The water was reached by means of terraced steps cut into the side of the well (In. Wilke and Lewton 1975 26). Other early government land surveyors noted several examples of natural catchment basins constructed among the sand dunes in areas known to be Cahulla territory (Wilke and Lewton 1975 26).

Of special interest is the ethnographic recording of the Cahulla practice of water diversion and usage. Bean (1972 73) states that, "water was often diverted into trenches so that it was more accessible for household use, and occasionally, for agriculture purposes". The description of this practice is particularly relevant as one of the sites within the study area may represent a remnant of this phenomenon.

CULTURE HISTORY

The purpose of a culture history is to provide a framework for understanding the temporal and spatial relationships of the prehistoric cultural events that took place within a defined region. The specific area of concern regarding this project lies within the ethnographically described territory of the Desert and Pass Cahulla.

While much is known and recorded for the prehistoric inhabitants, complete archaeological evidence is lacking regarding the total span of human history in this region. A concise cultural chronology specifically relating to the project area has not yet been proposed. There is, however, enough evidence from the desert region in general that can be considered as representative of the prehistoric desert culture as a whole. The culture history offered here is of a general nature where possible data relating to the specific project area has been included.

Several cultural chronologies for the desert region have been proposed through the years. Many of the early offerings have been revised since the advent of radio carbon dating. Other cultural schemes have stood the test of time fairly well. Wallace (1962) has presented a useful scheme of successive cultural phases that aid in the classification and understanding of the prehistory of the desert area. According to King (1975 32), Wallace's chronology has continued to be used as the standard referent for the desert region since it's inception. The culture history presented here is interpreted from Wallace's data (1962 and 1976).

Paleo-Indian Period Pre-10,000 Years B.C.

This early phase is a continually debated issue among archaeologists. Several claims for man's antiquity in the desert regions have been proposed, including the long standing argument for the Calico Site at Lake Mannis (Simpson 1958), and the more recent evidence at Yuba Pinto Wash (Childers and Minshall 1980). Both are claimed to date to 50,000 years B.P. More data is needed to document this early period. Sites of this early phase are not known to exist within the project area.

However, deeply buried archaeological deposits of extreme age becoming exposed is always a possibility. In another desert situation, recent storm damage caused exposure of a buried deposit at Yuba Pinto Wash, radio carbon dated to an excess of 50,000 years B.P. (Childers and Minshall 1980 297-301). Whereas the possibility of extremely old buried sites occurring within the project area is rare, the probability should be kept in mind.

Period I: Lake Mohave Phase - 9000 to 5000 B.C.

The artifact assemblage characteristic of this period contains mainly large, bifacially flaked projectile points for use with the atlatl. These include Lake Mohave and Silver Lake points. There is a conspicuous lack of vegetal processing tools which suggest that hunting was the dominant subsistence activity (Wallace 1962 173-175). Some plants were probably included in the diet but these may not have required the traditional methods of vegetal preparation that are found in later times. A recent radio carbon date of Lake Mohave deposits has been calculated at $10,270 \pm 160$ years B.P. (Warren and Ore 1978 179).

No sites of this cultural period are known to exist within or adjacent to the project area.

Period II: Pinto Basin - 5000 B.C. to A.D. 1

Phase I: 5000 to 3000 B.C.

Proposed Cultural hiatus; no archaeological evidence. In attempting explanations for the paucity of evidence for this phase, Wallace (1962:175) has suggested an extensive drought in

which the vegetation and game decreased, forcing the populations to retreat to areas that offered better resource procurement. While there is considerable archaeological evidence from the southern California coast, little is known of the desert regions regarding this time period.

Phase II: 3000 B.C. to A.D. 1

During this time period, increased rainfall caused the desert area to become re-established with vegetation and wild game making the region attractive to human use and occupation once again (Wallace 1962:175). Population increased in a direct relationship to the increased areas of resource exploitation. This time period begins to demonstrate an increased subsistence efficiency in the form of wider exploitation of available resources (Wallace 1978:30). Ample evidence for this cultural phase exists in the desert regions as numerous campsites have been discovered. Among them is the Pinto Basin site. The characteristic artifact assemblage contains narrow-shouled projectile points with concave bases, leaf-shaped knife blades, drills, and scrapers, and, in addition, contains small numbers of milling stones used for seed grinding. The subsistence activity related to the Pinto Basin period relied mainly on hunting with gathering practiced to a much lesser extent. No sites of this cultural period are known to exist within or adjacent to the project area.

