



DRAFT ENVIRONMENTAL IMPACT REPORT AND TECHNICAL APPENDICES

(State Clearinghouse Number 2003111131)

**HOMELAND MASTER DRAINAGE PLAN (Revision No. 1)
ROMOLAND MASTER DRAINAGE PLAN (Revision No. 1)
HOMELAND/ROMOLAND AREA DRAINAGE PLAN (Amendment No. 1)**



**RIVERSIDE COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT**

JULY 2005

DRAFT ENVIRONMENTAL IMPACT REPORT AND APPENDICES

Homeland Master Drainage Plan (Revision No. 1)

Romoland Master Drainage Plan (Revision No. 1)

**Homeland/Romoland Area Drainage Plan
(Amendment No. 1)**

Riverside County, California
(State Clearinghouse Number 2003111131)

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I. SUMMARY

1. Introduction

The purposes of the California Environmental Quality Act (CEQA) are to: (1) inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities; (2) identify the ways that environmental damage can be avoided or significantly reduced; (3) prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and (4) disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved. (See State CEQA Guidelines, Section 15002.)

This Draft Environmental Impact Report (DEIR) document has been prepared to inform decision-makers and the public of the potential significant environmental effects associated with the construction of master planned drainage facilities, located in the unincorporated communities of Romoland and Homeland in Riverside County, herein known as the Homeland Master Drainage Plan (MDP) and the Romoland Master Drainage Plan (MDP). This study has been prepared pursuant to the California Environmental Quality Act, known as CEQA, (California Public Resources Code, Sections 21000, et seq.), the State CEQA Guidelines (California Code of Regulations, Sections 15000, et seq.). The EIR process typically consists of three parts – the Notice of Preparation, Draft EIR, and Final EIR. The Notice of Preparation (NOP) for the proposed project was circulated in November 2003. The NOP was distributed directly to more than 20 public agencies and interested parties. A notice advising the availability of the NOP was posted with the Riverside County Clerk on November 25, 2003. The NOP was also sent to the State Clearinghouse for redistribution to the appropriate state agencies.

Construction of the proposed MDP facilities will occur in numerous phases. The initial phase includes drainage facilities in the Homeland and Romoland MDPs which are anticipated to be constructed in the next 1 to 3 years (Line A/ Line 1 System). Future facilities will be built as development in the area requires or when funding becomes available.

This Program DEIR will address the potential environmental impacts associated with the construction and operation of all the drainage facilities outlined in the Homeland and Romoland MDPs. This DEIR is intended to serve as a project specific EIR for the facilities to be constructed in the initial phase as well as a programmatic EIR for future facilities.

2. Project Description

Project Location

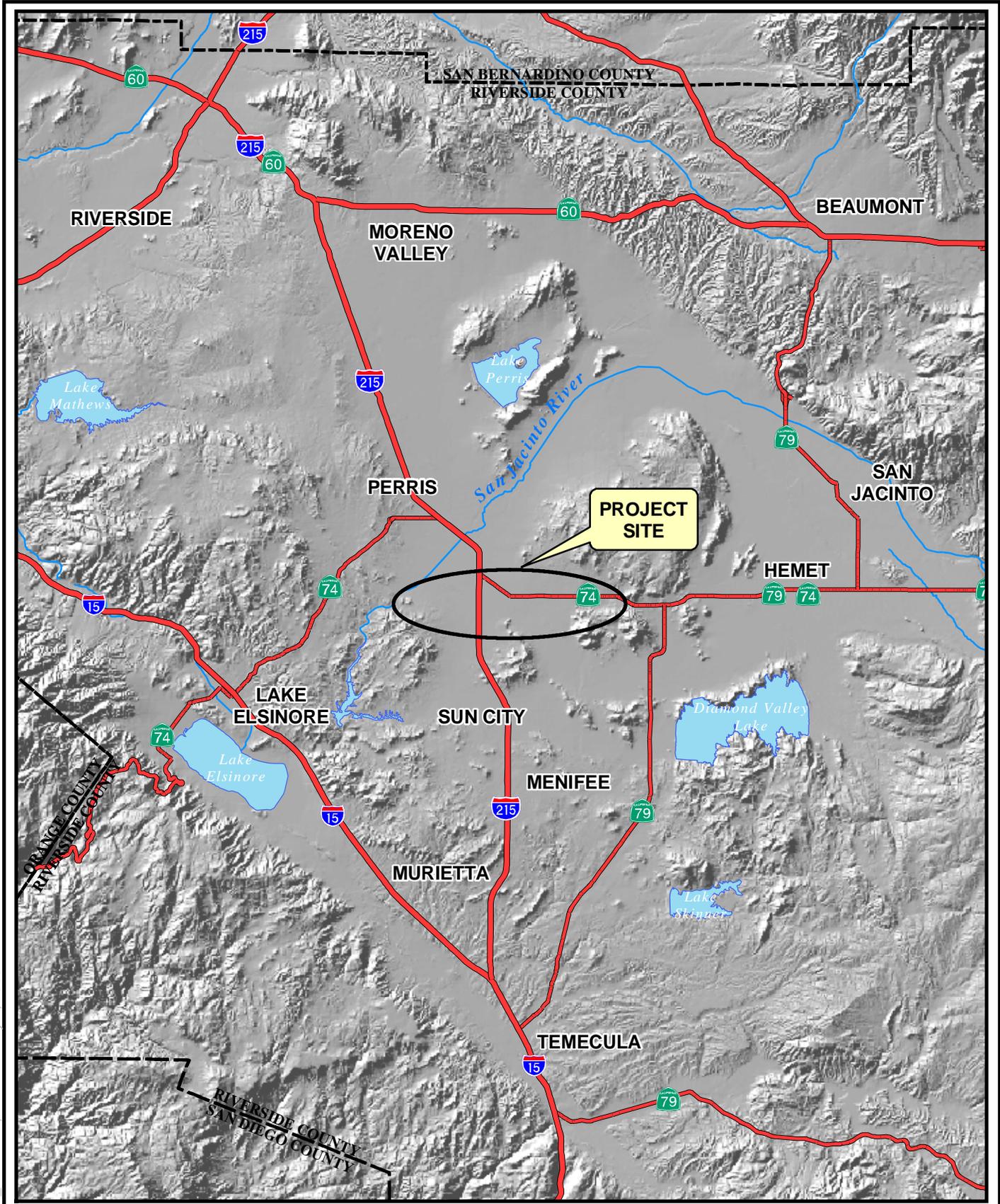
The proposed project is located in the city of Perris and the unincorporated communities of Homeland and Romoland, in Riverside County, California (see Figure I-2-A, Vicinity Map). The easterly extent of the project area is located at the base of the Lakeview and Double Butte Mountains. The project area continues west on either side of State Route 74, follows McLaughlin Road and parallels Camie Lane east-west and cross Interstate 215. West of Interstate 215 the project area generally follows Ethanac Road for a distance then proceeds in a northwesterly direction towards the San Jacinto River channel (see Figure I-2-B, Proposed Project).

The project area consists primarily of rural residential and agricultural uses with some industrial and commercial uses near Interstate 215. But in the past few years residential development in the project vicinity has increased, and there has been a corresponding decrease in agricultural use.

Project Objectives

A clear statement of project objectives allows for the analysis of reasonable alternatives to the proposed project. A range of reasonable alternatives, both on- and off-site, that would feasibly attain most of the basic project objectives, while avoiding or substantially lessening the significant effects of the project, must be analyzed per CEQA Guidelines Section 15126.6. The proposed project is intended to meet the following objectives:

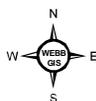
- In conjunction with ultimate street improvements for the Homeland and Romoland area, will contain the 100-year flood flows and alleviate the primary sources of flooding within the project area.
- Serve as a guide for the location and size of drainage facilities that need to be constructed to protect existing development and future development as the area develops per the Riverside County General Plan.
- Ensure that facility alignments are reserved for future construction of the drainage facilities.
- Create a funding mechanism to help finance the project costs.



Sources: USGS 100m DEM's
SAWPA Water Features

Figure I-2-A

Vicinity Map



Not to Scale

Romoland - Homeland MDP Facilities

G:\2003\03-0141\GIS\drainage_I-2-A.mxd; Revised May 2, 2005

Project Description

The proposed project consists of revisions of two existing Master Drainage Plans (MDPs) by the District, amendment of the existing Area Drainage Plan (ADP) and construction and maintenance of the proposed drainage facilities. Revisions will be made to the current Master Drainage Plan for Romoland (Romoland MDP Revision No.1), the current Master Drainage Plan for Homeland (Homeland MDP Revision No. 1), and the Homeland/Romoland Area Drainage Plans (Homeland/Romoland ADP Amendment No. 1). The ADP for the Homeland/Romoland Area is a funding mechanism for the facilities contained in each of the MDPs being addressed.

The construction of the proposed MDP facilities will occur in many phases. The construction of the Line A/ Line 1 System, Phase I, will likely be constructed over the next one to three years. The remaining proposed facilities contained in the MDPs will be constructed in future phases as development requires and when funding becomes available. The final design, phasing, and construction schedule for the remaining facilities is not known at this time. Different segments of the future facilities will likely be constructed at different times and over multiple phases. The Line A/ Line 1 System includes construction of one main line with multiple laterals and two basins. Future facilities include two separate main lines with laterals and two basins. Future facilities will also include additional laterals stemming from the Line A/ Line 1 System. The locations of future facilities are shown in Figure I-2-B, Proposed Project.

The MDPs consist of a system of open channels, underground storm drains and four detention basins. The open channels proposed in these plans consist of two types, lined and unlined. Most of the proposed lined channels are trapezoidal shaped facilities with concrete paving on the sides and bottom. The sides slope upward from the bottom at a rate of one foot vertically for every 1.5 feet horizontally. The project also includes segments of concrete lined rectangular channels. The lined channels in these plans range in size from a bottom width of 2 feet to 42 feet and in depth from 3 feet to 7.5 feet. Unlined facilities are not paved with concrete. The unlined channels are trapezoidal-shaped but generally have flatter side slopes than the lined channels, which run 3 feet horizontally for every 1 foot of rise. Unlined channels are more costly to maintain and the District restricts the ultimate use of an un-lined section to instances where flow velocities are non-erosive. Unlined channels also require additional right of way due to their wider cross sections. Open channel rights of way must accommodate the channel as well as one or two maintenance roads.

Open channels are generally considered the only economically feasible means of transporting large flood flows for any appreciable distance and are used where possible. In addition to their role as flow conveyors, open channels provide an outlet for the underground facilities proposed in the plans as well as local drainage facilities to be built by developers and others. All of the open channels proposed in this report are intended to carry the runoff from a 100 year frequency storm.

The proposed underground storm drains generally consist of reinforced concrete pipe (RCP), ranging in size from 27 inches to 114 inches in diameter, and reinforced concrete box (RCB), ranging from single cell (4 feet high x 8 feet wide) to quadruple cell (8 feet high x 14 feet wide).

Manholes are located as necessary with a maximum spacing of 500 feet. Catch basins are not specifically located until final design.

The underground drainage facilities in these plans are proposed only where the application of open channels is not feasible, either because of topographic constraints or existing development. Most of the underground facilities within road rights of way are sized to carry the runoff generated by a 10 year storm event. During a 100-year storm event, excess flow is expected to be carried in the street section above the facility. Otherwise, underground facilities are sized to convey the 100-year storm runoff. Where possible, the underground storm drains proposed in the plan are located in existing or future street rights of way.

The proposed detention basins are mostly excavated below existing grade ranging up to 30 feet in depth. The side slopes of the basins generally vary from 3:1 to 5:1; but may be less where circumstances allow. The proposed detention basins, except for Melba Basin, are sized to accommodate flows for 100-year storm events. The proposed detention basins reduce peak flows by hydraulically restricting the outflow. The basins temporarily store the excess volume during storm events but generally drain within a 48-hour period. The reduction of peak flows and debris allows for smaller, less costly facilities downstream of the detention basins.

The Line A/ Line 1 System, which will be constructed in the initial phase, consists of approximately 13 miles of linear facilities, including open concrete and earthen channels, underground storm drains, and two earthen detention basins. The Romoland MDP Line A earthen channel west (i.e., downstream) of Interstate 215 will include gabion reinforcement of the banks where erosive velocities are expected, such as the channel corners. The construction and configuration of Romoland Line A, west of Interstate 215, will consist of various segments consisting of an earthen open channel with bank protection where necessary. Interim phases of Line A west of the I-215 will consist of constructing a channel that will provide adequate drainage into the existing San Jacinto River channel. The interim channel will be constructed as the Line A/ Line 1 System is constructed east of the I-215 or as a part of subsequent projects along Line A. The ultimate Line A will be constructed if and when the San Jacinto River Improvement Project is constructed, as a separate and unrelated project that includes the lowering and ultimate configuration of the San Jacinto River channel. At that point in time, the interim Line A channel can be lowered and constructed to ultimate configuration so that it can tie into the ultimate San Jacinto River channel. Open channels east of the I-215 will need to be concrete lined due to the large volume of flows accompanied by its erosive velocities in that portion of the watershed. All four proposed detention basins will be earthen facilities. Juniper Flats Basin will encompass an area of approximately 28 acres and will have storage capacity of approximately 130 acre-feet of volume during a 100-year storm event. Briggs Road Basin will encompass an area of 40 acres and will have a storage capacity of approximately 400 acre-feet of volume.

Future construction phases of the proposed project include approximately 20 additional miles of linear drainage facilities and two earthen detention basins within the MDPs. Future linear facilities will consist of open channels, earthen and concrete lined, and underground storm drains, as outlined in the Homeland and Romoland MDPs. In general, future open channel facilities will be concrete lined due to high velocities. Romoland Line A-8 is located west of

Interstate 215 and is master planned as an underground storm drain. Romoland Line A-15 is master planned as an open concrete lined channel and underground storm drain connecting to the San Jacinto River Channel westerly of the I-215 at Goetz Road. However, similar to Line A, Line A-15 will likely consist of an interim facility near the San Jacinto River channel. Mapes Basin will encompass an area of approximately 21 acres and will have a storage capacity of 92 acre-feet. The Melba Basin will encompass an area of 2.2 acres and will have a storage capacity of 10.4 acre-feet. The facility types and locations for the proposed project are represented in Figure I-2-C, Proposed Facility Types.

Those proposed drainage facilities that are constructed will require maintenance in order to retain flood control capacity. Following construction of the facilities, it is expected that the District will operate and maintain most of the MDP storm drains, channels and basins. The maintenance of the concrete lined channels and storm drains typically is less costly than earthen channels and basins. Maintenance of storm drains and concrete channels typically consists of keeping these facilities and their side drains clear of debris and sediment, as well as repairing access roads and fences. On rare occasions, major repairs may be required following damaging storm events. Thus, major grading will not routinely occur while maintaining the underground storm drains and open concrete channels. To maintain the constructed facilities, the District will occasionally use equipment similar to the types used to construct the proposed project.

The routine maintenance of the earthen channels and basins will likely require annual mowing and pesticide application as well as the maintenance activities described in the previous paragraph. Vegetation must be maintained to provide the designed hydraulic capacity. Any vegetation that may pose a fire hazard to adjacent structures must also be maintained. The design capacity of the facility and the frequency, duration, and velocity of runoff usually dictate the frequency of vegetation maintenance. Most facilities require some annual vegetation control. Maintenance of the earthen facilities will also include occasional erosion repair and sediment removal. The frequency of these activities is a function of peak flows, and is difficult to estimate. The proposed earthen facilities are also more likely to be damaged by high velocity peak flows. While major repairs are expected to be relatively infrequent, the District will occasionally need to substantially grade and repair the earthen facilities.

As stated above the proposed project includes revisions to the existing Romoland MDP, Homeland MDP, and Homeland/Romoland Area ADP. The following is a description of these revisions. The MDPs for Homeland and Romoland, including existing drainage facility locations and proposed revisions, are represented in Figure I-2-D, Area MDPs – Adopted and Revised. Figure I-2-E represents typical cross sections of the proposed facilities.

Romoland MDP Revision No. 1

A proposed drainage system was originally described in the Romoland Master Drainage Plan (MDP) dated April 1988. The proposed MDP revision is the result of the re-evaluation and expansion of the original 1988 plan. After adoption, Revision No. 1 will supersede the 1988 MDP. The preliminary estimated total cost of constructing the drainage improvements included in the Romoland MDP Revision No. 1 is \$41,162,055. A project cost breakdown is included in the preliminary MDP and ADP reports available for review at the District.

The Romoland MDP is a planning document prepared by the District that describes the type, size and alignment of the major existing and proposed flood control facilities located within the Romoland area. The MDP Revision depicts a storm water drainage system that, when constructed in conjunction with the ultimate street improvements, will contain the 100-year flood discharge and alleviate the primary sources of flooding within the MDP area.

The Romoland MDP more particularly describes the proposed construction of a backbone drainage system that is needed to provide adequate flood protection within the Romoland area. The Romoland MDP will serve as a guide to the long-term planning for the construction of the proposed drainage facilities. It will also act as a guide for the location and size of drainage facilities that need to be constructed as the area develops, or facilities that need to be constructed to resolve existing flooding problems within developed areas. Many of the drainage facilities may be constructed in conjunction with other development projects. Following adoption of the Romoland MDP, it is expected that proposed facility locations will be reserved for the future construction of the facilities. The District's Board approves an MDP as one step toward establishing a financing mechanism to provide funding for the proposed drainage facilities.

The Romoland MDP Revision No. 1 includes modifications to Line A and some laterals (depicted in blue on Figure I-2-D). It also includes the realignment or elimination of some laterals (depicted in black and white on Figure I-2-D) and additions or revisions of multiple laterals for future construction phases (depicted in green on Figure I-2-D). Portions of Line A remain unchanged from the 1988 Plan (depicted in red). Generally, Line A extends from near Briggs Road west along McLaughlin Road, crosses Interstate 215 and then extends in a northwestern direction to the San Jacinto River channel. The modified alignment of Line A is a relatively straighter line than previously depicted in the 1988 Romoland MDP. Other previously proposed facilities including the location of many future laterals would remain unchanged (yellow on Figure I-2-D). The modified alignment of Line A-15 includes an eastern shift south of Ethanac Road into Wheat Street and a western shift north of Ethanac Road into Goetz Road. As previously described, the proposed drainage facilities consist of underground storm drains, detention basins, and open channels.

The Romoland MDP Revision No. 1 does not include any modifications to Line B from the 1988 Plan. Line B and associated facilities, including Mapes Basin, may be constructed in future phases (Figure I-2-D).

Homeland MDP Revision No. 1

A proposed drainage system was originally described in the Homeland Master Drainage Plan (MDP) dated May 1982. The proposed revision is the result of the reevaluation and modification of the original 1982 MDP. After adoption, Revision No. 1 will supersede the previous plan. The preliminary estimated total cost of constructing the drainage improvements included in the Homeland Area MDP Revision No. 1 is \$14,744,837. A project cost breakdown is included in of the preliminary MDP/ADP reports available for review at the District.