Period III: Arimaosa - A.D. 1 to A.D. 1000

Phase I

The artifact assemblage characteristic of this cultural period includes long, slender, Elko Eared Corner-notched points with squared bases. These are reduced in size and weight

indicating a change to the use of the bow and arrow. Also indicative of early Archaic are blades, drills, flaked scrapers, and slate pendants, and a lack of grinding stones (Wallace 1962:176). Wallace has stated that the absence of seed grinding equipment is highly suspect (1962:176). Ample evidence for this phase in the desert region is currently lacking. Perhaps future work will add to the knowledge of this cultural phase and substantiate or refute the inclusion of milling stones.

Phase II

This cultural phase which exhibits increased specialization demonstrates clear affiliations with the American Southwest. Characteristic artifacts include manos and metates. Elko Corner-notched projectile points (some with evidence of hafting by use of adhesives), clearly indicative of the bow and arrow replacing the atlatl, ceramics are present along with shell ornaments, cordage, basketry, bone awls, fiber sandals, split-twig figures, turquoise mining and limited agriculture. Subsistence strategy at this time centers around vegetal collecting and processing with less importance placed on hunting. Several ethnohistoric accounts of the Cahuilla's extensive knowledge and use of vegetal resources have been recorded (Barrows 1900, Bean and Saubel 1972). Numerous scholars have noted that early forms of agriculture were practiced at this time (Strong 1929, Lawton and Bean 1972, Bean 1972, Wilke and Lawton 1973, Wilke, King and Lawton 1973, Lando and Modesto 1977, Wilke, Whiteaker and Matorri 1977).

It was during this time that ancient Lake Cahuilla (caused by an in-flow of Colorado River water into the Salton Sink) experienced its last stand before its final dessication (Wilke 1978). Interestingly, numerous cultural traits associated with this period are thought to have been reflective of affiliation

with Southwestern Basketmaker Cultures (Drover 1979, 92, Wallace 1962:176). Extensive archaeological evidence has been discovered at Dvors Valley, Joshua Tree, Anza-Borrego and along the Colorado River Valley (Wallace 1962:176). While sites of this cultural phase are not currently known within the project area, the possibility of their presence within the region exists.

Period IV Shoshonean Yuman - A.D. 1000 to Historic/Late Prehistoric

The final cultural period in Wallace's scheme is one of intensive regional specialization. Representative artifacts include small Desert Side-notched and Cottonwood Triangular projectile points, pottery, shell ornaments, and abundant food grinding implements (Wallace 1962:177-178). Agricultural practices became more widespread with the Cahuilla utilizing such concepts as fallow periods, insect control, and ditch irrigation. It has been hypothesized that this time period experienced the influx of intrusive Shoshonean speaking groups as they expanded out of the Great Basin area, resulting in the displacement of the local Hokan-speakers of the southeastern deserts (Wallace 1962:176).

The subsistence activity during this period became intensively related to a lacustrine adaptation of the fluctuating prehistoric, fresh water Lake Cahuilla. As Lake Cahuilla experienced its final dessication, aboriginal inhabitants began population movements to areas of more abundant resources. Villages were moved from the lakeside region to the mountainous zone to exploit the oaks, agave, pinyon nuts and other related vegetal resources. Some agriculture continued to be practiced in the canyon areas, and included the propagation of corn, squash, pumpkins and watermelon (Lando and Modesto 1977, Wilke,

The area of the proposed debris basin was surveyed in a series of transects spaced twenty to thirty meters apart. Crew members walked these transects in a zig-zag pattern following along north-south lines. The channel was examined by two crew members walking the length of the channel, surveying the east and west levees as well as the channel proper.