The Homeland MDP is a planning document prepared by the Riverside County Flood Control and Water Conservation District that describes the type, size and alignment of the major existing

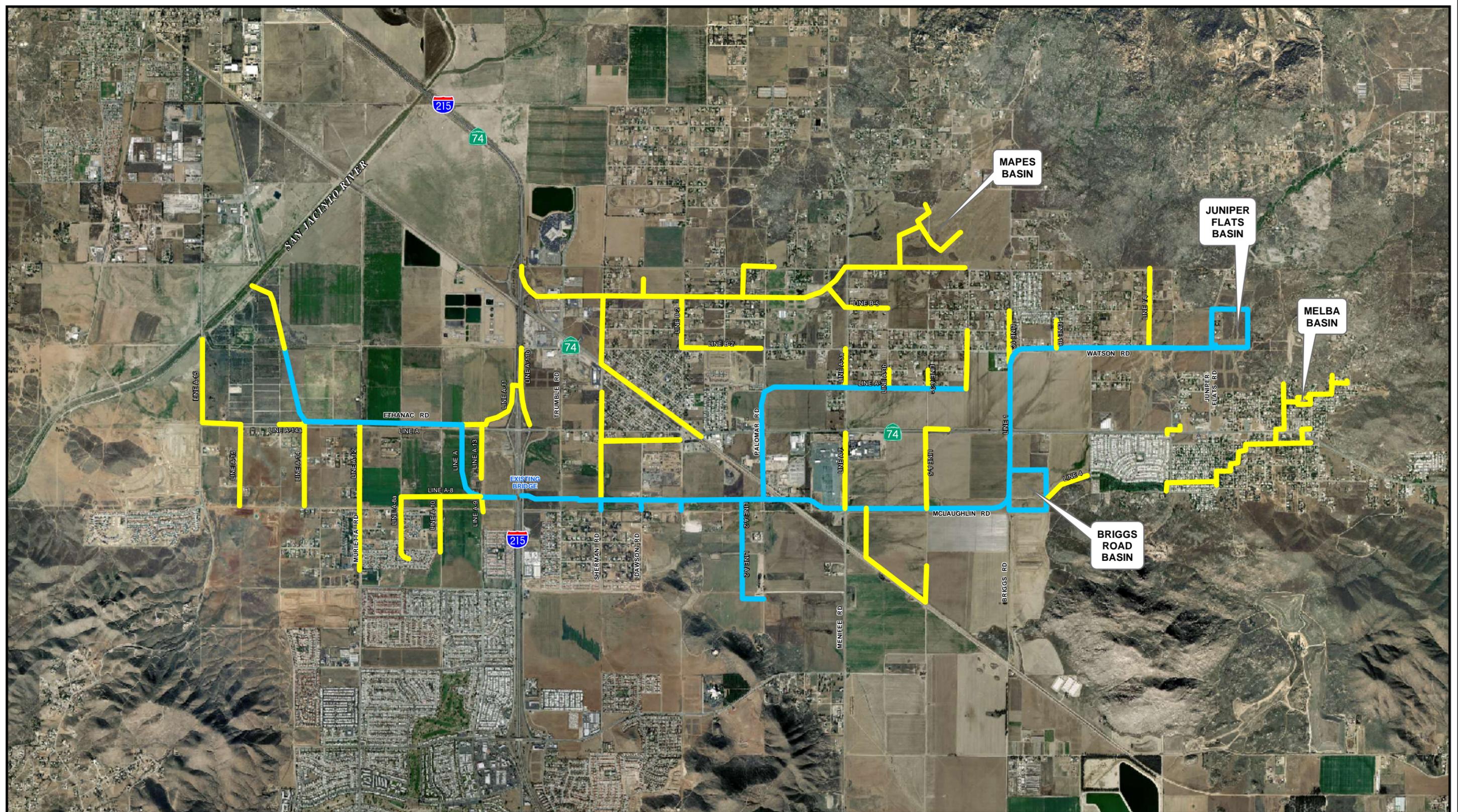
and proposed flood control facilities located within the Homeland area. It also describes the proposed backbone drainage system that will be needed to provide adequate flood protection within the project area. Following adoption of the Homeland Area MDP, it is expected that proposed facility alignments will be reserved for the future construction of the drainage facilities.

The Homeland MDP Revision No. 1 includes modifications to the previously proposed alignments and laterals and the addition of two detention basins (refer to Figure I-2-D). Line 1 begins at the newly proposed Juniper Flats Basin located northeast of the intersection of Juniper Flats Road and Watson Road and extends west along Watson Road then south along Briggs Road to the newly proposed Briggs Road Detention Basin. The modification to Line 1 includes a northerly shift from the previous alignment to Watson Road. Briggs Road Basin will be located at the southern end of Line 1 and will outlet to Line A of the Romoland Area MDP. All other future facilities would remain unchanged from the 1982 Plan, including Line 2 and the Melba Basin.

Homeland/Romoland Area ADP Amendment No. 1

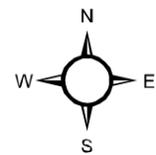
An Area Drainage Plan (ADP) is a financing mechanism for proposed flood control facilities within a watershed. Following the adoption of an ADP, drainage fee payment is required as a condition of approval for the filing of a final subdivision map or parcel map within the watershed addressed by the ADP. The Riverside County Flood Control District's Board approves the Master Drainage Plans. The Riverside County Board of Supervisors and the City of Perris City Council adopts the ADP. Based on the revisions proposed by this project, the Riverside County Board of Supervisors will revise the County Ordinance (Ordinance No. 460) that requires the collection of drainage fees within the boundaries of the ADP. The collected drainage fees are then used to fund the construction of the proposed flood control facilities within the watershed. As the ADP is a funding mechanism to help finance the MDPs, it is not anticipated that it will result in any significant environmental impacts beyond those associated with the MDPs.

Drainage fees collected within the Homeland/Romoland Area ADP will be used to help fund the construction of all the MDP facilities, with the exception of storm drains less than 36 inches in diameter, within the Homeland and Romoland Area MDPs. The overall watershed covered by the ADP is 13.7 square miles in size and spans a portion of the city of Perris, the unincorporated community of Romoland, and into the unincorporated community of Homeland, in western Riverside County. The proposed fee boundary and drainage fees are described in a preliminary report that is available for review at the District's office.



Source: AirPhoto USA
February 2004

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ASSOCIATES
ENGINEERING CONSULTANTS



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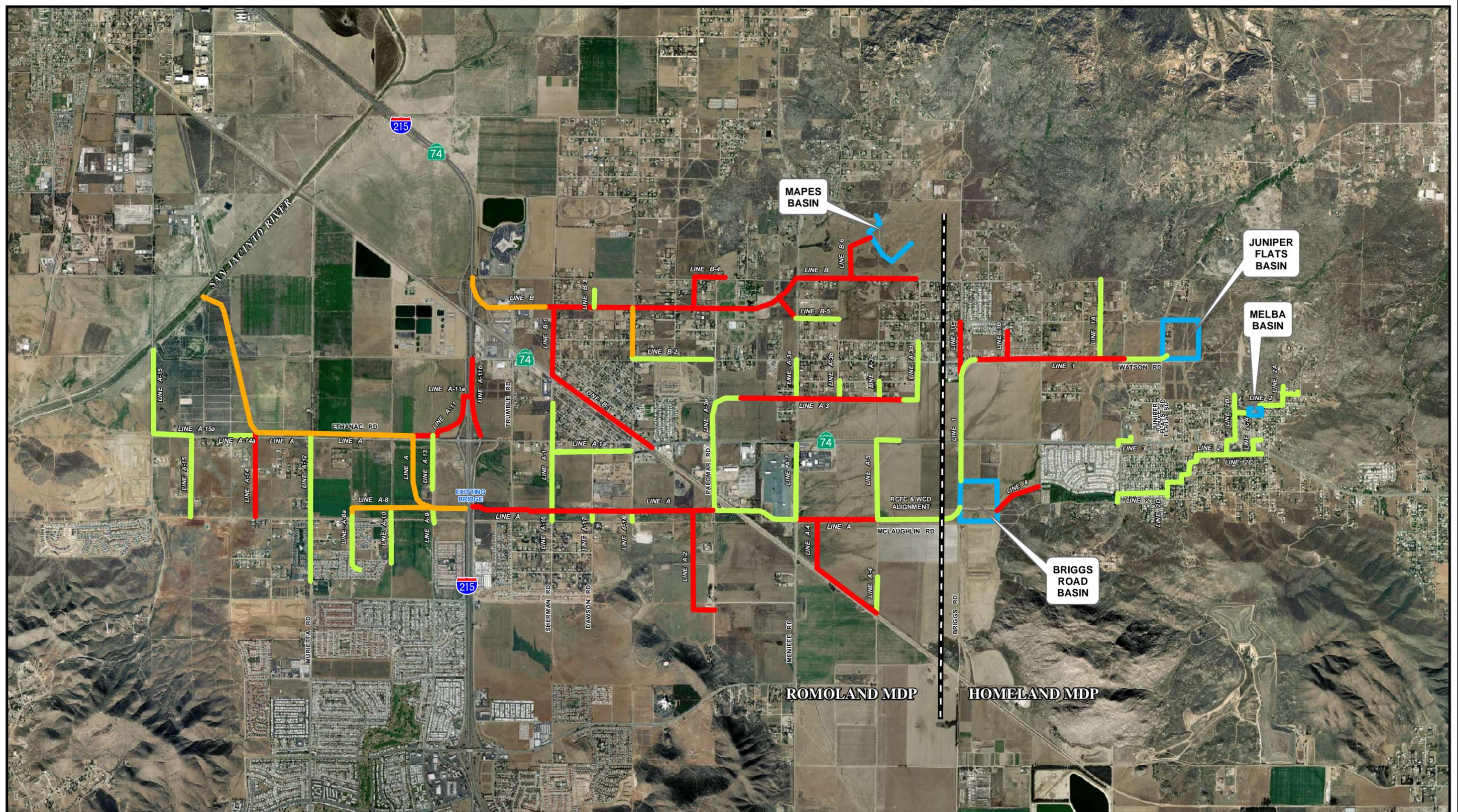
LEGEND

- PROPOSED PHASE I FACILITIES
- MASTER PLANNED FUTURE FACILITIES

Figure I-2-B

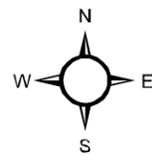
Proposed Project

Romoland / Homeland MDP/ADP



Source: AirPhoto USA
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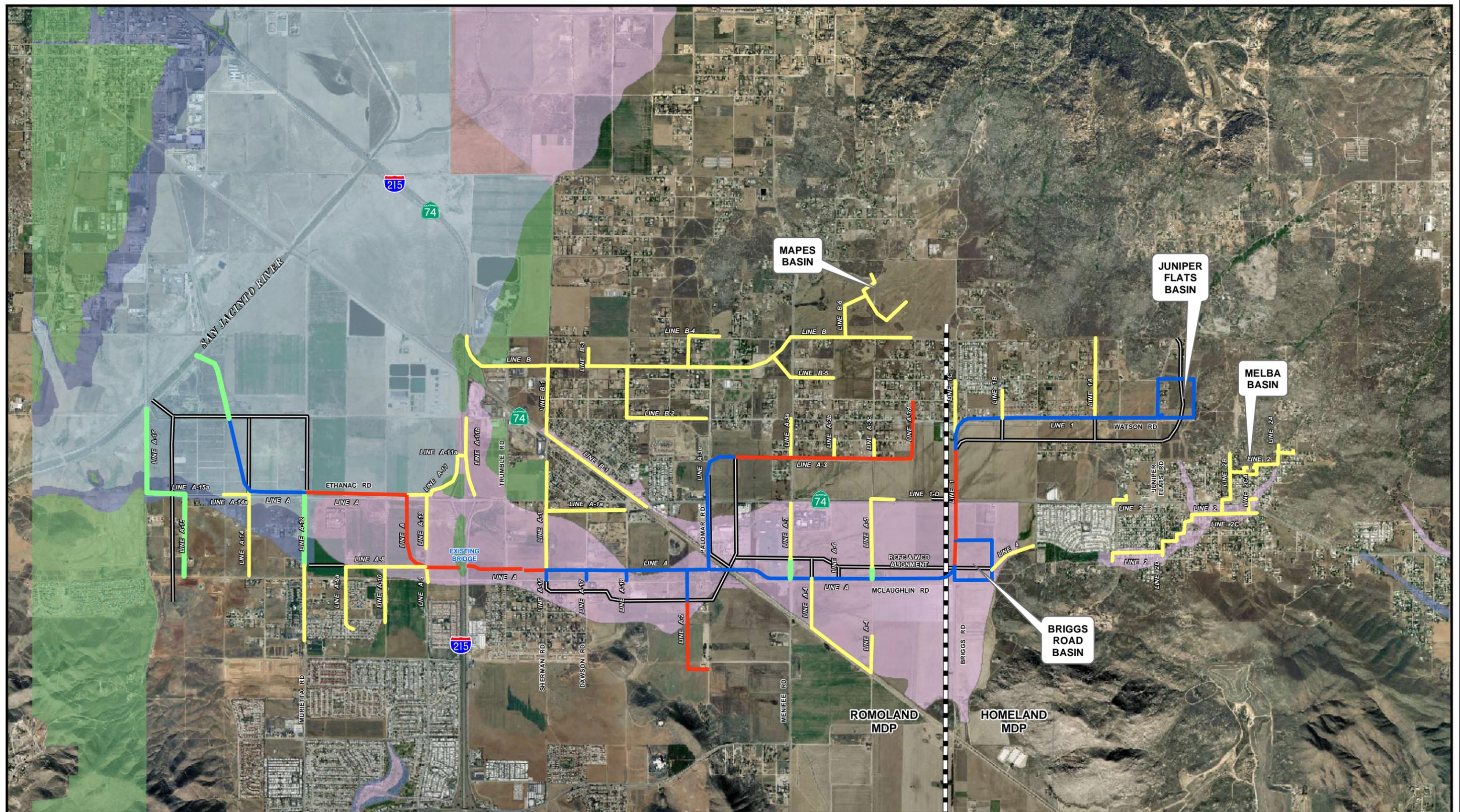
LEGEND

- PROPOSED CONCRETE OPEN CHANNEL
- PROPOSED EARTHEN OPEN CHANNEL
- PROPOSED UNDERGROUND STORM DRAIN
- PROPOSED DETENTION BASIN

Figure I-2-C

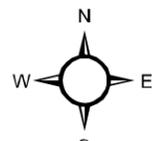
Proposed Facility Types

Romoland / Homeland MDP/ADP



Source: AirPhoto USA
February 2004

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0 3,000 6,000
Feet

- PHASE I - PROPOSED REVISIONS
- PHASE I - PREVIOUSLY ADOPTED
- FUTURE FACILITIES - PROPOSED REVISIONS
- FUTURE FACILITIES - PREVIOUSLY ADOPTED

LEGEND

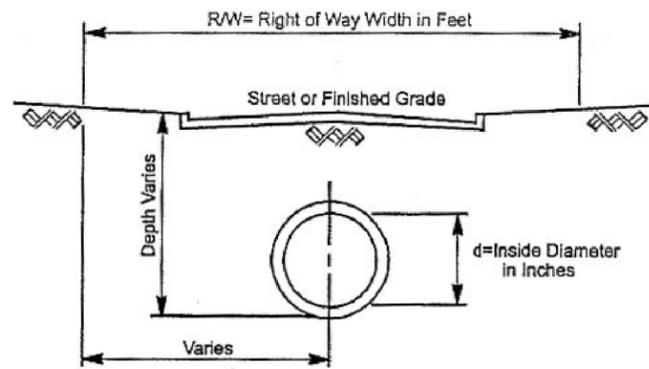
- PREVIOUSLY ADOPTED, TO BE ELIMINATED
- FLOODPLAIN ZONES**

- A
- A14
- AE
- B
- X
- C

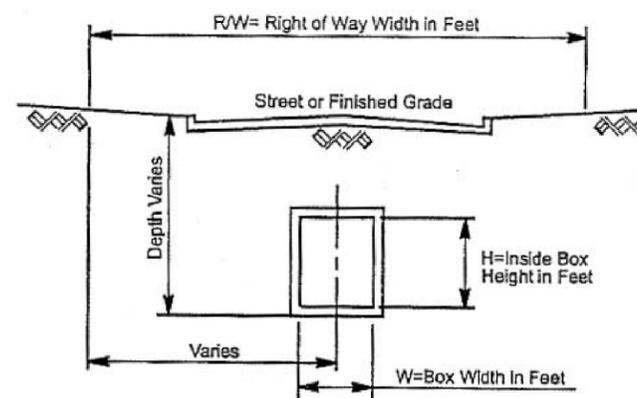
Figure I-2-D

MDP's - Adopted and Revised

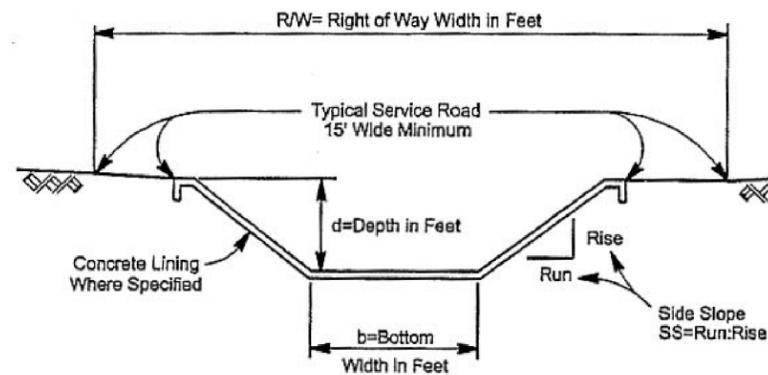
Romoland / Homeland MDP/ADP



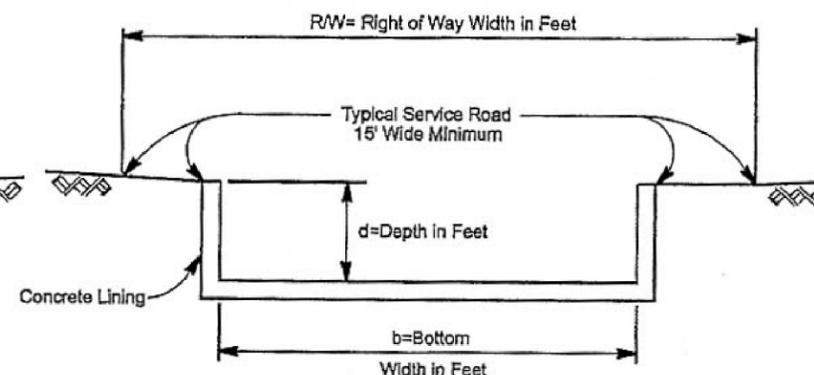
REINFORCED CONCRETE PIPE (RCP)



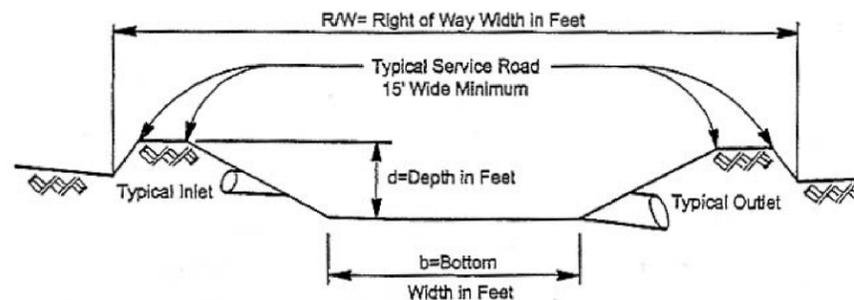
REINFORCED CONCRETE BOX (RCB)



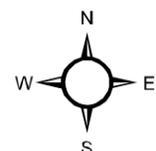
TRAPEZOIDAL CHANNEL
EARTHEN OR CONCRETE



RECTANGULAR CHANNEL
CONCRETE



DETENTION BASIN
EARTHEN



Required Permits and/or Approvals

The following permits or other forms of approval may be required from public agencies or other entities prior to construction of the proposed facilities:

U.S. Army Corps of Engineers

Issuance of a Clean Water Act Section 404 permit for construction and maintenance activities that discharge dredged or fill material into jurisdictional “Waters of the United States,” including adjacent wetlands and tributaries to navigable waters, if necessary.

Regional Water Quality Control Board, Santa Ana Region (RWQCB)

Compliance with the applicable National Pollutant Discharge Elimination System (NPDES) Construction permit will be required.

Issuance of a Clean Water Act Section 401 Water Quality Certification for construction and maintenance activities requiring a 404 permit, if necessary.

Issuance of a Waste Discharge permit for ground dewatering, if necessary.

California Department of Fish and Game

Issuance of a State Fish and Game Code Section 1602 Streambed Alteration Agreement for diversion, obstruction, or changes to the natural flow or bed, channel or bank of the San Jacinto River or other jurisdictional drainage features in the project area.

California Department of Transportation (Caltrans)

Issuance of encroachment permits for facility crossings at State Route 74 and Interstate 215.
Approval of Water Pollution Control Plans (WPCP) for construction activities within their right-of-way.

Burlington Northern Santa Fe Railways

Issuance of an encroachment permit for rail line crossings.

County of Riverside and City of Perris

Issuance of encroachment permits or other approvals for construction of the MDP facilities within City and County road right-of-ways as well as adoption of the ADP.

3. Environmental Setting

The project area is in western Riverside County. The project spans the area from the San Jacinto River within Perris city limits, through the communities of Romoland and Homeland to Juniper Flats Road, at the base of the Lakeview and Double Butte Mountains, west of Hemet city limits. The proposed drainage facilities may extend through properties with residential, commercial light industrial and public facility land use designations. Zoning designations in the project area generally match general plan designations and include primarily agricultural and residential designations. Project area development is characterized by active agricultural and residential uses.

Agricultural Resources

Agriculture is recognized as one of Riverside County's most important land uses in terms of character and economics. As outlined in the 2002 Riverside County Agricultural Production Report (Ag. Comm.), the total agricultural production for 2002 was over \$1 billion, and total planted area was over 241,000 acres. The financial impact of these dollars can be multiplied by a factor of three, yielding over \$3 billion in revenue generated into the local economy for 2002 in Riverside County. Agriculture is, thus, the leading industry in the county; and Riverside County ranks ninth in the state based on total value of production.

Four agricultural districts are recognized by the Agricultural Commissioner (Ag. Comm.) for Riverside County: Riverside/Corona, San Jacinto/Temecula Valley, Coachella Valley, and the Palo Verde Valley. As stated in the 2002 Riverside County Agricultural Production Report the San Jacinto Valley/Temecula District ranks second in the County, with a district valuation of over \$145 million for 2002. There are approximately 40 dairies in the San Jacinto Valley, as well as extensive crop production that include potatoes, fodder crops and dryland farming, turf farms, and small acreages of carrots and onions (personal communication, Bruce Scott, Vice-President, Riverside County Farm Bureau, October 28, 2003).

Rapid population growth in the Inland Empire is placing intense development pressure on existing agricultural lands. A 2001 news release by the California Department of Conservation (Conserv.) titled "Pace of Urbanization Increases in Inland Empire" indicated that Riverside County's population is expected to increase from 1.6 million in 2001 to 2.9 million by 2020. Consequently, Riverside County leads the state in the amount of newly classified urban lands. While agricultural land use is diminishing in the San Jacinto Valley in favor of increasing urban development, the Riverside County General Plan emphasizes the County's commitment to conserving productive agricultural operations on a county-wide basis. Most current and future agricultural land use is located toward the eastern half, or desert region, of Riverside County, while urban growth is planned to occur in key areas where supporting infrastructure, transportation, and employment opportunities exist.

The project area is dominated by agricultural and urban land interspersed with limited natural land. Agricultural land within the project area may be represented by cropped, disced or fallow areas at any given time. Currently, there is little active farming occurring within the project area. Agricultural lands are generally located along many of the proposed facilities. Areas designated as Prime Farmland and Farmland of Statewide Importance, as outlined in the California

Department of Conservation Farmland Mapping and Monitoring Program, are located within the project vicinity. Designated Prime Farmland is located north of Highway 74 east of Interstate 215 and an area of Farmland of Statewide Importance is located west of Interstate 215, north and south of Ethanac Road.

Air Quality

Physical Setting

The project area is located within the South Coast Air Basin (SCAB), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAB consists of Orange County, the coastal and mountain portions of Los Angeles County, and Riverside and San Bernardino counties. Regional and local air quality within the SCAB is affected by topography, atmospheric inversions, and dominant onshore flows. Topographic features such as the San Gabriel, San Bernardino, and San Jacinto Mountains form natural horizontal barriers to the dispersion of air contaminants. The presence of atmospheric inversions limits the vertical dispersion of air pollutants. With an inversion, the temperature initially follows a normal pattern of decreasing temperature with increasing altitude, however, at some elevation, the trend reverses and temperature begins to increase as altitude increases. This transition to increasing temperature establishes the effective mixing height of the atmosphere and acts as a barrier to vertical dispersion of pollutants.

Dominant onshore flow provides the driving mechanism for both air pollution transport and pollutant dispersion. Air pollution generated in coastal areas is transported east to inland receptors by the onshore flow during the daytime until a natural barrier (the mountains) is confronted, limiting the horizontal dispersion of pollutants. The result is a gradual degradation of air quality from coastal areas to inland areas, which is most evident with the photochemical pollutants formed under reactions with sunlight such as ozone.

Climate

Terrain and geographical location determine climate in the SCAB. The project site lies within the terrain south of the San Gabriel and San Bernardino Mountains and east of the Santa Ana Mountains. The climate in the SCAB is typical of southern California's Mediterranean climate, which is characterized by dry, warm summers and mild winters. Typically there is infrequent rainfall, light winds, and frequent early morning fog and clouds that turn to hazy afternoon sunshine.

The following includes factors that govern micro-climate differences among inland locations within the SCAB: (1) the distance of the mean air trajectory from the site to the ocean; (2) the site elevation; (3) the existence of any intervening terrain that may affect airflow or moisture content; and (4) the proximity to canyons or mountain passes. As a general rule, locations farthest inland from the ocean have the hottest summer afternoons, the lowest rainfall, and the least amount of fog and clouds. Foothill communities in the SCAB have greater levels of precipitation, cooler summer afternoons and may be exposed to wind funneling through nearby canyons during Santa Ana winds. Terrain will generally steer local wind patterns.

Precipitation and Temperature

Annual average temperatures in the SCAB are typically in the low to mid-60s (degrees Fahrenheit). Temperatures above 100 degrees are recorded for all portions of the SCAB during the summer months. In winter months, temperatures in the lower 30s can be experienced in parts of the SCAB.

The rainy season in the SCAB is November to April. Summer rainfall can occur as widely scattered thunderstorms near the coast and in the mountainous regions in the eastern SCAB. Rainfall averages vary over the SCAB. The city of Riverside averages 9 inches of rainfall, while the city of Los Angeles averages 14 inches. Rainy days vary from 5 to 10 percent of all days in the SCAB, with the most frequent occurrences of rainfall near the coast.

Biological Resources

The proposed project traverses both undeveloped and developed areas, of which the major land use is agriculture. Small portions of the various alignments support some native habitat and potential jurisdictional areas (those areas that may fall under the jurisdiction of the United States Army Corps of Engineers (ACOE) or the California Department of Fish and Game (CDFG)).

Vegetation

Several different vegetation types were found in the project area and include agriculture, disturbed/ruderal/non-native grassland, exotic trees, riparian woodland/willow scrub and remnant and disturbed Riversidean sage scrub. Agricultural lands do not generally support many native plant species except occasionally along the perimeter of the cultivated areas. Lands used or previously used for agriculture are located throughout the project area.

Portions of the project area containing disturbed/ruderal/non-native grassland are located directly adjacent to residential areas, dirt roads, road shoulders, abandoned fields, and areas used for illegal dumping. Plant species present consist of non-native invasive species including foxtail chess (*Bromus madritensis* spp. *rubens*), ripgut grass (*Bromus diandrus*), Russian thistle (*Salsola tragus*), Mediterranean grass (*Schismus barbatus*), mustard (*Brassica/Hirshfeldia* spp.), oat (*Avena* sp.), barley (*Hordeum* sp.), yellow star-thistle (*Centaurea solstitialis*), thistle (*Cirsium* spp.), tree tobacco (*Nicotiana glauca*), radish (*Raphanus sativus*), cheeseweed (*Malvia parviflora*), filaree (*Erodium* sp.), common sow thistle (*Sonchus oleraceus*), spurge (*Euphorbia* sp.), dove weed (*Eremocarpus setigerus*), jimsonweed (*Datura wrightii*), castor bean (*Ricinus communis*), coyote melon (*Cucurbita palmata*), vinegar weed (*Trichostema lanceolatum*), prickly lettuce (*Lactuca serriola*). Native species such as ragweed (*Ambrosia psilostachya*), fiddleneck (*Amsinkia menziesii*), and sunflower (*Helianthus gracilentus*) also occur. These non-native grassland areas are the result of various forms of disturbance including fire, grazing, agriculture, grading and off-road vehicle use. The exotic, weedy species that dominate the vegetation in these areas include *Brome* grasses, wild oat (*Avena fatua*), black mustard (*Brassica nigra*), field mustard (*Brassica rapa*), and broad-lobed filaree (*Erodium botrys*). Disturbed, non-native grassland vegetation is located throughout the project area.

Exotic trees include stands of gum trees, pepper trees (*Schinus molle*), or other ornamental non-native species of trees that were planted as wind breaks adjacent to agricultural fields or residential areas. Within the project area, stands of exotic trees are present along Line A west of Interstate 215 and in the Juniper Flats Basin area. Exotic trees also occur along some of the proposed facilities and are located in many of the residential areas in the project vicinity. Plant species present in riparian woodland/willow scrub areas include tamarisk (*Tamarix aphylla*), Fremont's cottonwood (*Populus fremonti*), arroyo willow (*Salix lasiolepis*), black willow (*Salix gooddingii*), Mexican elderberry (*Sambucus mexicana*). Species present within the riparian understory include mulefat (*Baccharis salicifolia*), dock (*Rumex* sp.) saltbush (*Atriplex* sp.), and mugwort (*Artemisia douglasiana*). Many ruderal species are also present within the riparian habitat. Riparian woodland/willow scrub is located in the western region of the project area, along portions of the San Jacinto River channel and ancillary side channels.

Characteristic sage scrub species of remnant Riversidean sage scrub (RSS) in portions of the project area include California buckwheat (*Eriogonum fasciculatum*), California broom (*Lotus scoparius*), California matchweed (*Gutierrezia californica*) and scattered California sagebrush (*Artemisia californica*). RSS occurs in a few remnant patches in the proposed project area primarily south of the San Jacinto River channel, in the northern portion of the of the project area near the future Mapes Basin, and near the Juniper Flats basin.

Wildlife

Few wildlife species were observed directly during the September 2003 biological survey which is most likely attributed to the highly disturbed site conditions. Species directly observed are those that are generally accustomed to disturbed habitats and to nearby human presence, such as turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), American crow (*Corvus brachyrhynchos*), western meadowlark (*Sturnella neglecta*), Brewer's blackbird (*Euphagus cyanocephalus*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*). Mammal species observed or detected through sign (an indication of animal presence), include California ground squirrels (*Spermophilus beecheyi*). Special-status species observed include Cooper's hawk (*Accipiter cooperii*).

Special-Status Plant Species

Plant species listed as endangered or threatened, proposed for listing as endangered or threatened, candidates species for listing by a federal (U.S. Fish and Wildlife Service) or state (California Department of Fish and Game) resource agency, or considered federal Species of Concern are considered of special status. In addition, plants included on Lists 1, 2, 3, or 4 of the California Native Plant Society (CNPS) Inventory are also considered special-status.

Special-status plant species currently or historically known from the vicinity or for their occurrence in the project area include: San Jacinto Valley crowscale, Parish's brittlescale, thread-leaved brodia, smooth tarplant, Mud nama, spreading Navarretia, and vernal barley. No special-status plants were recorded in the project area during the biological evaluation conducted in September 2003, and the occurrence potential for most sensitive plant species is generally low due to the high amount of soil disturbance from long-standing farming activities, resulting in unsuitable habitat for these species. Although, previous focused plant surveys have identified

individuals of San Jacinto Valley crownscale and smooth tarplant in the project area adjacent to the San Jacinto River channel no special-status plants were observed during a focused survey conducted in June of 2004 or during an onsite habitat assessment evaluation conducted in December 2004.

Special-Status Wildlife Species

Special-status or sensitive wildlife species include those that are state or federally listed as threatened or endangered, are proposed for listing as threatened or endangered, have been designated as state or federal candidates for listing, state or federal species of concern, or California Fully Protected.

Special-status wildlife species with the potential to occur in the project area are: White-faced ibis, White-tailed kite, Northern harrier, Swainson's hawk, Ferruginous hawk, Golden eagle, Cooper's hawk, Sharp-shinned hawk, Prairie falcon, Burrowing owl, Long-eared owl, Merlin, Mountain plover, California horned lark, Loggerhead shrike, San Diego black-tailed jackrabbit, and Stephens' kangaroo rat. One special-status wildlife species, Cooper's hawk (*Buteo swainsoni*), was directly observed in the project area. Many of the species with a potential to occur in the project vicinity are not expected to occur on the project site due to lack of suitable habitat from long-standing farming activities. However many avian species, in particular raptors, have a moderate or high occurrence potential due to the presence of suitable foraging habitat.

Special-Status Communities/Habitats

Special-status habitat types are vegetation communities that support rare, threatened, or endangered plant or wildlife species, or those that are diminishing and are of special concern to resource agencies. Sensitive habitat types in the project area include Riversidean sage scrub (RSS) and riparian habitats. Patches of RSS in the project area are small, isolated, and disturbed and are not likely to provide sufficient acreage to support extensive populations of special-status resources associated with this habitat type. Riparian habitats in the project area are primarily located near the San Jacinto River channel. Other areas have some potential to support several plant species associates with Willow and Domino soil types and may also support sensitive wildlife species.

Jurisdictional Resources

In general, riparian and wetland habitats are considered sensitive by resource agencies. Drainages, streambeds, and creeks considered "waters of the U.S." are subject to jurisdiction by the ACOE. Drainages, streambeds, and creeks and associated riparian vegetation are subject to CDFG jurisdiction. Under Section 404 of the Federal Clean Water Act, the ACOE regulates fill or dredged material discharged into "waters of the United States," including wetlands. Waters of the United States are defined in Corps of Engineers regulations, see 33 C.F.R. 328.3(a), and extend to the ordinary high water mark in areas where wetlands are not present. Under Section 1600 of the California Fish and Game Code the CDFG regulates disturbances to streambeds or associated habitat. Potential jurisdictional resources located in the project area include the San Jacinto River in the west and two ephemeral drainages in the vicinity of the proposed Briggs Road and Juniper Flats detention basin in the east.

Cultural Resources

Ethnohistoric Context

The Perris and San Jacinto Valley areas are known to be historically inhabited by Luiseño Indians. The Luiseño Indians are a Takic-speaking people whose territory extended from present-day Riverside to Escondido and Oceanside. At this time there are not enough archaeological data to fine tune the chronology of prehistoric cultural history of inland southern California. However the following is a basic timeline for the area:

11,000 – 8,000 years ago	Pleistocene/Early Holocene (Early Man) Period
8,000 – 5,500 years ago	San Dieguito Period
5,500 – 1,500 years ago	Millingstone/ La Jolla-Pauma/ Archaic/ Encinitas Period
1,500 – 300 years ago	Late Prehistoric/ Luiseño Period

The more recent Native American history in California, starting with the first European contact, as determined by anthropologists and historians is as follows:

1500s–1770s	Long-distance contact with Europeans
1770s–1830s	Mission Period
1830s–1850s	Rancho Period
1850s–1880s	American Migration to California
1880s–Present	Reservation Period

Cultural Resources Known in the Project Vicinity

No archaeological sites or other potential historical resources were identified within the project boundaries. Within a one-mile radius of the project area, over 50 cultural resources studies have been conducted by others on various tracts of land and linear features. Resources identified in these studies and reported to the Eastern Information Center (EIC) at the University of California, Riverside include a total of 39 archaeological sites, 7 historic-era buildings, and 8 isolated finds. Of these sites, 25 were prehistoric in nature and consisted of bedrock milling features, rock cairns, rock shelters, lithic scatters, midden, and groundstone implements. Nine of these sites were historic era and included trash scatters, foundations and a stockyard. Five sites included prehistoric and historic-era components and included bedrock milling features, a lithic scatter, and historic-period refuse scatters. Historic-era buildings included single-family residences dating from the late 1910s to 1940.

Hazards and Hazardous Materials

Hazardous material sites occurring within the project area include those resulting from illegal drug labs, commercial uses (e.g., gas stations, automotive service stations and photo processing), and agricultural uses (fuel tanks and organic waste). The following list of databases were searched for listed hazardous sites or materials occurring within the project area:

The databases searched include:

- Hazardous Waste Information System (HWIS) is a database maintained by the California Environmental Protection Agency (Cal EPA) and contains facility and manifest data extracted from copies of hazardous waste manifests received each year by the Department of Toxic Substances Control (DTSC).
- California Hazardous Material Incident Report System (CHMIRS) is a database maintained by the State of California's Office of Emergency Services (OES) and contains information on reported hazardous material incidents (accidental releases or spills).
- Leaking Underground Storage Tank Information System (LUST) is a database maintained by the State Water Resources Control Board (SWRCB) and contains an inventory of leaking underground storage tank incidents.
- Underground Storage Tank Information System (UST) is a database maintained by the SWRCB and contains information on active UST facilities gathered from local regulatory agencies.
- Resource Conservation and Recovery Information System (RCRIS) is a database maintained by the Environmental Protection Agency and contains selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).
- National Priorities List (NPL) is maintained by the US Environmental Protection Agency. The NPL identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relative large areas.
- Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) is a database maintained by the U.S. Environmental Protection Agency. This list contains data on potentially hazardous waste site that have been reported to the EPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Hydrology and Water Quality

The project site is located in the San Jacinto River Basin. The San Jacinto River (SJR) drains approximately 765 square miles of watershed, and is the principal surface water body within the region. It originates in the San Jacinto Mountains east of the project area. Initially, the upper SJR flows in a northwesterly direction, then southwesterly for the second half of its course. Most stream flows are dominated by storm water, urban and agricultural runoff; only occasionally do flows from the upper SJR watershed reach Canyon Lake, and flows reaching Lake Elsinore are even rarer. However, flows from the Perris Valley channel are more frequent and are conveyed in the SJR channel in the project area near the city of Perris.

Canyon Lake and Lake Elsinore are on the Clean Water Act Section 303(d) list of impaired waterbodies. Canyon Lake is impaired due to nutrients and pathogens. Lake Elsinore has water quality impairments due to nutrients, organic enrichment/low dissolved oxygen, sedimentation/siltation, and toxicity from unknown sources. In large storm events, Lake Elsinore overflows to Temescal Creek, which then discharges to the Santa Ana River near Corona. In this way, the SJR Watershed is occasionally linked to the Santa Ana River Watershed.

The SJR channel consists of a constructed earthen channel and levees and it is located adjacent to the western portion of the project area. While the proposed project does not include any improvements to the SJR, some of the proposed drainage facilities will outlet into the channel. The drainage of the project area generally occurs as sheet flows in a westerly direction from the base of Lakeview Mountain in the Juniper Flats area and Double Butte Mountain, ultimately entering the SJR during major storm events. Runoff from the Homeland/Romoland area is ephemeral and rarely reaches the SJR.

Land Use

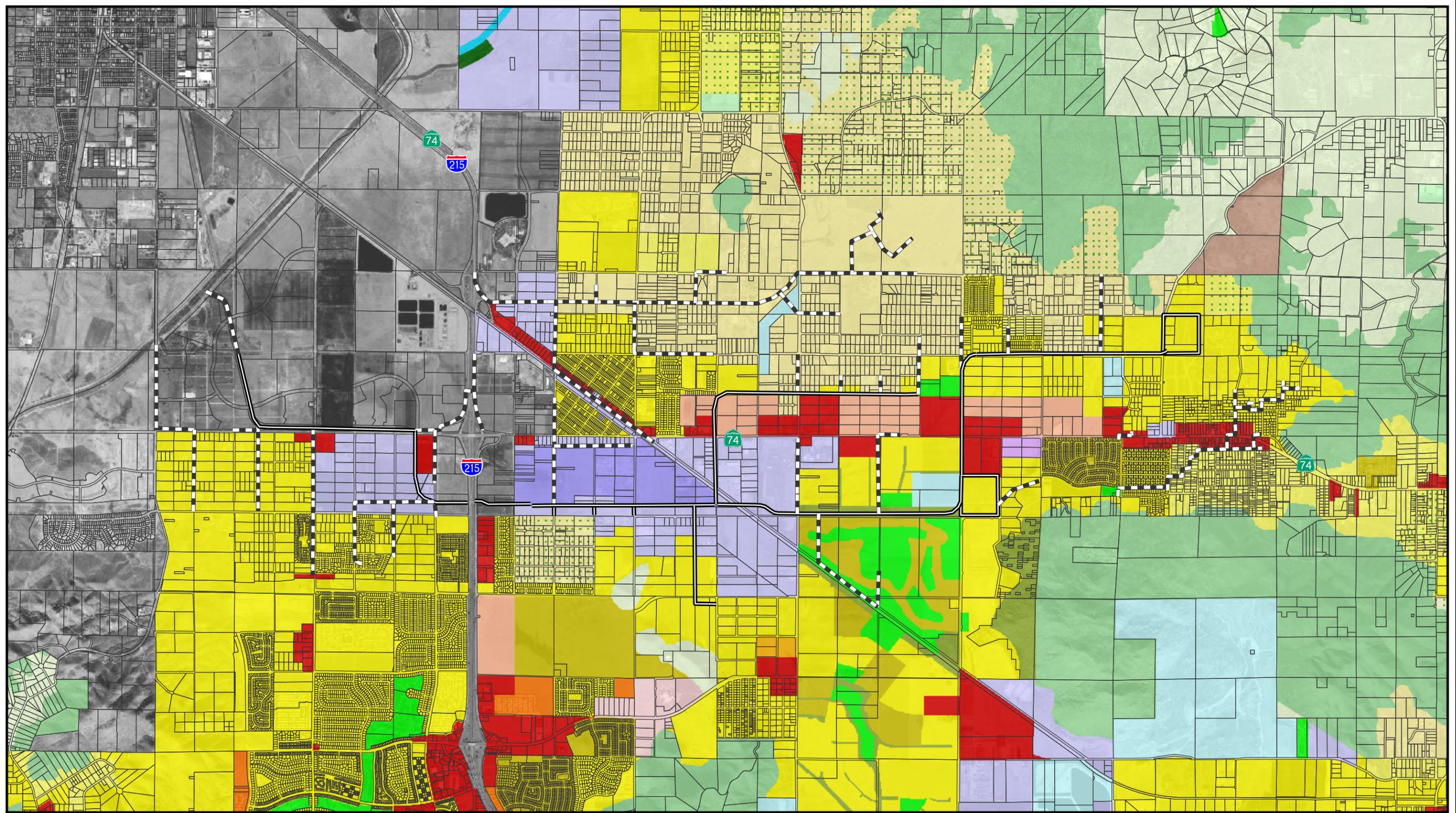
The project site is located within western Riverside County. A substantial portion of the project is located within unincorporated Riverside County. A small portion of the project, in the westernmost extent, is located within the city limits of Perris. Existing land use in the project area consists primarily of rural residential, commercial, industrial, agricultural uses and open space.