The area adjacent to, and west of the existing flood control channel was surveyed in a series of transects spaced less than twenty meters apart. Again, a zig-zag pattern was covered following a north-south line. This method ensures the most adequate visual coverage of the area to be surveyed. Reconnaissance conditions were favorable at the time of the survey. Portions of the project area were found to have been disturbed by water action, construction activities, and general human activity (hiking, picnicking, off-road vehicle use). A nature-interpretative trail was found to have been constructed on an alluvial terrace adjacent to the west bank of the existing channel. This is not of archaeological significance but rather, the result of an ongoing ecology club project associated with Mancho Mirage Elementary School (Price 1980). The nature trail, which has been cleared and lined with large rocks, is less than five years old and also contains a replica of an aboriginal brush structure (See Plate 8, Appendix B).

During the course of the survey, three of the previously recorded sites were relocated and evaluated. Two of the previously recorded sites were found to have been destroyed by construction. Two new unrecorded sites in addition to a single, isolated metate fragment were discovered. These were located and plotted on a topographic map, recorded, and photographed. Updated information has been sent to UCRARU to be included in their regional files. Official site numbers have been applied for but have not been received at the present time. The newly recorded sites will be referred to here as ARMC #1 and ARMC #2. The isolated metate fragment has been included with ARMC #1.

King and Hammond 1975). It is this final cultural stage that yields the most abundant archaeological evidence for the interior desert region. Specifically, the area in and adjacent to the project would be extremely likely to yield significant cultural remains representative of this Late Prehistoric period.

The impacts from European cultural contact were not felt in the interior desert region until the 1850's. Early government surveyors working in this region have recorded the then existing Cabulla villages near the present Anglo towns of Thermal, Mecca, Thousand Palma Oasis and Indian Wells (Drover and Leonard 1978). No village sites were known to have existed within the project area.

SURVEY OBJECTIVES AND METHODOLOGY

The field work for this project was carried out by the author, who acted as director, and four crew members. The literature and records search, performed by the (UCRARU), revealed five previously recorded archaeological sites within or directly adjacent to the project area. These five sites were located and recorded during an earlier cultural resources assessment conducted for the Coachella Valley Water District by Drover and Leonard (1978).

Attempts were made to relocate and evaluate the condition of each of the previously recorded sites, in addition to a systematic search for new and unrecorded sites. Field reconnaissance was carried out on foot, an intensive systematic survey of the areas to be impacted by construction of the debris basin, access road and borrow pit was conducted. Areas expected to be inundated during flood episodes, areas adjacent to the channel which may be altered by construction and the length of the existing channel to the Highway 111 Bridge were examined (Figure 1, Appendix A).

SURVEY RESULTS

The following is a facility-by-facility listing of the cultural resources within or directly adjacent to the project area:

MACHESIA SPRING DEBRIS BASIN

No archaeological sites were located within the area of the proposed basin, parking area, or access road. This area has been subjected to continuous water action that naturally occurs within the drainage. A single, isolated metate fragment made of granite was discovered in the wash. The metate obviously has been re-deposited in the wash, coming from some unknown location. For recording purposes, it has been listed as an isolated find and has been recorded with ARNC #2 which is located nearby.

SITES DIRECTLY ADJACENT TO THE PROJECT AREA

Several previously recorded sites as well as the two newly discovered sites are located directly adjacent to the project area. These sites are located on alluvial fans and terraces alongside the canyon drainage. No significant historic sites were discovered in the project area. The nature trail/ecological interpretative area, of very recent origin, is present, however, it is not considered an historic resource.

PREVIOUSLY RECORDED SITES

Riv-1320

This site, as it was originally recorded, lies on the west side of the existing channel on an alluvial terrace at the 300' contour. The site consists of two circular rock alignments and

alignment 1 and alignment 2. The larger rock feature is an alignment of stones piled two and three rocks high, forming an oval approximately 6 m x 2 m and is very well preserved (See Plate 1 and Plate 2, Appendix B). The smaller of the two stone alignments is circular and lies about 3 meters to the south and is about one meter in diameter. Again, the rocks here appear to have been piled or stacked, however, this rock feature is not as well preserved. Upon examination, it was found that the aligned rocks were well-embedded in the soil matrix, indicating probable prehistoric construction.