Within the city of Perris the proposed project will span areas zoned as Commercial Community and the Green Valley Specific Plan. The City of Perris General Plan was adopted in 1991. At the time of this writing the General Plan is being updated and the Land Use Element revised. According to the Perris General Plan Land Use Map – Draft, the City of Perris Sphere of Influence is primarily located west of the city limits extending to Gilmer Road, north of Ethanac Road and south of Nandina Avenue. Thus, the proposed project is not located within the City of Perris Sphere of Influence. Within the city of Perris, the proposed project will span areas designated as Parks/Recreation/Natural Open Space, Commercial Community, Residential 22 (14-22 DU/AC), Residential 14 (7-14 DU/AC), and Residential 7 (4-7 DU/AC).

The current Riverside County General Plan was adopted on October 7, 2003. The Land Use Element of the General Plan designates the general distribution, general location, and extent of

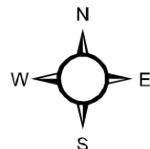
land uses, such as housing, business, industry, open space, agriculture, natural resources, recreation, and public/quasi-public uses.

Most of the unincorporated portions of Western Riverside County and some of Eastern Riverside County is divided into 19 Area Plans, components of the General Plan, which provide a detailed land use and policy direction for each region or area. Within unincorporated Riverside County, the proposed project is located within the Mead Valley, Sun City/Menifee Valley, and Harvest Valley/Winchester Area Plans of the General Plan. The proposed facilities parallel or span the following land use designations of these Area Plans: Low Density, Medium Density, and Medium High Density Residential, Commercial Retail, Light and High Industrial, Conservation and Open Space Recreation. The Land Use designations of the project area are shown in Figure I-3-A.



Source: Riverside County Integrated Plan
October 2003

Scale: 1" = 3,000'



- EDR-RC
- Very Low Density Residential
- VLDR-RC
- Low Density Residential
- LDR-RC

- Medium Density Residential
- Medium High Density Residential
- High Density Residential
- Very High Density Residential
- Commercial Retail

- Commercial Tourist
- Commercial Office
- Community Center
- Light Industrial
- High Industrial

LEGEND

- Business Park
- Public Facilities
- Mixed Use Policy Area
- Rural Residential
- Rural Mountainous

- Agriculture
- Conservation
- Conservation Habitat
- Open Space Recreation
- Water
- Mineral Resources

- Proposed Phase I Facilities
- Master Planned Future Facilities

Figure I-3-A

**Riverside County General Plan
Land Use Designations**

Romoland / Homeland MDP/ADP

4. Regional Plan Consistency

The Southern California Association of Governments (SCAG) is the Metropolitan Planning Organization (MPO) for a six-county region (Ventura, Los Angeles, Orange, Riverside, San Bernardino, and Imperial Counties) and is charged by the federal government to research and prepare plans for transportation, growth management, hazardous waste management, and air quality.

In reviewing the Notice of Preparation SCAG determined that the proposed project is regionally significant per CEQA Guidelines (Section 15206). CEQA requires that EIRs discuss any inconsistencies between the proposed project and the applicable general plans and regional plans. If there are inconsistencies, an explanation and rationalization for such inconsistencies should be provided. Policies of SCAG’s Regional Comprehensive Plan and Guide and Regional Transportation Plan that may be applicable to the proposed project are outlined below as well as a discussion as to the consistency of the project with each policy.

Policy	Project consistency with regional plan policy
3.01 <i>The population, housing and jobs forecasts, which are adopted by SCAG’s Regional Council and that reflect local plans and policies, shall be used by SCAG in all phases of implementation and review.</i>	The proposed project does not directly generate population, housing and/or jobs. However, the project may indirectly influence population growth by implementing needed flood control facilities which would accommodate future growth. However, the proposed project does not conflict with any adopted General Plan or with SCAG’s ability to use population forecasts with implementation of SCAG policies.
3.03 <i>The timing, financing, and location of public facilities, utility systems, and transportation systems shall be used by SCAG to implement the region’s growth policies.</i>	SCAG can use this EIR for the proposed project to assist in implementing the region’s growth policies. The proposed project does not conflict with this policy.
3.09 <i>Support local jurisdictions efforts to minimize the cost of infrastructure and public service delivery, and efforts to seek new sources of funding for development and the provision of services.</i>	The proposed project will be funded by development fees collected through the ADP. The proposed project does not conflict with this policy.
3.18 <i>Encourage planned development in locations least likely to cause environmental impact.</i>	The proposed storm water conveyance facilities need to be located in the proposed area. Location of planned development has been established by the Riverside County and City of Perris General Plans, and is not related to the proposed project. The proposed project does not conflict with this policy.
3.19 <i>SCAG shall support policies and actions that preserve open space areas identified in local, state and federal plans.</i>	The proposed project does not conflict with any habitat or open space conservation plans such as the Multiple Species Habitat Conservation Plan (MSHCP) for Western Riverside County. The proposed project will utilize mitigation measures which would reduce impacts to biological resources to less than significant levels. The proposed project does not conflict with this policy.
3.20 <i>Support the protection of vital resources such as wetlands, groundwater recharge areas, woodlands, production lands, and</i>	The proposed project will not impact wetlands, groundwater recharge or other land containing unique and endangered plants and animals. Mitigation measures have been incorporated into the project which would reduce impacts to less than significant levels.

Policy	Project consistency with regional plan policy
<i>land containing unique and endangered plants and animals.</i>	
3.21 Encourage the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites.	As discussed in the Cultural Resources Section of this EIR, the proposed project has incorporated mitigation measures which would reduce impacts that may occur if unknown cultural resources are uncovered during construction activities. There is no known cultural resource or archaeological sites within the project footprint. The proposed project would not conflict with this policy.
3.22 Discourage development, or encourage the use of special design requirements, in areas with steep slopes, high fire, flood and seismic hazards.	The proposed project is not located in an area with steep slopes, high fire hazards or seismic hazards. The proposed project is located in an area which floods during storm events, hence the need for the project. The project does not conflict with this policy.
3.23 Encourage mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and to develop emergency response and recovery plans.	The proposed project is a Master Drainage Plan and corresponding Area Drainage Plan, which would inherently not conflict with this policy.
3.27 Support local jurisdictions and other service providers in their efforts to develop sustainable communities and provide, equally to all members of society, accessible and effective services such as: public education, housing, health care, social services, recreational facilities, law enforcement and fire protection.	The proposed project is a Master Drainage Plan and corresponding Area Drainage Plan, which would inherently not conflict with this policy.
5.07 Determine specific programs and associated actions needed (e.g. indirect source rules, enhanced use of telecommunications, provision of community based shuttle services, provision of demand management based programs, or vehicle-miles-traveled/emission fees) so that options to command and control regulations can be assessed.	The proposed drainage facilities do not generate long-term mobile vehicle traffic. The proposed project is a Master Drainage and corresponding Area Drainage Plan, which would inherently not conflict with this policy.
5.11 Through the environmental document review process, ensure that plans at all levels of government (regional, air basin, county, Subregional and local) consider air quality, land use, transportation and economic	The proposed project may result in temporary impacts to air quality through construction emissions. However, those emissions are short-term and thus the project itself will not result in a long term air quality problem to the air basin. The proposed project will not conflict with this policy.

<i>Policy</i>	Project consistency with regional plan policy
<i>relationships to ensure consistency and minimize conflicts.</i>	
<i>11.07 Encourage water reclamation through the region where it is cost-effective, feasible, and appropriate to reduce reliance on imported water and wastewater discharges. Current administrative impediments to increase use of wastewater should be addressed.</i>	The proposed drainage facilities will inherently not generate the need for water or wastewater services. The project does not conflict with this policy.

The proposed project was found consistent with Policies of SCAG’s Regional Comprehensive Plan and Guide and Regional Transportation Plan.

5. EIR/Issues Matrix

Impact Category	Impact	Mitigation Measure	Implementation Timing	Responsible Party	Impact After Mitigation
Air Quality	Violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation.	MM Air 1: Mobile construction equipment will be properly maintained, which includes proper tuning and timing of engines. Construction contractors will keep equipment maintenance records and equipment design specification data sheets on-site during construction and turn in the records to the District.	Construction start to completion	Riverside County Flood Control and Water Conservation District (District)	Less than significant
Air Quality	Violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation.	MM Air 2: Temporary traffic control (e.g. flag person) will be provided during soil transport activities. Contractors shall be advised not to idle trucks on site for more than ten minutes.	Construction start to completion	District	Less than significant
Air Quality	Result in a cumulatively considerable increase in a criteria pollutant under non-attainment.	MM Air 3: In order to control dust emissions, any grading activities shall comply with the SCAQMD Rule 403 or any amendments thereto. Any applicable Rule 403 dust control measures shall be implemented. A log of all implemented dust control measures shall be maintained on-site during construction and subject to review and approval by the District. If any construction phases meet the Rule 403 definition of "Large	Construction start to completion	District	Less than significant

Impact Category	Impact	Mitigation Measure	Implementation Timing	Responsible Party	Impact After Mitigation
		Operations," a dust control plan shall be prepared, submitted to the SCAQMD, and implemented.			
Air Quality	Violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation.	MM Air 4: Prior to the construction of each phase of the future facilities, an air quality analysis shall be performed, using the latest SCAQMD modeling method and thresholds.	Prior to construction	District or designee	Less than significant
Biological Resources – Burrowing Owl	Adversely affect any endangered or threatened species or any species identified as candidate, sensitive, or special status.	MM Bio 1: Pre-construction presence/absence surveys for burrowing owl within the MSHCP Burrowing Owl Survey Area where suitable habitat is present shall be conducted. (These areas are identified in the MSHCP Compliance Report contained in Appendix C of this document.) Surveys shall be conducted utilizing approved protocols. Surveys shall be conducted within 30 days prior to disturbance. Take of active nests shall be avoided. If burrowing owls cannot be avoided, active or passive relocation (use of one way doors and collapse of burrows) shall occur outside the burrowing owl nesting season (February 1 st to August 31 st). Construction of replacement burrowing owl burrows within the proposed detention basins	Construction start to completion	District or designee	Less than significant

Impact Category	Impact	Mitigation Measure	Implementation Timing	Responsible Party	Impact After Mitigation
		shall be considered.			
Biological Resources – Riparian Vegetation	Adversely affect any endangered or threatened species or any species identified as candidate, sensitive, or special status.	MM Bio 2: A final MSHCP Section 6.1.2, Riparian/Riverine Impact Analysis will be completed prior to the construction of the Line A and Line A-15 outlets near the San Jacinto River channel.	Prior to construction	District or designee	Less than significant
Biological Resources – Riparian Vegetation	Adversely affect any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or FWS.	MM Bio 3: Final jurisdictional delineations shall be obtained prior to construction of the lower reach of Line A, Line A-15, Briggs Road Basin, Line 4, Juniper Flats Basin and Mapes Basin to determine the extent of impact to jurisdictional waters of the U.S., waters of the State and/or streambeds regulated by the ACOE, RWQCB and CDFG. Applicable permits shall be obtained prior to construction if jurisdictional resources will be impacted.	Prior to construction	District or designee	Less than significant
Biological Resources – Riparian Vegetation	Adversely affect any riparian habitat or other sensitive natural community identified in local or regional plans,	MM Bio 4: Romoland MDP Lines A and A-15 shall be designed to avoid or reduce impacts to Riparian Habitat areas shown on Figure III-3-A to the maximum extent feasible. Any applicable permits from the ACOE, RWQCB, and CDFG shall be obtained prior to disturbing any riparian	Prior to construction	District or designee	Less than significant

Impact Category	Impact	Mitigation Measure	Implementation Timing	Responsible Party	Impact After Mitigation
	policies, regulations, or by the CDFG or FWS.	habitat. Proof of compliance with Section 6.1.2 of the MSHCP shall be demonstrated prior to disturbing any riparian habitat that meets the criteria of Section 6.1.2. In accordance with Section 13.4.B of the MSHCP Implementation Agreement, the District shall contribute mitigation through payment of 3% of total capital costs. Such payment may be offset through acquisition of replacement habitat or creation of new habitat. This mitigation must be implemented prior to impacts to Covered Species or their habitat.			
Cultural Resources	Cause a substantial adverse change in the significance of an archaeological resource, historic resource or destroy a unique paleontological resource, or site, or unique geologic feature.	MM Cul 1: A cultural resource survey at the Mapes and Melba Basins shall be conducted by the District or designee prior to construction. If significant cultural resources are found, additional actions, such as further study and salvage, in accordance with the recommendations of a professional archeologist shall be completed prior to construction of these basins.	Prior to construction	District or designee	Less than significant

<p>Cultural Resources</p>	<p>Cause a substantial adverse change in the significance of an archaeological resource or a historical resource.</p>	<p>MM Cul 2: Should any unknown cultural and/or archaeological resources be uncovered during construction, construction activities shall be temporarily diverted to other parts of the project area away from the find until and a qualified archaeologist determines the significance of these resources. If the find is determined to be an historical or unique archaeological resource, as defined in Section 15064.5 of the CEQA Guidelines, avoidance or other conservation measures as recommended by a qualified archaeologist shall be implemented.</p>	<p>Construction start to completion</p>	<p>District or designee</p>	<p>Less than significant</p>
<p>Cultural Resources</p>	<p>Destroy a unique paleontological resource, or site, or unique geologic feature.</p>	<p>MM Cul 3: If fossil bearing soils are encountered and impacted by extensive/deep excavations and/or fossils are identified during any excavations, a qualified paleontologist shall be contacted and permitted to recover and evaluate the find(s). The paleontologist will be required to place any collected fossils in an accredited scientific institution for the benefit of current and future generations.</p>	<p>Construction start to completion</p>	<p>District or designee</p>	<p>Less than significant</p>

<p>Cultural Resources</p>	<p>Cause a substantial adverse change in the significance of an archaeological resource or a historical resource.</p>	<p>MM Cul 4: Although the proposed project is not expected to impact human remains, if human remains are uncovered at any time, the County Coroner shall be notified and all activities in the area of the find shall be halted. If the Coroner determines that the remains are of Native American origin, the Native American Heritage Commission shall be notified and consultation with local Native American representatives shall be initiated to determine the disposition of the remains in accordance with State and County guidelines.</p>	<p>Construction start to completion</p>	<p>District or designee</p>	<p>Less than significant</p>
<p>Hazards & Hazardous Materials</p>	<p>Project is located on a site which is included on a list of hazardous materials sites and, as a result, would create a significant hazard to the public or the environment.</p>	<p>MM Haz 1: Prior to construction of future facilities, an environmental regulatory database search shall be conducted in order to determine if proposed facilities would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. If hazardous waste sites occur, further remedial actions shall be taken to ensure that hazardous materials are removed prior to construction.</p>	<p>Prior to construction</p>	<p>District or designee</p>	<p>Less than significant</p>

II. Environmental Effects Found Not Significant

The California Environmental Quality Act (CEQA) provides that an EIR shall focus on the significant effects on the environment, discussing the effects with emphasis in proportion to their severity and probability of occurrence. Effects dismissed in an initial study as clearly insignificant and unlikely to occur need not be discussed further in the DEIR unless information inconsistent with the finding in the initial study is subsequently received.

Effects Found Not Significant During Preparation of the NOP

Section of 21100 (c) of the Public Resources Code states that an EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR. Section 15128 of the CEQA Guidelines adds, “Such a statement may be contained in an attached copy of an Initial Study.”

The Initial Study prepared for the Master Drainage Plans (MDP) for the Homeland and Romoland Areas and the Homeland/Romoland Area Drainage Plan (ADP) (Appendix A) concluded that the proposed drainage facilities would not result in significant impacts to the following: Aesthetics, Geology/Soils, Land Use/Planning, Mineral Resources, Noise, Public Services, Recreation, Transportation/Traffic and Utilities/Service Systems. These issues areas are not discussed further in this DEIR. The basis for elimination of each relevant impact in these issue areas is documented in the appended Notice of Preparation document (Appendix A).

Effects Found Not Significant as Part of the EIR Process

Based on information compiled as part of the EIR process, the following CEQA issue areas were found to be less than significant: Air Quality, Biological Resources, Cultural Resources, Hazards and Hazardous Materials, and Hydrology and Water Quality after implementation of the described mitigation measures. Appropriate mitigation measures appear in the relevant sections of this DEIR.

III. POTENTIALLY SIGNIFICANT ENVIRONMENTAL EFFECTS

1. Agricultural Resources

The proposed project was found to have no impacts to agricultural resources by converting Prime or Unique Farmland or Farmland of Statewide Importance or by conflicting with existing zoning or Williamson Act contracts, in the NOP prepared for this project (Appendix A). The focus of the following discussion, therefore, is related to the potential direct and indirect impacts associated with the conversion of agricultural land to non-agricultural use, as determined in the Initial Study prepared for the proposed project (see Appendix A).

Setting

As described in Section I – Environmental Setting, agriculture is recognized as one of Riverside County’s most important land uses in terms of character and economics. Agriculture is the leading industry in the County; and Riverside County ranks ninth in the state based on total value of production. Four agricultural districts are recognized by the Agricultural Commissioner for Riverside County: Riverside/Corona, San Jacinto/Temecula Valley, Coachella Valley, and the Palo Verde Valley. There are approximately 40 dairies in the San Jacinto Valley, as well as extensive crop production, including potatoes, fodder crops and dryland farming, turf farms, and small acreages of carrots and onions (personal communication, Bruce Scott, Vice-President, Riverside County Farm Bureau, October 28, 2003).

Rapid population growth in the Inland Empire is placing intense development pressure on existing agricultural lands. While agricultural land use is diminishing in the San Jacinto Valley in favor of increasing urban development, the Riverside County General Plan emphasizes the County’s commitment to conserving productive agricultural operations on a county-wide basis. Most current and future agricultural land use is located toward the eastern half, or the desert region, of Riverside County, while urban growth is planned to occur in key areas where supporting infrastructure, transportation, and employment opportunities exist.

The project area is dominated by agricultural and urban land interspersed with limited natural land. Existing development throughout the project area includes residential, commercial and industrial. Agricultural land within the project area may be represented by cropped, disced or fallow areas at any given time. Agricultural lands are generally located along many of the proposed facilities. Currently, it appears that there is little active farming occurring within the project area.

The proposed project is located in the communities of Romoland and Homeland of unincorporated Riverside County and within the city of Perris. The Riverside County General Plan (adopted October 7, 2003) establishes 19 area plans, which when combined, encompass the whole of western Riverside County and significant portions of eastern Riverside County. Each Area Plan contains guidelines for development, the implementation of which will ensure compatibility between various land uses. The proposed facilities span portions of the Harvest Valley/Winchester, Sun City/Menifee Valley and Mead Valley Area Plans as well as the southeast corner of the city of Perris.

Criteria for Determining Significance

Impacts on agricultural resources may be considered significant if the proposed project would:

- Involve changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.

Project Compliance with Existing Regulations

The proposed project is located within unincorporated Riverside County and the city of Perris. The project is consistent with policies of the Riverside County General Plan (Adopted October 7, 2003), including the Harvest Valley/Winchester, Mead Valley, and Sun City/Menifee Valley Area Plans, as well as appropriate policies of the City of Perris General Plan.