The large rock alignment sits up against the base of a hill and the naturally occurring rocks here have been utilized as the western perimeter of this structure. There is a break (0.5 m) at the northern end of the eastern perimeter, perhaps a remnant of an entryway. It is possible that these stone alignments may be remnants of aboriginal house structures.

A segment of an aboriginal trail is visible approximately 50 m north of the larger stone alignment. It is visible running north-south and extends for at least 50 m, crossing a pass formed in a low peninsula that juts out into the alluvial fan.

While these features would appear to be in no danger from direct impacts, discretion should be practiced to insure that no damage results from secondary impacts. Caution should be exercised during future construction and improvements to access and maintenance roads as well as to the channel itself. Activities relating to this project must be limited to the channel and the adjacent area to the east only. At no time should construction equipment be allowed to converge on the western side of the flood control channel. The cultural integrity of Riv-1320 should be preserved for future generations and study.

In the event that avoidance of Riv-1322 cannot be assured, a complete archaeological test investigation should be performed in order to evaluate the cultural significance before the site might be destroyed. Once a cultural resource is altered to any degree, much of the data is lost forever. Aerial reconnaissance is suggested as the best method of recording Riv-1322. This would not only permit optimum observation of surface characteristics but also better define the relationships between the circular rock alignments and the aboriginal trail in addition to any other features that might exist. For a further discussion of aerial reconnaissance, see page 17 of this report.

Riv-1321

This site was previously recorded as a 3 x 4 foot rock, containing one bedrock metate located on the west bank of the flood control channel. This site was not located during the survey and is considered to have been destroyed during channel constructions and improvements. It is most likely that site destruction occurred during the subsequent cleaning and scraping of the channel after heavy rains. No further archaeological investigations are recommended here.

Riv-1322

This previously recorded site contains a series of twenty small rock cairns situated in an east-west alignment about two meters apart. Each cairn averages about one meter to one and one half meters in diameter and consists of about ten to fifteen large size rocks piled in a somewhat circular pattern (See Plate 3 and Plate 4, Appendix B).

During the current survey an additional series of cairns were located 30 m to the south. These, however, were less obvious. Only five cairns were definitely visible. This smaller configuration appears to have been aligned in an east-northeast direction, angling into the larger alignment. These rock configurations are located in the drainage of a side canyon that meets Magnesia Spring Canyon. Large amounts of alluvium have deposited in this area, the surrounding region is covered with a scatter of rocks and boulders making visibility rather obscure. The site is best viewed from atop one of the nearby hillocks. This site lies in an area that may experience damage due to construction, improvements, or maintenance connected with the proposed debris basin.

The cultural significance of Riv-1322 is unknown at the present time. It has been suggested (Drover and Leonard 1978:12), that the alignment of cairns may be related to an aboriginal water control system. The fact that the Cahulla practiced various methods of water control and usage has archaeologically and ethnographically been recorded. Bean (1972:73) states that the practice of diverting stream water into trenches for greater accessibility was common. Ditch irrigation is also known to have been practiced (Wilke, King and Hammond 1975:51-54). Aligned stones or rock cairns have also been recorded as trail markers or boundary indicators (Bean 1972:123). Considering the location of Riv-1322 at the mouth of a side canyon that feeds into a larger canyon drainage, the site is most probably related to a water control system for household or agricultural purposes.

Extreme caution should be exercised in the area of Riv-1322. The site does not lie in the zone of direct impact but most likely will be disturbed by secondary impacts resulting from the movements of construction equipment. Preservation of this site is of the highest priority.

In the event that preservation is not possible, extreme caution should be exercised as secondary impacts may occur when construction and channel improvements commence. No soil should be borrowed from this area, nor should construction vehicles be allowed to travel over this region. All construction and maintenance activities should be carried out on the eastern side of the existing channel only.

Should avoidance prove to be impossible, an archaeological test investigation should be performed on Riv-1322. This should include complete mapping and recording of the series of rock cairns in addition to limited excavations. Aerial reconnaissance is suggested as being advantageous for Riv-1322 as this section of the interior desert is relatively free of dense vegetation.

Observation and photographs from the air would be extremely useful in revealing the surface characteristics of the rock cairn alignments and their relationship to the surrounding features. Aerial observation allows a large-scale overall view of the spatial patterning and distribution of the rock alignments. This method would permit an excellent job of recording and mapping to be accomplished. This in turn will aid in a more scholarly interpretation of the cultural significance of Riv-1322. The best results would be obtained in the photo reconnaissance is attempted in the early morning or the late afternoon when shadows are the longest and sunshine is bright (Sharer and Ashmore 1979:158-159). Remote sensing, in this case, aerial reconnaissance, is now considered to be a valid archaeological technique which can offer valuable information regarding cultural interpretation (Davis 1979:1-19, Sharer and Ashmore 1979:158-162).

Riv-1323

This previously recorded site was listed as a large boulder (6' x 4' x 10') with two bedrock mortars on it. The site was not located and has been considered destroyed due to construction. This area has been subjected to flood control improvements and maintenance and most likely was destroyed in clearing activities after heavy rain storms. No further archaeological investigations are recommended.

Riv-1324

This site was recorded in a previous survey and was listed as being a large boulder (4' x 4') containing three grinding slicks and one mortar. It is located at the mouth of Magnesia Spring Canyon along the northeastern side of the canyon, situated thirty meters east of a natural rock ledge that crosses the narrow canyon mouth. This area may experience inundation from flood episodes, but is not in danger from any construction activities.

Prior to inundation, this site should be subjected to limited recording. The boulder containing the bedrock mortar and grinding slicks should be photographed; the dimensions of the mortar and slicks should be recorded as to length, width, and depth, as well as to placement on the rock itself. As no artifacts were recorded as being associated with this site, excavation is not considered necessary.

Removal of the boulder and donation to a facility such as the Living Desert Reserve is an alternative suggestion. Costs, however, may prove to be extensive if this option is decided upon. Information and observational data made during this survey has been sent to UCRARU in order that their regional records and files might be updated (See Appendix C for site survey forms).

Riv-65

This site, originally recorded by Smith in 1954 and recently updated by McCarthy in 1978, is a habitation site that is located at Magnesia Spring in the upper areas of the canyon. It lies well outside the project area and is in no danger from construction activities connected with the proposed debris basin.

SITES FOUND DURING THE CURRENT SURVEY

The following section lists information regarding the two new sites recorded by ABMC personnel during this survey. These sites were located on the USGS Topographic Map, Rancho Mirage Quadrangle, 7.5' Series. Pertinent information was recorded and transferred to the site survey record forms and photographs were taken. Official site numbers issued for Riverside County by UCRABU have not been received at this time. For purposes of clarity this report will refer to the two newly recorded sites as ABMC #1 and ABMC #2. The single isolated acetate fragment discovered in the wash was recorded with ABMC #2. Although not associated with this site, nor any other specific site, it was recorded with ABMC #2. It's location within the wash has obvious implications of its displacement. Therefore, it was not considered appropriate for designation as an archaeological site.

ABMC #1

This site consists of a segment of an aboriginal trail, located on an alluvial terrace directly west of the existing channel. The trail follows a north-south direction and is clearly visible (See Plate 5, Appendix B). When viewed from atop one of the nearby alluvial fans, the trail is vividly apparent. It begins to "fade out" or become obscured about

30 m north of its northernmost point. Two possibly associated small rock cairns are located approximately 50 m north (See Plate 6, Appendix B). Although the trail itself is not as readily visible near these rock cairns, they may have been some type of trail markers. This segment of prehistoric trail may have been an extension of the recorded trail at Riv-1320 located a short distance to the north. It is quite possible that both of these trail segments were once a part of a system of aboriginal trails that once traversed the alluvial terraces along the canyon wall extending from the desert floor up the canyon to the spring and perhaps even farther up to the mountainous area above the canyon. It has been noted (Bean 1972:75) that Cahuilla villages were often connected by a complex of well-defined trails. In addition to the many trails connecting villages to hunting and gathering areas.