Design Considerations

No specific design measures were considered which would avoid or reduce potential impacts to agricultural lands or operations. The locations of the proposed drainage facilities are limited by the hydrologic constraints of the project area.

Environmental Impacts Before Mitigation

Threshold: The proposed project would involve changes to the existing environment which, due to their location or nature, could result in conversion of farmland to nonagricultural use.

As defined in the California Environmental Quality Act (CEQA), agricultural land means Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, as defined by the United States Department of Agriculture land inventory and monitoring criteria, as modified for California (Section 21060.1). Farmland of State Importance, Prime, and Unique Farmland, as well as Farmland of Local Importance located within the project area is shown on Figure III-1-A.

Portions of the proposed facilities are located on or adjacent to designated Farmland (see Figure III-1-A). Line A of the Line A/Line 1 System, a proposed open earthen channel, will span an area designated as Farmland of Statewide Importance located west of Interstate 215 and south of Ethanac Road. Line A-3 (concrete lined open channel), Line A-3e (underground storm drain), and Line 1 (underground storm drain and concrete open channel) of the Line A/Line 1 System, are located adjacent to and will span areas designated as Prime Farmland located east of Interstate 215 and north of Highway 74. Future facilities, including Lines A-8, A-9, and A-11, span or parallel the area designated as Farmland of Statewide Importance located west of Interstate 215 and south of Ethanac Road mentioned above. Other future facilities, including Lines B, B-2, and A-5, span or parallel the areas designated as Prime Farmland located east of Interstate 215 and north of Highway 74 mentioned above.

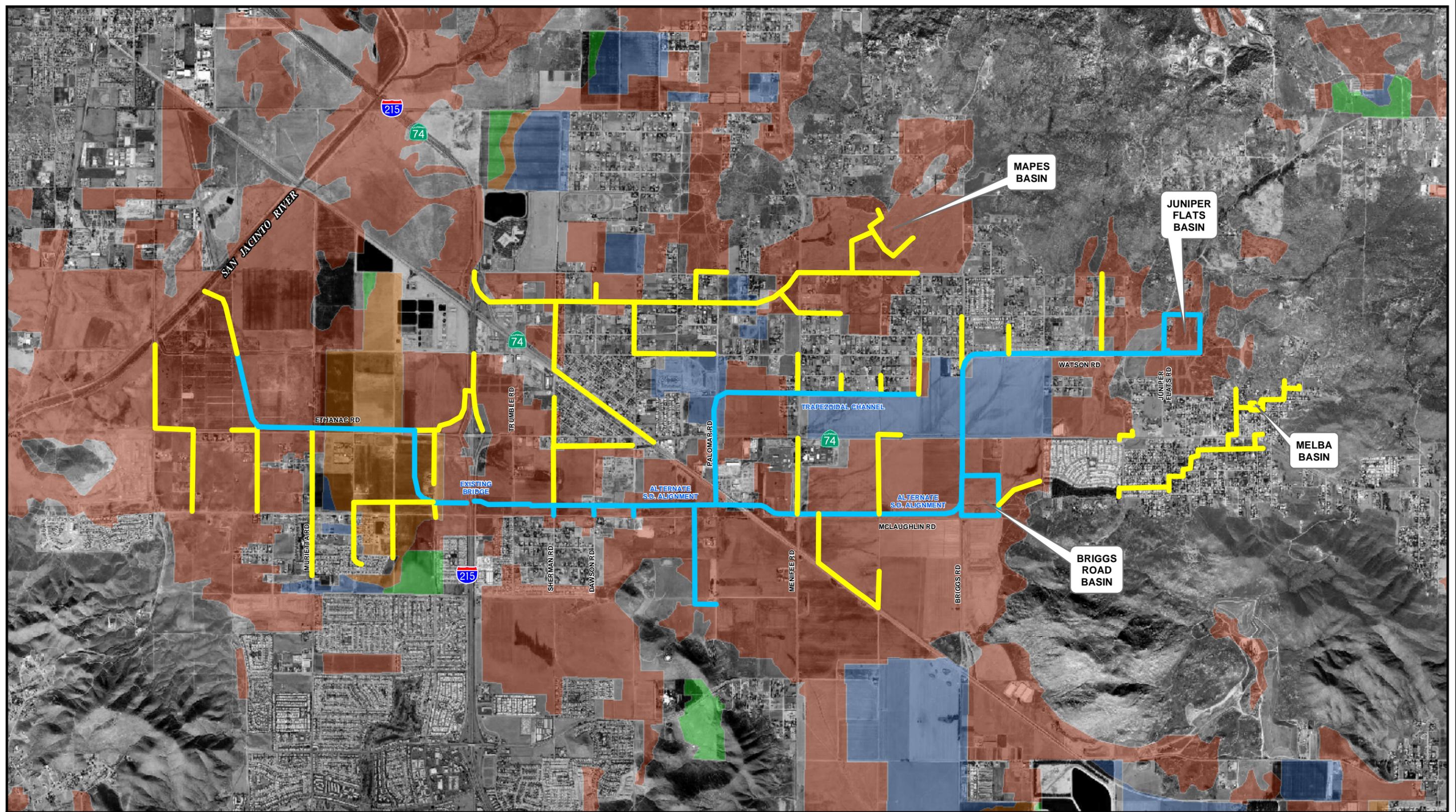
Proposed underground storm drains will not impact agricultural uses or convert the land within the facility footprint to a non-agricultural use. Construction of the proposed open channels will be primarily located within or adjacent to road right-of-ways. Construction of open channels will not significantly impact agricultural uses that exist adjacent to the open channel facilities. The

limited property located within the footprint of the open channel facilities will be converted to a public use, a non-agricultural use. Based on the limited direct impacts related to construction and operation of the linear drainage facilities, potential impacts to all farmland (including designated Farmland) from the construction of the linear facilities are less than significant.

The proposed Melba Basin is not located on land used for agriculture and therefore construction of this basin will not result in the direct conversion of farmland to non-agricultural uses. However, the proposed Briggs Road, Juniper Flats and Mapes basins are located on land that has been or could be used for agriculture and that is designated as Farmland of Local Importance. Construction of these proposed basins would result in the direct conversion of farmland to a non-agricultural use by converting the property to flood control facilities. The Briggs Road basin will encompass an area of approximately 40 acres, the Juniper Flats Basin 28 acres, and the Mapes Basin 21 acres, for a combined total of 89 acres. The proposed project would result in the direct conversion of 89 acres of agricultural land to a non-agricultural use, a potential significant impact.

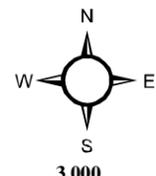
The proposed project will provide drainage infrastructure that could support development of the Homeland and Romoland areas. Development of adjacent areas would result in the direct conversion of farmland (including designated Farmland) to non-agricultural uses. Consequently, the proposed project has the potential to indirectly convert farmland in the project area. The project area has been designated for non-agricultural land uses in the adopted Riverside County General Plan. Within the city of Perris, the project area has been designated for land uses other than agriculture (City of Perris Land Use Map – Draft). Thus the direct conversion of farmland to non-agricultural uses would likely occur in the project area with the build out of the Riverside County and City of Perris General Plans.

Because the proposed project will likely support the conversion of farmland to non-agricultural uses, impacts are considered potentially significant.



Source: AirPhoto USA
February 2004

ALBERT A.
WEBB
ASSOCIATES
ENGINEERING CONSULTANTS



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Feet

LEGEND

- PROPOSED PHASE I FACILITIES
- MASTER PLANNED FUTURE FACILITIES
- FARMLAND OF LOCAL IMPORTANCE
- PRIME FARMLAND
- FARMLAND OF STATE IMPORTANCE
- UNIQUE FARMLAND

Figure III-1-A

CA Dept of Conservation Important Farmland

Romoland / Homeland MDP/ADP

Proposed Mitigation Measures

An Environmental Impact Report is required to describe feasible mitigation measures which could minimize significant impacts (CEQA Guidelines, Section 15126.4). Potential mitigation measures are evaluated for their ability to eliminate the potential significant adverse impacts upon the conversion of farmland. The feasibility and effectiveness of these mitigation measures is addressed in the following discussion. It has been determined that no feasible mitigation exists to reduce or eliminate the conversion of farmland.

- **Replacement of the existing agricultural use with the same use on other property.** From a Statewide perspective, the relocation of the farming operations to other locations throughout California means that there is no net loss of active farmland use in the State. However, since the Homeland and Romoland areas would still likely be converted and their potential agricultural use permanently replaced with development, the loss of agricultural resources in western Riverside County has not been eliminated or reduced to below the level of significance.
- **Place a conservation easement on alternative farmland, or place such alternative farmland under Williamson Act contract.** A conservation easement would place a permanent deed restriction on a piece of property allowing only agricultural uses on said property. A land trust then becomes the steward of that property. According to the Southern California Agricultural Land Foundation (Personal communication with Mr. Chuck Hale on June 10 and 12, 2002), while conservation easements may work in other parts of the state, the Foundation does not know of any conservation easements that exist in Southern California because of the unique real estate market in this region, making it economically infeasible to a property owner to place property under permanent agricultural uses. The Foundation representative also stated that the process of acquiring an easement is lengthy. Placing conservation easements on alternate property as a mitigation measure to offset the impacts associated with the loss of agricultural lands is undesirable if not infeasible for economic reasons and may not be able to be accomplished in a reasonable time frame.

A conservation easement for the protection of agricultural lands is different than placing lands under conservation for biological habitat, because agriculture is a business. When a property is set aside to preserve habitat, a land trust is responsible for ensuring that the land is left alone as native habitat. Placing that natural land under permanent conservation does not economically burden the property owner, as that owner has likely been compensated for its purchase. However, the placement of a permanent restriction on a property that only allows for agriculture in perpetuity, limits that property to one type of business. Continued agricultural production is dependent on economic and social factors that determine where, when and how long that business will stay in operation. Placing a piece of property in the project area under permanent agricultural use would likely cause future land use compatibility issues as surrounding lands are developed in accordance with the approved general plans.

An alternative to a permanent conservation easement would be to place agricultural land under a Williamson Act contract. However, property owners throughout western Riverside

County have filed notices of non-renewal on their properties in order to remove the property from the restrictions of the Williamson Act. Agriculture is not considered in County land use designations for this area and zoning must be brought into conformance with the General Plan land use designations to comply with state law.

Even if feasible, the placing of offsite farmland under a conservation easement or under Williamson Act contract, would establish a commitment to retain that alternative farmland for agricultural use. The length of time that alternative land would remain in agricultural use would be dependent upon the terms of the conservation easement or Williamson Act contract. However, the conservation easement or Williamson Act contract would only reduce the potential that the offsite land will convert to non-agricultural use. The individual and cumulative loss of agricultural land caused by the proposed project will still occur. Therefore, this mitigation measure will not reduce the proposed project's impacts upon farmland to below the level of significance. In addition, the District does not have the necessary land use authority to impose CEQA mitigation measures upon offsite development projects. For these reasons, placing alternative privately held lands under permanent restriction through conservation easements is considered infeasible.

- **Pay a per acre mitigation fee to be used for the acquisition of development rights on farmland elsewhere.** Riverside County does not have a program for the transfer of development rights from one property to another. The payment of a mitigation fee for the acquisition of development rights from agricultural property would only have the effect of preserving agricultural uses on existing agricultural property. There would be no significant reduction in the individual or cumulative impacts resulting from the loss of agricultural land and uses in Homeland and Romoland. In addition, the District does not have the necessary land use authority to impose CEQA mitigation measures upon offsite development projects. Thus this potential mitigation measure would not reduce or eliminate the proposed project's impacts upon farmland.
- **Pay a per acre fee for the acquisition of open space to offset the loss of agricultural land.** Agricultural lands are sometimes identified as "open space" along with parks, wildlife habitat, etc. Riverside County Ordinance No. 810.2 establishes an open space mitigation fee for development in Riverside County pursuant to the County's Multi-Species Habitat Conservation Plan (MSHCP). Fees collected under this ordinance will be used to acquire open space land for the purpose of preserving habitat. Residential development is currently required to pay \$1,651 per dwelling unit (d.u.) for densities less than 8.0 dwelling units per acre, \$1,057 per d.u. from 8.1 to 14.0 d.u. per acre, and \$859 per d.u. at densities of 14.1 d.u. per acre and greater. Commercial development is currently required to pay \$5,620 per acre. Therefore, future development within Homeland and Romoland will pay the County's MSHCP fees and will pay for open space acquisition based upon the current fee. However, the open space that will be acquired pursuant to Ordinance No. 810.2 will be for potential impacts to wildlife and their habitats. This land will not replace lost agricultural land. The California Department of Conservation has indicated that it will not consider the acquisition of open space lands for wildlife preservation as mitigation for loss of agricultural land. Implementation of this mitigation measure will not reduce the project's impacts on loss of farmland to below the level of significance.

Riverside County does not have an established fee or other mechanism to offset the loss of farmland county-wide. The process of establishing such a fee structure or other process for this purpose would be time consuming and would be an economic burden on this project. In addition, the District does not have the necessary land use authority to impose CEQA mitigation measures upon offsite development projects. For these reasons, this mitigation measure is considered to be infeasible.

Therefore, potential impacts to farmland resulting from the project would still be considered significant.

On October 7, 2003, the Riverside County Board of Supervisors adopted the General Plan and certified the General Plan Final Program Environmental Impact Report (SCH #2002051143). Section 4.2 of the Draft EIR addressed the existing setting, policies, impacts and mitigation measures related to "Land Use/Agricultural Resources." Section 4.2 of the Draft EIR was modified in the Final EIR and the Board of Supervisors adopted "CEQA Findings of Fact and Statement of Overriding Considerations of the Board of Supervisors of Riverside County for the 2003 Riverside County General Plan" (adopted October 7, 2003). Said Section 4.2 of the Draft EIR, the Final EIR and the adopted "CEQA Findings of Fact and Statement of Overriding Considerations" are hereby incorporated by reference. These documents are available for public review at the Riverside County Planning Department, 4080 Lemon Street, 9th Floor, Riverside, CA 92502.

The analysis contained in Section 4.2.2 of the County's General Plan Final EIR states that "Assuming all land designated for agricultural use was actively farmed at the time of build out, implementation of the proposed General Plan would result in the loss of 86,748 acres (32.5%) of agricultural land." As the total amount of land designated for agricultural uses under the proposed General Plan is less than the amount of agricultural land currently designated as Prime, Unique, and Statewide Important, implementation of the proposed General Plan would result in a significant loss of Prime, Unique or Statewide Important farmland." (Page 4.2-28 of the Final EIR) Section 4.2.4 of the Final EIR states, "There is no reasonable or feasible mitigation to reduce the significant impacts resulting from the loss of agricultural land to a less than significant level. While implementation of proposed General Plan policies would encourage conservation of agricultural land, the conversion of state-designated farmland and/or actively utilized agricultural land to non-agricultural uses remains a significant and unavoidable impact." (Page 4.2-33 of the Final EIR.)

The Board of Supervisors found that "there are no feasible mitigation measures or alternatives that the Board could adopt at this time which would reduce this impact to a less-than-significant level. This impact, therefore, remains significant and immitigable. To the extent that this adverse impact will not be eliminated or lessened to an acceptable (less-than-significant) level, the Board finds that specific economic, legal, social, technological, or other considerations identified in the Statement of Overriding Considerations support approval of the Project despite unavoidable residual impacts." (Page 2 of the "Findings of Fact for Riverside General Plan Impacts and Mitigation Measures" table located in the above referenced CEQA Findings of Fact and Statement of Overriding Considerations.)

Future development in Homeland and Romoland will be consistent with the land use designation placed upon the project area by the Riverside County General Plan and therefore, the above-described findings of fact and Statement of Overriding Considerations are applicable to the potential indirect conversion of the project area to non-agricultural uses.

Based upon the above discussion, it has been determined that no feasible mitigation exists to reduce or eliminate this impact, and a Statement of Overriding Consideration would be required prior to project approval.

Summary of Environmental Effects After Mitigation Measures are Implemented

Direct impacts to agricultural land in the project area include the conversion of approximately 89 acres of Farmland of Local Importance. The proposed project will provide drainage infrastructure that could support future urbanization, and result in the indirect conversion of farmland. The District does not have the necessary land use authority to impose CEQA mitigation measures upon offsite development projects. Therefore, there are no feasible mitigation measures that would reduce direct or indirect project impacts to less than significant levels. Adoption of a statement of overriding considerations would be required prior to project approval.

2. Air Quality

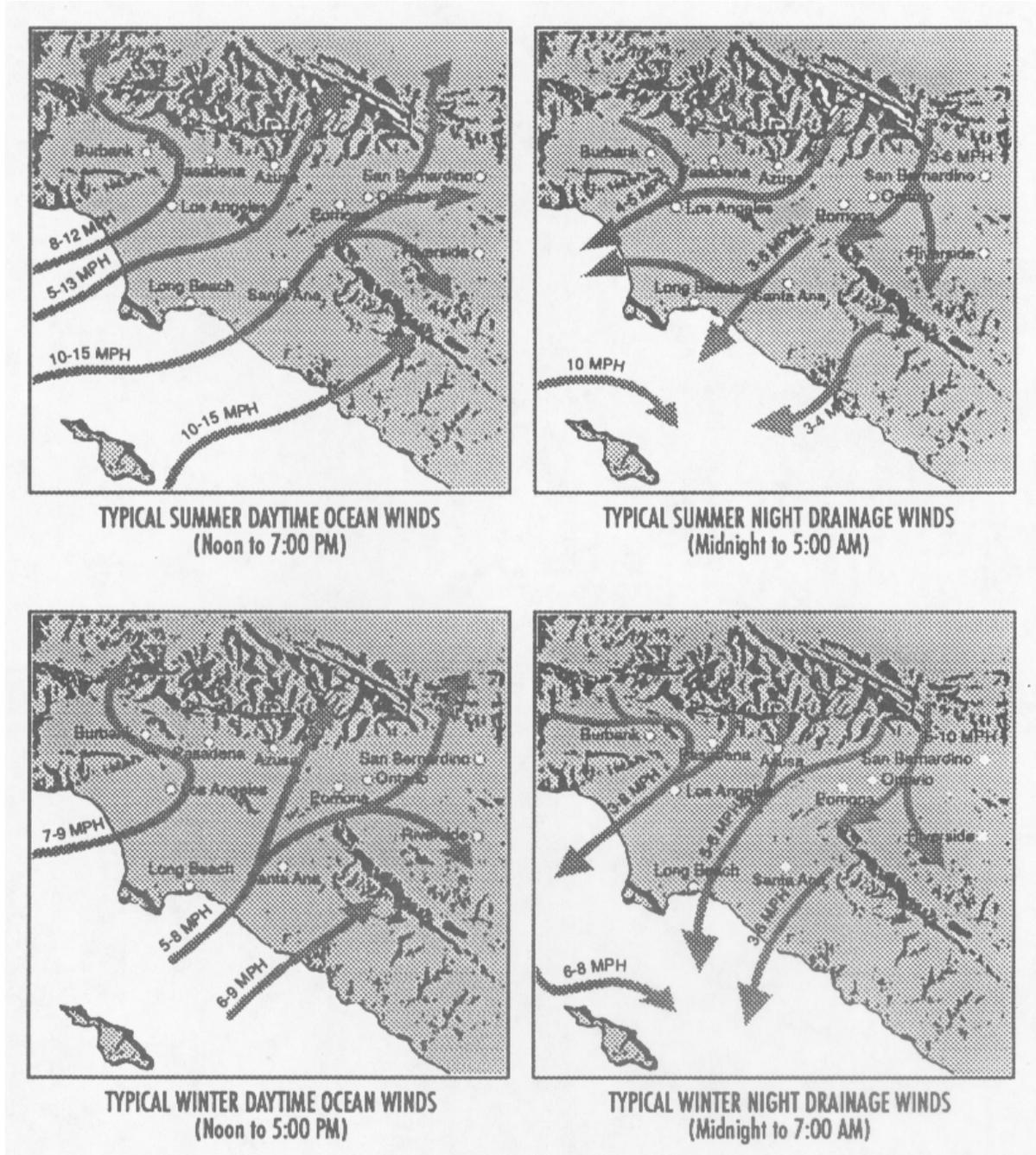
Potential impacts related to point source emissions were found to have no impacts in the NOP prepared for this project (Appendix A). The following discussion is a summary of the Air Quality Impact Analysis Report for Romoland/Homeland Master and Area Drainage Plans, November 2003, prepared by Giroux & Associates. This report is contained in its entirety as Appendix B of this document.

The proposed project includes the construction and maintenance of master planned drainage facilities in the communities of Homeland and Romoland. These proposed drainage facilities will be constructed in many phases. The Line A/Line 1 System will be constructed in the near future, while other proposed facilities will be constructed at later dates. The focus of the following analysis is the potential impacts from the construction of the proposed drainage facilities related to air quality plans and cumulative increases of pollutants.

Setting

Refer to the Environmental Setting Section (Section I.3) for a general description of the air resources within the project area. The interaction of land (offshore) and sea (onshore) breezes control local wind patterns in the area. Daytime winds typically flow from the coast to the inland areas, while the pattern typically reverses in the evening, flowing from the inland areas to the ocean. Air stagnation may occur during the early evening and early morning during periods of transition between day and nighttime flows. Approximately 5 to 10 times a year, the project site vicinity experiences strong, hot, dry desert winds known as the Santa Ana winds. These winds, associated with atmospheric high pressure, originate in the upper deserts and are channeled through the passes of the San Bernardino Mountains into the inland valleys. Santa Ana winds can last for a period of hours or days, and gusts of over 60 miles per hour have been recorded (see Figure III-2-1, Dominant Wind Patterns of the South Coast Air Basin).

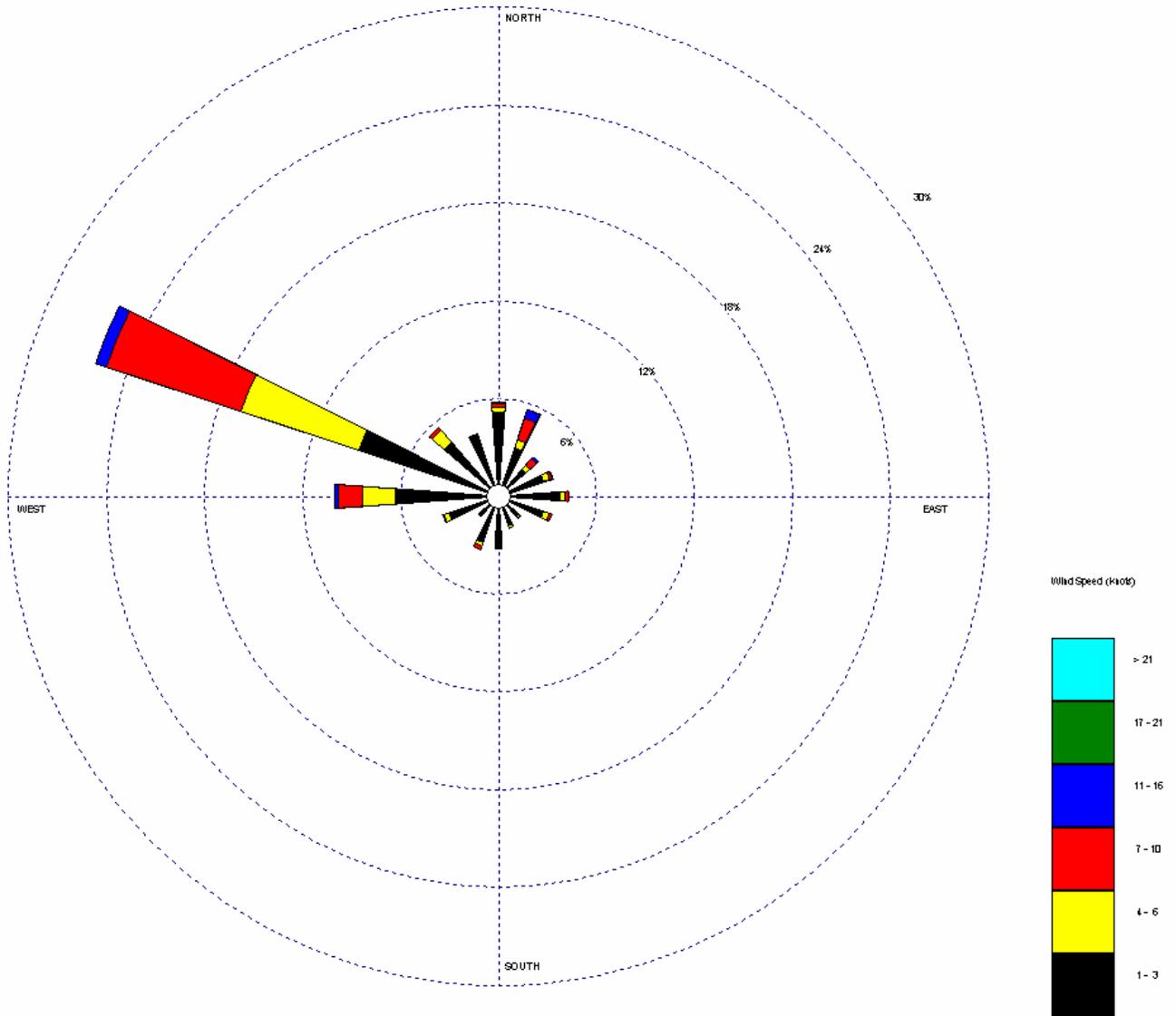
High winds, such as the Santa Ana winds, affect dust generation characteristics and create the potential for off-site air quality impacts, especially with respect to airborne nuisance and particulate emissions. Local winds in the project area are also an important meteorological parameter because they control the initial rate of dilution of locally generated air pollutant emissions. Figure III-2-2, Wind Rose, shows the wind direction and speed frequency distribution in Riverside, which is the nearest city to the project area with available meteorological data.



South Coast Air Quality Management District
CEQA Air Quality Handbook

Figure III-2-A
Dominant Wind Patterns of the South Coast Air Basin
Homeland/Romoland MDP/ADP
Riverside County, California

**Riverside, California – 1981
January 1-December 31; Midnight-11PM**



Note: Data taken from the Riverside Monitoring Station in Rubidoux, California, between January 1 and December 31, 1981. Direction of the colored bars show the direction the wind is blowing from, colors represent various wind speeds, and percentages marked on rings indicate the percentage that the wind blows from that direction and at that particular wind speed.

**Figure III-2-B – Wind Rose
Homeland/Romoland MDP/ADP
Riverside County, California**

Categories of Emission Sources

Air pollutant emissions sources are typically grouped into two categories: stationary and mobile sources. These emission categories are defined and discussed in the following subsections.

Stationary Sources

Stationary sources are divided into two major subcategories: point and area sources. Point sources consist of a single emission source with an identified location at a facility. A single facility could have multiple point sources located onsite. Stationary point sources are usually associated with manufacturing and industrial processes.

Examples of point sources include boilers or other types of combustion equipment at oil refineries, electric power plants, etc. Area sources are small emission sources that are widely distributed, but are cumulatively substantial because there may be a large number of sources. Examples include residential water heaters; painting operations; lawn mowers; agricultural fields; landfills; and consumer products, such as barbecue lighter fluid and hair spray.

Mobile Sources

Mobile sources are motorized vehicles, which are classified as either on-road or off-road. On-road mobile sources typically include automobiles and trucks that operate on public roadways. Off-road mobile sources include aircraft, ships, trains, and self-propelled construction equipment that operate off public roadways. Mobile source emissions are accounted for as both direct source emissions (those directly emitted by the individual source) and indirect source emissions, which are sources that by themselves do not emit air contaminants but indirectly cause the generation of air pollutants by attracting vehicles. Examples of indirect sources include office complexes, commercial and government centers, sports and recreational complexes, and residential developments.

Air Pollution Constituents

Air pollutants are classified as either primary, or secondary, depending on how they are formed. Primary pollutants are generated daily and are emitted directly from a source into the atmosphere. Examples of primary pollutants include carbon monoxide (CO), nitrogen dioxide (NO₂) and nitric oxide (NO)—collectively known as oxides of nitrogen (NO_x), sulfur dioxide (SO₂), particulates (PM-10 and PM-2.5) and various hydrocarbons (HC) or volatile organic compounds (VOC), which are also referred to as reactive organic gases (ROG). The predominant source of air emissions generated by the project development is expected to be vehicle emissions. Motor vehicles primarily emit CO, NO_x and VOC/ROG/HC (Volatile Organic Compounds/Reactive Organic Gases/Hydrocarbons).

Secondary pollutants are created over time and occur within the atmosphere as chemical and photochemical reactions take place. An example of a secondary pollutant is ozone (O₃), which is one of the products formed when NO_x reacts with HC, in the presence of sunlight. Other secondary pollutants include photochemical aerosols. Secondary pollutants such as ozone represent major air quality problems in the SCAB.

The Federal Clean Air Act of 1970, established the National Ambient Air Quality Standards (NAAQS). Six “criteria” air pollutants were identified using specific medical evidence available at that time, and NAAQS were established for those chemicals. The State of California has adopted the same six chemicals as criteria pollutants, but has established different allowable levels. The six criteria pollutants are: carbon monoxide, nitrogen dioxide, ozone, lead, particulates less than 10 microns in size, and sulfur dioxide. The following is a further discussion of the *criteria pollutants*, as well as volatile organic compounds.

Carbon Monoxide (CO) – A colorless, odorless toxic gas produced by incomplete combustion of carbon-containing fuels. Concentrations of CO are generally higher during the winter months when meteorological conditions favor the build-up of primary pollutants. Motor vehicles are the major source of CO in the SCAB, although various industrial processes also emit CO through incomplete combustion of fuels.

Oxides of Nitrogen (NO_x) – Important forms of nitrogen oxide in air pollution are nitric oxide (NO) and nitrogen dioxide (NO₂). The principal form of nitrogen oxide produced as a byproduct of fuel combustion is nitric oxide (NO), but NO reacts quickly with oxygen to form NO₂, creating the mixture of NO and NO₂ commonly called NO_x. Combustion in motor vehicle engines, power plants, refineries and other industrial operations, as well as ships, railroads and aircraft, are the primary sources of NO_x. Although NO₂ concentrations have not exceeded national standards since 1991 and the state hourly standard since 1993, NO_x emissions remain of concern because of their contribution to the formation of O₃ and particulate matter.

Ozone (O₃) – A colorless toxic gas that irritates the lungs and damages materials and vegetation. O₃ is one of a number of substances called photochemical oxidants that is formed when volatile organic compounds (VOC) and NO_x react in the presence of ultraviolet sunlight. O₃ concentrations are higher in the SCAB than anywhere else in the nation and the damaging effects of photochemical smog are generally related to the concentration of O₃. Conditions that lead to high levels of O₃ are adequate sunshine, early morning stagnation in source areas, high surface temperatures, strong and low morning inversions, greatly restricted vertical mixing during the day, and daytime subsidence that strengthens the inversion layer.

Lead (Pb) – Lead concentrations once exceeded the state and federal air quality standards by a wide margin, but have not exceeded state or federal air quality standards at any regular monitoring station since 1982. Though special monitoring sites immediately downwind of lead sources recorded very localized violations of the state standard in 1994, no violations have been recorded at these stations since 1996.

Atmospheric Particulates (PM) – A large portion of total suspended particulate (TSP) is fine particulate matter. PM-10 consists of extremely small suspended particles or droplets 10 microns or smaller in diameter that can lodge in the lungs, contributing to respiratory problems. PM-2.5 is defined as particulate matter with diameter less than 2.5 microns. PM-10 arises from such sources as road dust, agriculture, diesel soot, combustion products, tire and brake abrasion, construction operations, and fires. It is also formed from NO and SO₂ reactions with ammonia. PM-10 scatters light and significantly reduces visibility. PM-2.5 consists mostly of products from the reaction of NO_x and SO₂ with

ammonia, secondary organics and finer dust particles. The United States Environmental Protection Agency (USEPA) established its PM-2.5 standard in July 1997.

Sulfur Dioxide (SO₂) – A colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Although SO₂ concentrations have been reduced to levels well below state and federal standards, further reductions in SO₂ emissions are needed because SO₂ is a precursor to sulfate and PM-10.

Reactive Organic Gases (ROGs) – It should be noted that there are no state or federal ambient air quality standards for ROGs because they are not classified as criteria pollutants. ROGs are regulated, however, because a reduction in ROG emissions reduces certain chemical reactions, which contribute to the formation of ozone. ROGs are also transformed into organic aerosols in the atmosphere, contributing to higher PM-10 and lower visibility levels. Although health-based standards have not been established for ROGs, health effects can occur from exposures to high concentrations of ROG because of interference with oxygen uptake. In general, ambient ROG concentrations in the atmosphere are suspected to cause coughing, sneezing, headaches, weakness, laryngitis, and bronchitis, even at low concentrations. Some hydrocarbon components classified as ROG emissions are thought or known to be hazardous. Benzene, for example, is a hydrocarbon component of ROG emissions that is known to be a human carcinogen.

Monitored Air Quality

The project area is within SCAQMD Source Receptor Area (SRA) 24. The most recent published data for SRA 24 is presented in Table III-2-1, Air Quality Monitoring Summary-1993-2002. There are no baseline air quality data available directly from the proposed project site. Long-term air quality monitoring for ozone, nitrogen oxides, and 10-micron diameter particulate matter (PM-10) is carried out by the SCAQMD at Perris, but the closest data resource for some gaseous and/or particulate species is in Riverside (SRA 23). This data shows that the baseline air quality conditions in the project area include occasional events of very unhealthful air. Even so, the frequency of smog alerts has dropped significantly in the last decade. Ozone and particulates are the two most significant air quality concerns in the project area. The yearly monitoring records document that prior to 1995, approximately one-third or more of the days each year experienced a violation of the state hourly ozone standard, with around ten days annually reaching first stage alert levels of 0.20 parts per million (ppm) for one hour. It is encouraging to note that ozone levels have dropped significantly in the last few years with less than one-fifth of the days each year experiencing a violation of the state hourly ozone standard in 2000. Locally, no second stage alert (0.35 ppm/hour) has been called by SCAQMD in the last ten years.

Table III-2-1, SRA 24, Air Quality Monitoring Summary - 1993-2002

	Pollutant/Standard Source: SCAQMD	Monitoring Year									
		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
No. Days Exceeded	Ozone^a:										
	California Standard:										
	1-Hour - 0.09 ppm	137	125	107	95	64	30	10	65	73	59
	Federal Primary Standards:										
	1-Hour - 0.12 ppm	73	59	36	31	6	8	0	15	19	4
	8-Hour - 0.08 ppm ^a					41	28	7	41	58	41
	Max 1-Hour Conc. (ppm)	0.20	0.18	0.20	0.18	0.14	0.15	0.11	0.16	0.15	0.15
	Max 8-Hour Conc. (ppm) ^a					0.11	0.13	0.10	0.13	0.14	0.12
No. Days Exceeded	Carbon Monoxide^c:										
	California Standard:										
	1-Hour - 20 ppm	0	0	0	0	0	0	0	0	0	0
	8-Hour - 9.0 ppm	0	0	0	0	0	0	0	0	0	0
	Federal Primary Standards:										
	1-Hour - 35 ppm	0	0	0	0	0	0	0	0	0	0
	8-Hour - 9.5 ppm	0	0	0	0	0	0	0	0	0	0
	Max 1-Hour Conc. (ppm)	10.0	11.0	9.0	9.0	7.0	6.0	7.0	5.0	5.0	8.0
	Max 8-Hour Conc. (ppm)	6.3	7.3	6.5	5.0	5.8	4.6	4.4	4.3	3.4	3.0
No. Days Exceeded	Nitrogen Dioxide:										
	California Standard:										
	1-Hour - 0.25 ppm	0 ^b	0 ^c								
	Federal Standard:										
	Annual Standard - 0.053ppm	No ^e									
	Max. 1-Hour Conc. (ppm)	0.14 ^b	0.18 ^c	0.15 ^c	0.11 ^c	0.12 ^c	0.10 ^c	0.13 ^c	0.10 ^c	0.15	0.10
No. Days Exceeded	Sulfur Dioxide:										
	California Standards:										
	1-Hour – 0.25 ppm	0 ^b	0 ^c								
	24-Hour – 0.04 ppm	0 ^b	0 ^c								
	Federal Primary Standards:										
	24-Hour – 0.14 ppm	0 ^b	0 ^c								
	Annual Standard – 0.03 ppm	No ^e									
	Max. 1-Hour Conc. (ppm)	0.02 ^b	0.02 ^c	0.02 ^c	0.01 ^c	0.04 ^c	0.03 ^c	0.03 ^c	0.11 ^c	0.02 ^c	0.02 ^c
	Max. 24-Hour Conc. (ppm)	0.010 ^b	0.005 ^c	0.009 ^c	0.004 ^c	0.007 ^c	0.010 ^c	0.011 ^c	0.041 ^c	0.011 ^c	0.002 ^c
No. Days Exceeded	Inhalable Particulates (PM-10):										
	California Standards:										
	24-Hour - 50 µg/m ³	27	26	23	20	19	14	30	13	16	24
	Annual Geometric Mean (µg/m ³)	41.1	38.9	36.9	35.2	38.5	33.3	44.0	36.8	36.0	45.2
	Federal Primary Standards:										
	24-Hour – 150 µg/m ³	0	0	0	0	0	0	0	0	0	0
	Annual Arithmetic Mean (µg/m ³)	50.1	45.0	46.7	40.0	44.5	36.1	50.0	41.1	40.8	41.6
	Max. 24-Hour Conc. (µg/m ³)	131	112	145	87	139	98	112	87	86	100
No Days Exceeded	Inhalable Particulates (PM-2.5):										
	California Standards:										
	Annual Standard – 12µg/m ³							Yes ^e	Yes ^e	Yes ^e	Yes ^e
	Federal Primary Standards:										
	Annual Standard – 15µg/m ³							Yes ^e	Yes ^e	Yes ^e	Yes ^e
	24-Hour – 65 µg/m ³							9 ^d	11 ^d	19 ^d	2 ^d
	Annual Arithmetic Mean (µg/m ³)							30.9 ^d	28.2 ^d	31.3 ^d	27.1 ^d
	Max. 24-Hour Conc. (µg/m ³)							111.2 ^d	119.6 ^d	98.0 ^d	75.5 ^d

Note:^a 1997 is first year of SCAQMD records for federal 8-hour Ozone standard.
^b Rubidoux air monitoring station (SRA 23) data summaries for NO₂ and SO₂ during 1993.
^c Metro Riverside County 1 air monitoring station (SRA 23) data summaries for CO during all years; NO₂ and SO₂ during years 1994–2002; PM-2.5 during years 1999–2001.
^d 1999 is first year of SCAQMD records for federal 24-hour PM-2.5 standard and data summary
^e Exceedance of the Annual Standards are expressed as either Yes or No indicating whether or not the standard has been exceeded for that year.

The sources contributing to particulate matter pollution include road dust, windblown dust, agriculture, construction, fireplaces and wood burning stoves, and vehicle exhaust. Specifically, SCAQMD data indicates the largest component of PM-10 particles in the Homeland/Romoland area comes from dust (unpaved roads, unpaved yards, and vacant land that have been disked). PM-2.5 particles are manmade particles resulting from combustion sources. According to SCAQMD, one component of PM-2.5 pollution in Riverside comes from nitrate (NO₃) particulates. Nitrate, produced SCAB wide by vehicles, reacts with ammonium produced from livestock and horses to form ammonium nitrate. Organic carbon particles generated from paints, degreasers and vehicles, are another component of PM-2.5 pollution. The last notable constituent of PM-2.5 sources is elemental carbon, used as a surrogate for diesel particulates.

Regulatory Setting

The federal and state ambient air quality standards (AAQS) establish the context for the local air quality management plans (AQMP) and for determination of the significance of a project's contribution to local or regional pollutant concentrations. The federal and state AAQS are presented in Table III-2-1. The AAQS represent the level of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those people most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other diseases or illness and persons engaged in strenuous work or exercise, all referred to as "sensitive receptors." SCAQMD defines a "sensitive receptor" as a land use or facility such as schools, child care centers, athletic facilities, playgrounds, retirement homes and convalescent homes.

Both federal and state Clean Air Acts require that each non-attainment area prepare a plan to reduce air pollution to healthful levels. The 1988 California Clean Air Act and the 1990 amendments to the federal Clean Air Act (CAA) established new planning requirements and deadlines for attainment of the air quality standards within specified time frames which are contained in the State Implementation Plan (SIP). Amendments to the SIP have been proposed, revised, and approved over the past decade. The currently adopted clean air plan for the basin is the 1999 SIP Amendment, approved by the U.S. Environmental Protection Agency (EPA) in 2000.