Preservation of this site is not considered of the highest priority. Rather, detailed mapping of this trail and any related complexes should be attempted. Precise recording procedures including aerial reconnaissance and complete photographic documentation should be implemented in the event that secondary impact becomes possible. Further test investigation such as excavations are not recommended here, as no artifactual materials were recorded during the survey.

Destruction and/or alteration in the form of secondary impact of this site will most likely occur as the result of future construction and continued maintenance of the proposed debris basin. Construction vehicles and equipment should be limited to the eastern side of the existing channel, to avoid secondary impact.

ABMC #2

This site, as recorded in the current survey, consists of a large boulder which has one mortar and one grinding slick on it (See Plate 7, Appendix B). It is located on the western side of the canyon just above the present channel floor. No artifacts were noted in the surrounding area. A single, isolated granite metate fragment was located in the wash a short distance away. Its dimensions were recorded as being 30" x 18" x 10". The grinding area measured 10" x 7". Implications of re-deposition are obvious; this metate cannot be associated with any specific site but has been included with nearby ABMC #2 for recording purposes.

Destruction and/or inundation of this site will become imminent with the proposed debris basin construction. It is recommended that pertinent information regarding this site be recorded prior to commencement of construction activities. Measurements should be taken and a complete photographic documentation should be prepared. Archaeological test investigations are not recommended for ABMC #2. The isolated metate fragment should be re-located, recorded, measured, and photographed, donation to a proper facility is recommended. The large boulder at ABMC #2 could also be donated. The cost factor, however, may be prohibitive.

There are no known sites within the project area that are listed on, nor that qualify for, inclusion in the National Register of Historic Places. As no word was received from the Native American groups, it is unknown, at present, if any areas within the project area are regarded as having special cultural significance pertaining to Native American values.

EVALUATION AND RECOMMENDATIONS

Evaluation of the effects of the proposed project on the known cultural resources follows:

Riv-1320 Secondary impacts may alter/destroy this site. Avoidance is strongly recommended; an archaeological test investigation should be performed if avoidance is not possible. Aerial reconnaissance is also recommended.

Riv-1321 Site destroyed. No further archaeological investigations are recommended.

Riv-1322 Secondary impacts may alter or destroy this site. Avoidance is highly recommended; an archaeological test investigation including intensive mapping and recording in conjunction with aerial reconnaissance should be undertaken if avoidance is not possible.

Riv-1323 Site destroyed. No further archaeological investigations are recommended.

Riv-1324 Inundation is imminent. Complete recording and photographic documentations are recommended. Once these tasks are completed, no further archaeological investigations will be necessary.

ABMC #1: Secondary impacts are considered likely to occur here. Detailed mapping of the trail and its regional relationships along with exact recording procedures, including complete photographic documentation in conjunction with aerial reconnaissance are recommended. No further archaeological investigations are recommended once the recording procedures have been completed.

The isolated metal fragment should be relocated, recovered, and recorded as to dimensions and a photographic documentation should be completed. Upon completion, it is suggested that the item be donated to an appropriate facility. Following this, no further archaeological investigations are recommended for the area where the isolated metal was discovered.

The purpose of this survey was to relocate known archaeological sites and evaluate their present condition as well as to identify and record any further previously unrecorded cultural resources that might occur within the project area. This was accomplished by a two phase program including a records and literature assessment as well as an on-foot ground reconnaissance of the project area.

Two previously recorded sites were found to have already experienced destruction. The remaining three previously recorded sites have been evaluated as to their cultural significance. Riv-1320 and Riv-1322 are considered to be highly significant and are expected to be disturbed by secondary impact. Avoidance has been recommended for these sites. It is suspected that Riv-1324, which is considered as being less culturally significant, will experience inundation. Mitigation measures for this site have been recommended in the form of complete recording and documentation.

[illegible]

Alternate Plan B has not been discussed here as recent information received from the Corps of Engineers Planning Department has indicated that Plan A is the only working plan now considered as feasible by the U S Army Corps of Engineers (April 1940)

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