The Air Quality Management Plan (AQMP) for the SCAB establishes a program of rules and regulations directed at attainment of the state and national air quality standards. The AQMP control measures and related emission reduction estimates are based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments. Accordingly, conformance with the AQMP for development projects is determined by demonstrating compliance with local land use plans and/or population projections. The SCAQMD (SCAQMD 2003) adopted an updated AQMP in August 2003, which outlines the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates (PM-10) by 2006. The AQMP was forwarded to the California Air Resources Board (CARB) in October 2003 for review. If approved, the AQMP will be sent to the EPA for its final approval and included as a revision to California's SIP.

The California Air Resources Board maintains records as to the attainment status of air basins throughout the state, under both state and federal criteria. For 2002, the portion of the SCAB

within which the proposed project is located is designated as a non-attainment area for ozone and PM-10 under state standards, and as a non-attainment area for ozone, carbon monoxide, and PM-10 under federal standards.

Criteria for Determining Significance

Air quality impacts may be considered significant if the project would:

- Violate any SCAQMD ambient air quality standard, contribute substantially to an existing or projected air quality violation, specifically:
 - Short-term project related ROG emissions greater than 75 pounds per day (lbs/day), CO emissions greater than 550 lbs/day, PM-10 emissions greater than 150 lbs/day, NO_x emissions greater than 100 lbs/day, or SO_x emissions greater than 150 lbs/day.
 - Long-term project related ROG or NO_x emissions greater than 55 lbs/day, CO emissions greater than 550 lbs/day, PM-10 emissions greater than 150 lbs/day, or SO_x emissions greater than 150 lbs/day.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

Project Compliance with Existing Regulations

The Air Quality Management Plan (AQMP) for the SCAB establishes a program of rules and regulations directed at attainment of the state and national air quality standards. The AQMP control measures and related emission reduction estimates are based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments. The construction and maintenance of the proposed project will generate air pollutants, however they will only be generated intermittently and temporarily.

SCAQMD rules and regulations that apply to this project include SCAQMD Rule 403, which governs emissions of fugitive dust. Compliance with this rule is achieved through application of dust control measures in construction and maintenance activities, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, controlling track out, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on finished sites.

Rule 403 also requires projects that have active operations on property which contains in excess of 50 acres of disturbed soil, or moves 5,000 yds³/day of materials to submit to SCAQMD a Fugitive Dust Control Plan prior to grading. If the phased construction exceeds the above criteria, a Fugitive Dust Control Plan will be prepared and submitted to the SCAQMD.

Design Considerations

The proposed MDP facilities have not been designed to specifically avoid potential impacts to air quality. However the proposed project will be constructed in numerous phases, minimizing emission and dust generation at any given time.

Environmental Impacts Before Mitigation

Threshold: Violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or result in a cumulatively considerable increase in a criteria pollutant under non-attainment.

Air quality impacts can be divided into short-term and long-term impacts. Short-term impacts are usually related to construction and grading activities. Long-term impacts are usually associated with buildout conditions and long term operations of a project. Since this project consists of the construction and maintenance of the proposed drainage facilities, only short-term construction emissions will occur.

Short-term project related ROC emissions greater than 75 pounds per day (lbs/day), CO emissions greater than 550 lbs/day, PM10 emissions greater than 150 lbs/day, NO_x emissions greater than 100 lbs/day, or SO_x emissions greater than 150 lbs/day.

Short-term emissions were calculated for the construction of the Line A/ Line 1 System, which includes an ascertainable construction schedule and large impact area relative to the future construction phases. Short-term emissions will include fugitive dust and other particulate matter, as well as exhaust emissions, generated by earthmoving activities and grading equipment during site preparation (excavation and grading). Short-term emissions will also include emissions generated during construction and maintenance of the facilities as a result of operation of equipment and operation of personal vehicles by workers. See Appendix C for a complete discussion of assumptions used to calculate the following short-term emissions as a result of the proposed project.

Short-term emissions were calculated with the URBEMIS 2002 for Windows version 7.4.2 computer program. A worst-case scenario was used for the analysis, which presumed that given a projected 8-month project completion schedule, construction activity emissions for the approximate 13 miles of linear facilities and the Juniper Flats and Briggs Road detention basins of the Line A/Line 1 System would occur simultaneously. Equipment exhaust emissions will result from on- and off-site heavy equipment used during trenching/excavating/cut and fill/grading construction activities. The results of these evaluations are summarized in Table III-2-2, Estimated Short-term Construction Emissions.

**Table III-2-2, Line A/Line 1 System Estimated
Short-term Construction Emissions Pre-Mitigation**

Activity/Year	Worse Case Peak Daily Emissions (lb/day)						
	ROG	NO _x	CO	SO ₂	Total PM-10	Exhaust PM-10	Dust PM-10
SCAQMD Daily Construction Thresholds (lbs/day)	75	100	550	150	150		
Site Preparation	207.9	1678.5	1523.1	0.03	554	82.1	210.2
Exceeds Threshold?	Yes	Yes	Yes	No	Yes		
SCAQMD Quarterly Construction Thresholds (tons/qtr)	2.5	2.5	24.75	6.75	6.75		
Site Preparation ¹	6.9	55.4	50.3	NG ²	18.3		
Exceeds Threshold?	Yes	Yes	Yes	No	Yes		

Note: ¹ Quarterly emission amounts were calculated using 66 days/qtr for the construction period.

² Amounts less than 0.05 tons/qtr are listed as negligible (NG).

The preceding table shows that all of the projected construction emissions, except for SO₂, may temporarily exceed the SCAQMD recommended daily and quarterly thresholds.

The staged construction of future facilities would result in similar, but likely less, quantities of emissions and therefore less impact to air quality than the Line A/Line 1 System. There are approximately 20 miles of linear facilities proposed for future construction phases, more than proposed in the initial Line A/Line 1 System. However, future facilities will likely be constructed in many phases over a longer period of time than as expected for the construction of the Line A/Line 1 System, thereby reducing potential impacts at any one time. Specific air quality analysis of future construction phases can not be conducted at this time, as the construction phasing of future facilities has yet to be determined. Specific parameters of construction, including the number and type of equipment used, the construction methods used and the acreage of soil disturbance, are required to model short-term emissions. Therefore additional air quality analysis will be necessary to analyze the specific air quality emissions of future construction phases (refer to MM Air 4). None the less, the emissions related to future construction phases, are not expected to exceed the quantities shown in Table III-2-2.

Short-term emissions associated with the maintenance activities will also be infrequent and of lesser quantities than those shown in Table III-2-2. Maintenance activities, as outlined in Section 1 of this document, are expected to be infrequent and will involve the operation of similar types of equipment as used in the construction; however not as many vehicles will be required. Maintenance activities will be temporary and infrequent. Emissions from maintenance activities are considered negligible. Potential impacts to air quality from maintenance activities of the proposed drainage facilities are less than significant.

Proposed Mitigation Measures

An Environmental Impact Report is required to describe feasible mitigation measures which could minimize significant adverse impacts (CEQA Guidelines, Section 15126.4). Mitigation measures are intended to reduce impacts to below the level of significance. The following mitigation measures are recommended by the SCAQMD.

MM Air 1: Mobile construction equipment will be properly maintained, which includes proper tuning and timing of engines. Construction contractors will keep equipment maintenance records and equipment design specification data sheets on-site during construction and turn in the records to the District.

MM Air 2: Temporary traffic control (e.g., flag person) will be provided during soil transport activities. Contractors shall be advised not to idle trucks on site for more than ten minutes.

MM Air 3: In order to control dust emissions, any grading activities shall comply with the SCAQMD Rule 403 or any amendments thereto. Any applicable Rule 403 dust control measures shall be implemented. A log of all implemented dust control measures shall be maintained on-site during construction and subject to review and approval by the District. If any construction phases meet the Rule 403 definition of "Large Operations," a dust control plan shall be prepared, submitted to the SCAQMD, and implemented.

MM Air 4: Prior to the construction of each phase of the future facilities, an air quality analysis shall be performed, using the latest SCAQMD modeling method and thresholds.

Summary of Environmental Effects After Mitigation Measures are Implemented

In an effort to reduce temporary construction emissions, a range of mitigation measures and compliance with Rule 403 were considered. The reduction on emissions from the implementation of these measures for the construction of the Line A/Line 1 System are listed in Table III-2-3. Implementation of the mitigation measures will reduce the total PM-10 emissions from an estimated 554 lbs/day to 292.3 lbs/day.

Table III-2-3, Line A/Line 1 System Estimated Short-term Construction Emissions After Mitigation

Activity/Year	Worse Case Peak Daily Emissions (lb/day)						
	ROG	NO _x	CO	SO ₂	Total PM-10	Exhaust PM-10	Dust PM-10
SCAQMD Daily Construction Thresholds (lbs/day)	75	100	550	150	150		
Site Preparation	207.9	1678.5	1523.1	0.03	292.3	82.1	210.2
Exceeds Threshold?	Yes	Yes	Yes	No	Yes		
SCAQMD Quarterly Construction Thresholds (tons/qtr)	2.5	2.5	24.75	6.75	6.75		
Site Preparation ¹	6.9	55.4	50.3	NG ²	9.6		
Exceeds Threshold?	Yes	Yes	Yes	No	Yes		

Note: ¹ Quarterly emission amounts were calculated using 66 days/qtr for the construction period.

² Amounts less than 0.05 tons/qtr are listed as negligible (NG).

Even with mitigation measures incorporated, the construction of the Line A/Line 1 System may generate temporary construction emissions which exceed SCAQMD significance thresholds. But given the temporary nature of the construction emissions from the project that will likely be less than the worse-case estimates provided above, impacts to air quality are considered less than significant.

3. Biological Resources

The proposed project was found to have a less than significant impact on the movement of local or migratory wildlife. The proposed project was not found to conflict with local policies or ordinances established to protect biological resources or with provisions of an adopted Habitat Conservation Plan or other approved local, regional or state habitat conservation plan. These findings are outlined in the NOP prepared for this project (Appendix A). The focus of the following discussion is related to sensitive or special status species, riparian habitat or other sensitive communities, wetlands and the project's potential to alter those resources through construction and operation of the proposed drainage facilities. The following discussion of plant and animal species in and around the project site is based on the General Biological Resources Evaluation, Western Burrowing Owl Surveys, and Narrow Endemic Sensitive Plant Species Habitat Assessment prepared for the proposed project by Ecological Sciences, Inc. as well as a Focused Survey for Special Status Plant Species prepared by Glenn Lukos Associates. These reports are contained in their entirety in Appendix C of this document. The following discussion of jurisdictional features located within the project area is based on the Routine Jurisdiction Delineation Reports prepared by Ecological Sciences, Inc. These reports are contained in their entirety as Appendix D of this document.

Setting

The proposed project traverses both undeveloped and developed areas, of which the major land use is agriculture. Small portions of the project area support some native habitat and other protected natural resources (including those areas potentially under the jurisdiction of the U.S. Army Corps of Engineers (ACOE) or the California Department of Fish and Game (CDFG)).

Vegetation

Several different vegetation types were found in the project area and include agriculture, disturbed/ruderal/non-native grassland, exotic trees, riparian woodland/willow scrub and remnant and disturbed Riversidean sage scrub. Agricultural lands do not generally support many plant species except along the perimeter of the cultivated areas. Lands used for agriculture are located throughout the project area.

Areas containing disturbed/ruderal/non-native grassland are located directly adjacent to residential areas, dirt roads, road shoulders, abandoned fields, and areas used for illegal dumping throughout the project area. Disturbed/ruderal/non-native grassland accounts for all areas adjacent to or within the project alignment not developed or identified as another vegetation type, as outlined in Figure III-3-A, Vegetation Schematic. Plant species present in these disturbed areas consist of non-native invasive species including foxtail chess (*Bromus madritensis* spp. *rubens*), ripgut grass (*Bromus diandrus*), Russian thistle (*Salsola tragus*), Mediterranean grass (*Schismus barbatus*), mustard (*Brassica/Hirshfeldia* spp.), oat (*Avena* sp.), barley (*Hordeum* sp.), yellow star-thistle (*Centaurea solstitialis*), thistle (*Cirsium* spp.), tree tobacco (*Nicotiana glauca*), radish (*Raphanus sativus*), cheeseweed (*Malvia parviflora*), filaree (*Erodium* sp.), common sow thistle (*Sonchus oleraceus*), spurge (*Euphorbia* sp.), dove weed (*Eremocarpus setigerus*), jimsonweed (*Datura wrightii*), castor bean (*Ricinus communis*), coyote melon (*Cucurbita palmata*), vinegar weed (*Trichostema lanceolatum*), prickly lettuce (*Lactuca*

serriola). Native species such as ragweed (*Ambrosia psilostachya*), fiddleneck (*Amsinkia menziesii*), and sunflower (*Helianthus gracilentus*) were also recorded. These non-native grassland areas have developed as a result of various forms of disturbance including fire, grazing, agriculture, grading and off-road vehicle use. The exotic, weedy species that dominate the vegetation in these areas include *Brome* grasses, wild oat (*Avena fatua*), black mustard (*Brassica nigra*), field mustard (*Brassica rapa*), and broad-lobed filaree (*Erodium botrys*).

Exotic trees include stands of gum trees, pepper trees (*Schinus molle*), or other ornamental non-native species of trees that were planted as wind breaks adjacent to agricultural fields or residential areas. Within the project area stands of exotic trees are present along Line A west of Interstate 215 and in the Juniper Flats Basin area. Exotic trees also occur along many of the proposed facility locations and are located in many of the residential areas in the project vicinity. Refer to Figure III-3-A for exotic tree locations.

Special-Status Communities/Habitats

Special-status habitat types are those vegetation communities that support rare, threatened, or endangered plant or wildlife species or are diminishing and are of special concern to resource agencies. Sensitive and/or protected habitat types within the project area include Riversidean sage scrub (RSS) and riparian habitats. The Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) provides protection for sensitive vegetation communities and wildlife habitat.

Plant species present in riparian woodland/willow scrub areas include tamarisk (*Tamarix aphylla*), Fremont's cottonwood (*Populus fremonti*), arroyo willow (*Salix lasiolepis*), black willow (*Salix gooddingii*), Mexican elderberry (*Sambucus mexicana*). Species present within the riparian understory include mulefat (*Baccharis salicifolia*), dock (*Rumex* sp.) saltbush (*Atriplex* sp.), and mugwort (*Artemisia douglasiana*). Many ruderal species are also present within the riparian habitat. Riparian woodland/willow scrub habitat is only located in the western region of the project area, along Lines A and A-15 near the San Jacinto River channel. Refer to Figure III-3-A for riparian habitat locations.

Characteristic sage scrub species of the remnant Riversidean sage scrub (RSS) identified in the project area include California buckwheat (*Eriogonum fasciculatum*), California broom (*Lotus scoparius*), California matchweed (*Gutierrezia californica*) and scattered California sagebrush (*Artemisia californica*). RSS occurs in a few remnant patches primarily in the northern portion of the project area near the future Mapes Basin (Line B-6), and the Juniper Flats basin. A few portions of the proposed Line 1A alignment may also support remnant patches of RSS. Refer to Figure III-3-A for the general locations of RSS in the project area.

Wildlife

Few wildlife species were observed directly by Ecological Sciences during the site survey, which is most likely due to the disturbed site conditions. Species directly observed are those that are generally accustomed to disturbed habitats and to nearby human presence such as turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), American crow (*Corvus*

brachyrhynchos), western meadowlark (*Sturnella neglecta*), Brewer's blackbird (*Euphagus cyanocephalus*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*). Mammal species observed or detected through sign (an indication of an animal's presence), include California ground squirrels (*Spermophilus beecheyi*). Cooper's hawk (*Accipiter cooperii*), a special-status avian species, was also observed in the project area.

Special-Status Plant Species

Plant species of special status include those classified as endangered or threatened, proposed for listing as endangered or threatened, candidate species for listing by a federal (U.S. Fish and Wildlife Service) or state (California Department of Fish and Game) resource agency, or considered federal Species of Concern. In addition, plants included on Lists 1, 2, 3, or 4 of the California Native Plant Society (CNPS) Inventory are also considered special-status.

No special-status plants were recorded in the linear facility alignments or the basin locations during the biological evaluation conducted in September 2003, and the occurrence potential for most sensitive plant species throughout the project area is generally considered low due to the high amount of soil disturbance from long-standing farming activities.

Focused surveys for the San Jacinto Valley crowscale, spreading Navarretia, and thread-leaved brodia were conducted in the San Jacinto River floodplain during the spring of 2000 by biologists from Glenn Lukos Associates (GLA). These focused surveys were conducted for an unrelated project, referred to as the San Jacinto River Improvement Project. The focused survey area included approximately 10.5 lineal miles from the Ramona Expressway in the north to Railroad Canyon in the south. The western portion of the proposed drainage facilities, Line A/Line 1 System and future facilities west of Interstate 215, are located within Reach 3 of GLA's San Jacinto River Improvement Project study area, which begins at the Interstate 215 crossing of the river channel and extends to Railroad Canyon.

The following non-listed but sensitive plant species were also included in GLA's 2000 survey: Davidson's saltbush (*Atriplex serena* var. *davidsonii*), Parish's saltbush (*Atriplex parishii*), smooth tarplant (*Hemizonia pungens* ssp. *laevis*), vernal barley (*Hordeum intercedens*), Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), and Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*). The locations of these plant occurrences, as recorded in the 2000 survey, are depicted in Figure III-3-B, Special Status Plants. Line A (west of I-215) and Line A-15 of the proposed Master Drainage Plan project are located within the area that was surveyed by GLA in 2000. Several occurrences of San Jacinto Valley crowscale and smooth tarplant were found northwest of Line A and south of the San Jacinto River channel. Thread-leaved brodia was found in four occurrences on the northwest side of the river channel. Vernal barley was also identified within Reach 3 of the GLA study area, however their exact location was not disclosed. Spreading Navarretia, Coulter's goldfields, Davidson's saltbush, and Wright's trichocoronis were not observed in this reach during the 2000 survey.

Although listed plant species were not previously identified within the current proposed facility alignments, it was determined that updated focused surveys should be conducted in the project alignment adjacent to the San Jacinto River to determine presence or absence. Romoland MDP

Line A west of Murrieta Road, was identified as containing soils potentially suitable for narrow endemic species. A focused survey for special status plant species was conducted by GLA in June 2004 for the Line A facility alignment west of Murrieta Road. No listed or other special status plant species was observed within or adjacent to the proposed Romoland MDP Line A alignment. One plant species, the paniculate tarplant (*Deinandra paniculata*), CNPS List 4, was observed outside of the alignment and beyond anticipated construction impacts.

A habitat assessment was conducted December 22–23, 2004 by Ecological Sciences, Inc. to determine if suitable habitat occurs within the alignments of future facilities Line A-15, Line A-14 and A-12. It was determined that the proposed alignments do not contain suitable habitat for narrow endemic or sensitive plant species. Due to current and historical land use practices, no narrow endemic or sensitive plants are expected to occur within these proposed facility alignments. No further surveys were recommended.

Special-Status Wildlife Species

Special-status or sensitive wildlife species include those that are state or federally listed as threatened or endangered, are proposed for listing as threatened or endangered, have been designated as state or federal candidates for listing, state or federal species of concern, or California Fully Protected.

Based on the biological site surveys conducted by Ecological Sciences, Special-status wildlife species with the potential to occur in the project area are listed in Table III-3-1 below, along with the relative potential for their occurrence in the project area. Many of the special-status wildlife species identified during the surveys in 2003 as having a potential to occur in the project vicinity are not expected to occur in the project alignment due to lack of suitable habitat from long-standing farming activities. However many avian species, in particular raptors, have a moderate or high occurrence potential due to the presence of suitable foraging habitat on and near the project site. Cooper's hawk was directly observed in the project area during the 2003 site survey. Burrowing owls were not observed during the September 2003 surveys conducted by Ecological Sciences. However it was determined that much of the project area, or areas adjacent to proposed facilities contains suitable habitat for burrowing owl. Focused surveys for the burrowing owl following accepted protocol (CDFG 1995 Staff Report) were conducted by Ecological Sciences, Inc. in December 2004. No burrowing owls were found within the proposed linear facility alignments or basin footprints or appropriate buffers. Two individual burrowing owls were observed within 100 meters (+/- 300 feet) of the proposed alignment of Romoland MDP Line B. However, a major freeway, Interstate 215 passes between the location of the owl sighting and the proposed channel alignment.

**Table III-3-1, Special-Status Wildlife
Species with the Potential to Occur Onsite**

Common Name	Scientific Name	Status	Occurrence Potential
White-faced ibis	<i>Plegadis chihi</i>	FSC, CSC	Moderate
White-tailed kite	<i>Elanus leucurus</i>	MNBMC, CFP	High
Northern harrier	<i>Circus cyaneus</i>	CSC	High
Swainson's hawk	<i>Buteo swainsoni</i>	CT	Moderate-High
Ferruginous hawk	<i>Buteo regalis</i>	FSC, MNBMC, CSC	High
Golden eagle	<i>Aquila chrysaetos</i>	CSC, CFP	Moderate-High
Cooper's hawk	<i>Accipiter cooperii</i>	CSC	Present
Sharp-shinned hawk	<i>Accipiter striatus</i>	CSC	Moderate
Prairie falcon	<i>Falco mexicanus</i>	CSC	Moderate-High
Burrowing owl	<i>Athene cunicularia</i>	FSC, MNBMC, CSC	High
Long-eared owl	<i>Asio otus</i>	CSC	Low-Moderate
Merlin	<i>Falco columbarius</i>	CSC	High
Mountain plover	<i>Charadrius montanus</i>	PT, CSC	Low-Moderate
California horned lark	<i>Eremophila alpestris actia</i>	CSC	High
Loggerhead shrike	<i>Lanius ludovicianus</i>	CSC	High
San Diego black-tailed jackrabbit	<i>Lepus californicus bennettii</i>	CSC	High
Stephens' kangaroo rat	<i>Dipodomys stephensi</i>	FE, CE	High

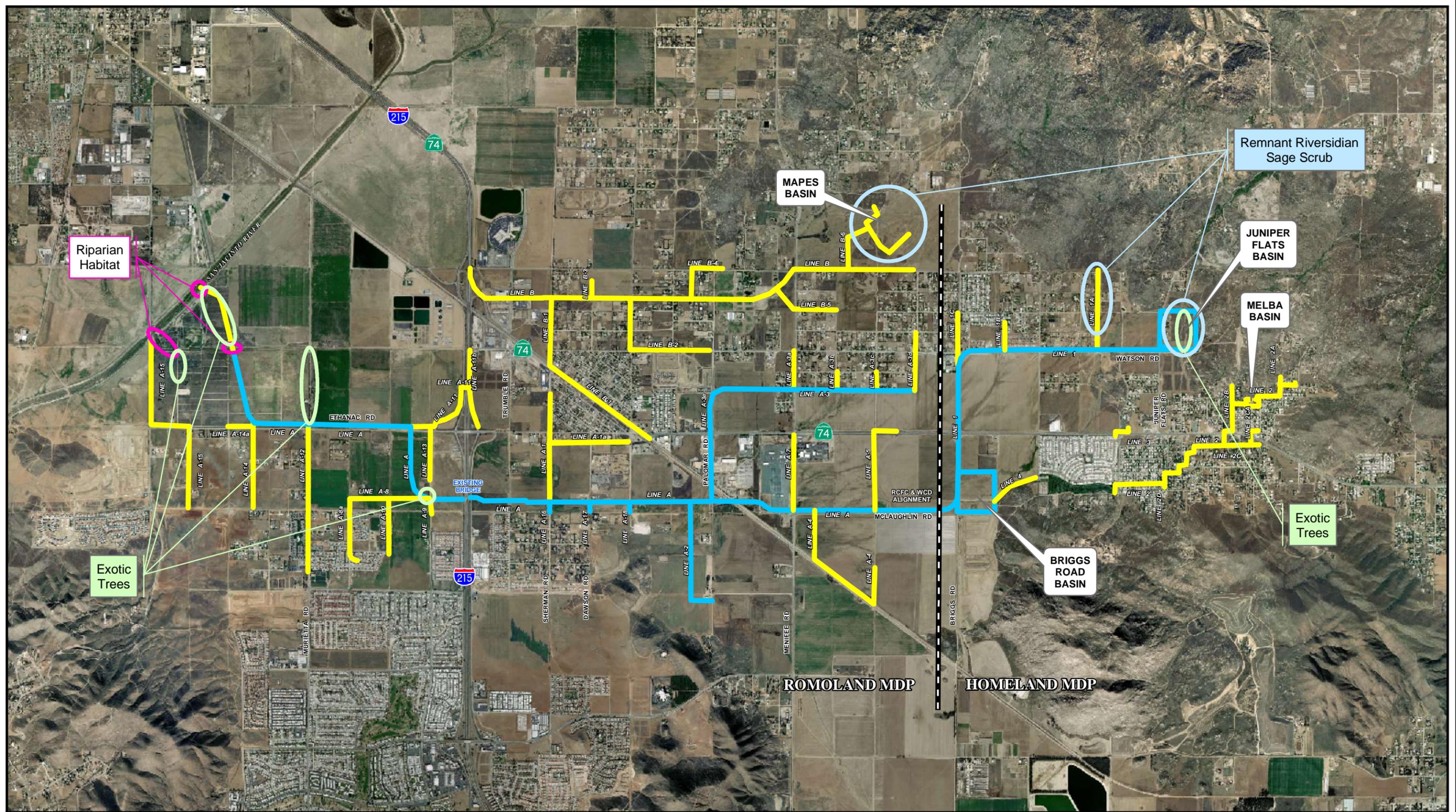
FE = Federally Endangered, FSC = Federal Species of Concern (not formally protected under law), FPT = Federally Proposed Threatened, CE = State Endangered, CT = California Threatened, CSC = California species of Special Concern, CFP = California Fully Protected, MNBMC = Migratory Nongame Birds of Management Concern (not shown for federally listed or proposed threatened or endangered species)

A complete list of all potentially occurring special-status plant and animal species is included in the biological reports contained within Appendix C.

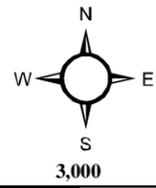
Jurisdictional Resources

Drainages, streambeds, wetlands and creeks considered “waters of the U.S.” fall under the jurisdiction of the U.S. Army Corps of Engineers (ACOE). Under Section 404 of the Federal Clean Water Act, the ACOE regulates fill or dredged material discharged into “waters of the United States,” including wetlands. Waters of the U.S., as defined by the ordinary high water mark, typically include streams, rivers, lakes, and tributaries thereof. However isolated waters are usually not regulated under Section 404. Drainages, streambeds, creeks and associated riparian vegetation fall under the jurisdiction of the California Department of Fish and Game (CDFG). Under Section 1602 of the Fish and Game Code, the CDFG is authorized to issue conditions for substantial impacts to fish and wildlife resources. The Regional Water Quality Control Board (RWQCB) regulates Waters of the United States through Section 401 of the federal Clean Water Act. The RWQCB can also regulate the discharge of waste to waters of the State through the State's Porter-Cologne Water Quality Control Act.

Potential jurisdictional resources located in the project area include the San Jacinto River and tributary drainages to it in the western portion of the project area. There are drainage features in the vicinity of the proposed Juniper Flats, Briggs Road and Mapes basins, in the eastern portion of the project area. However most of the watershed upstream of the San Jacinto River is likely isolated, since there is not an apparent tributary watercourse connecting the upper watershed to the San Jacinto River. A written jurisdictional determination is required from the ACOE as to whether or not these features are regulated under Section 404. Refer to Figure III-3-C, Potential Jurisdictional Areas Schematic for the locations of drainage features potentially under the jurisdiction of the resource agencies. Any required permits will be obtained prior to construction of the proposed drainage facilities.



Source: AirPhoto USA
February 2004



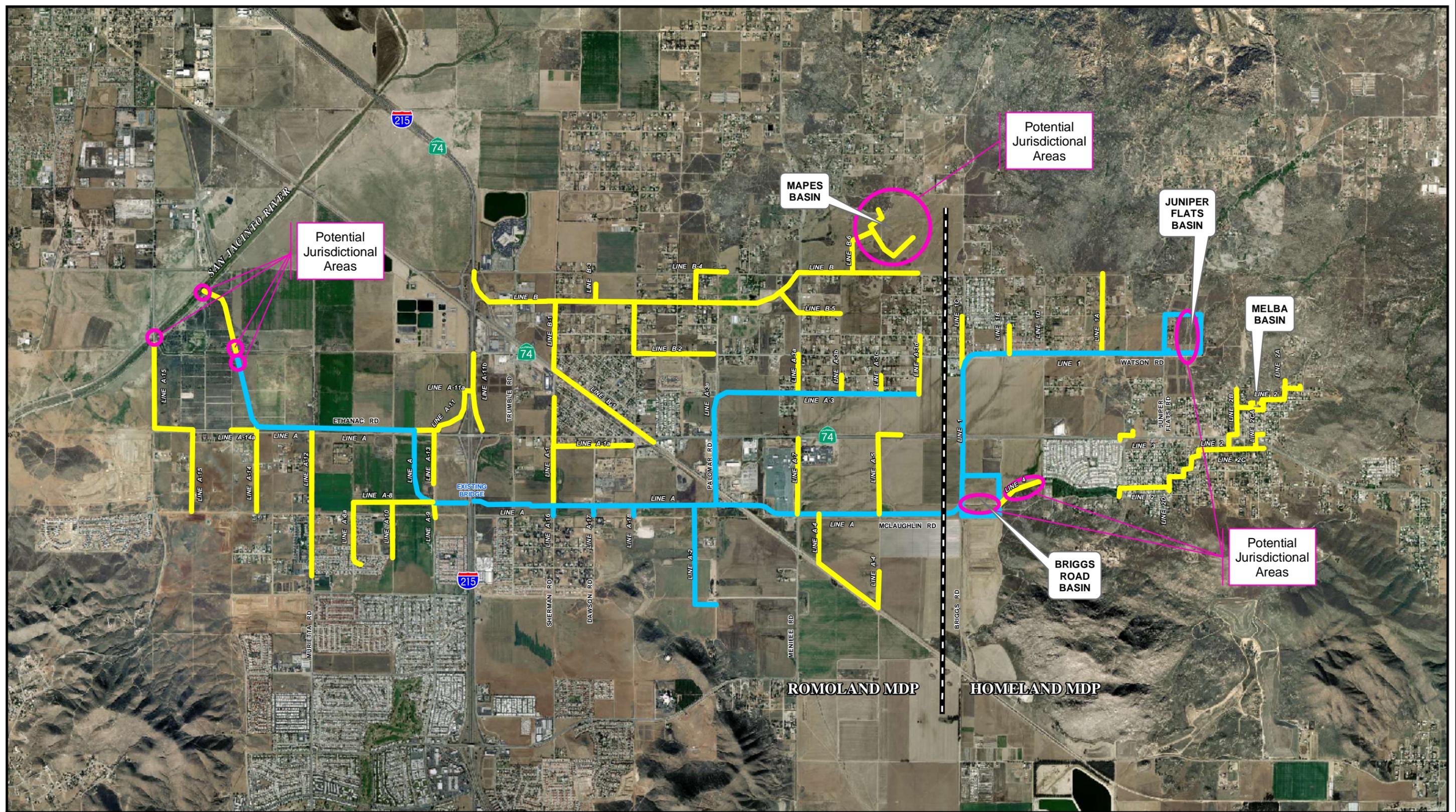
0 3,000 6,000
Feet

LEGEND

- PROPOSED PHASE I FACILITIES
- MASTER PLANNED FUTURE FACILITIES

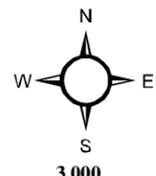
Figure III-3-A

Vegetation Schematic



Source: AirPhoto USA
February 2004

ALBERT A.
WEBB
ASSOCIATES
ENGINEERING CONSULTANTS



0 3,000 6,000
Feet

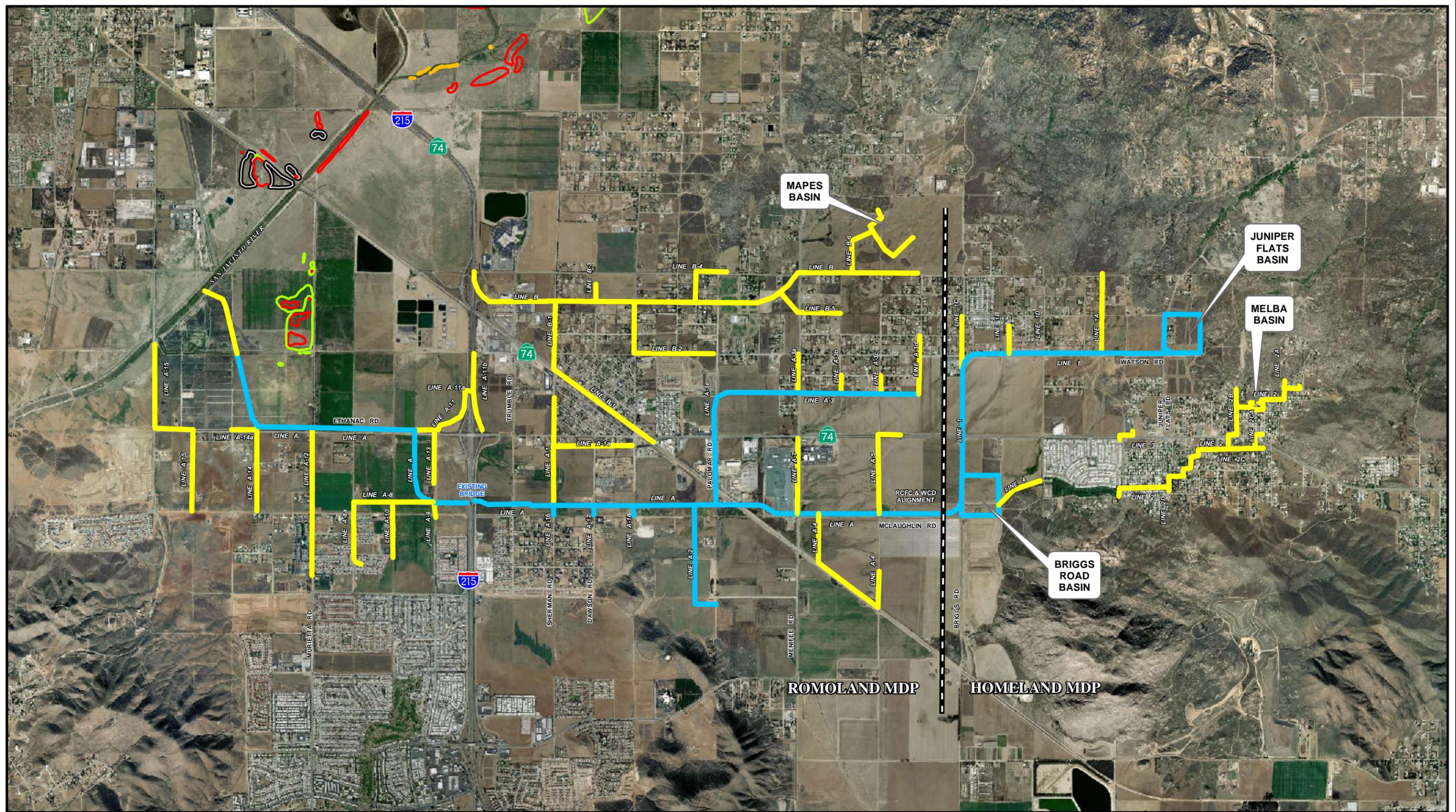
LEGEND

- PROPOSED PHASE I FACILITIES
- MASTER PLANNED FUTURE FACILITIES

Figure III-3-C

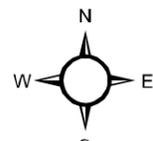
Potential Jurisdictional Areas Schematic

Romoland / Homeland MDP/ADP



Source: AirPhoto USA
February 2004

ALBERT A.
WEBB
ASSOCIATES
ENGINEERING CONSULTANTS



0 3,000 6,000
Feet

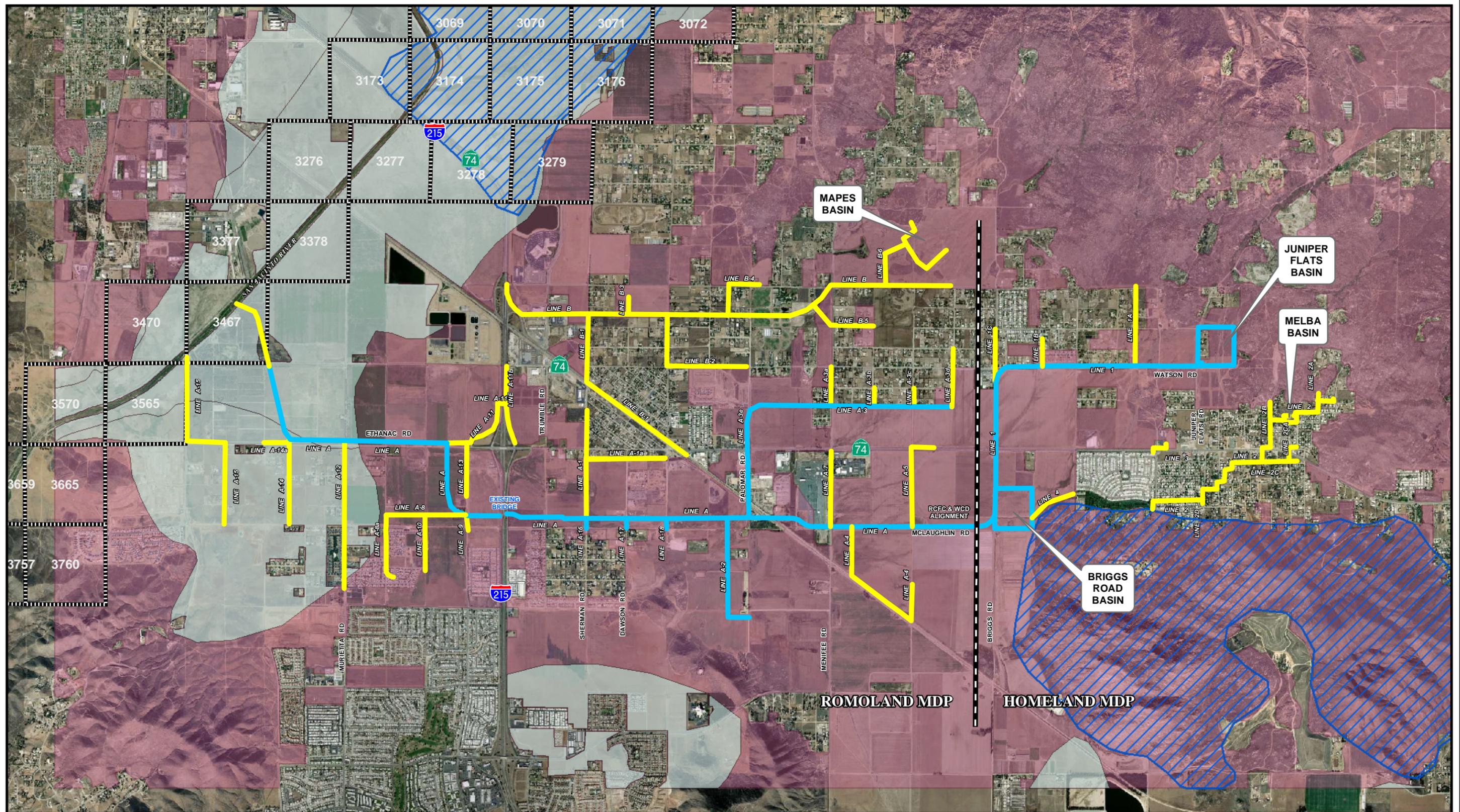
LEGEND

- PROPOSED LINE A / LINE 1 SYSTEM
- MASTER PLANNED FUTURE FACILITIES
- SAN JACINTO VALLEY CROWNSCALE
- THREAD-LEAVED BRODIA
- SMOOTH TARPLANT
- SPREADING NAVARRETIA

Figure III-3-B

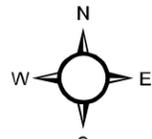
Special Status Plants

Romoland / Homeland MDP/ADP



Source: Riverside County, AirPhoto USA (February 2004)

ALBERT A. WEBB ASSOCIATES ENGINEERING CONSULTANTS



0 3,000 6,000 Feet

LEGEND

- PROPOSED PHASE I FACILITIES
- MASTER PLANNED FUTURE FACILITIES
- MSHCP CRITERIA CELLS
- LA POCKET MOUSE SURVEY AREA
- BURROWING OWL SURVEY AREA
- NARROW ENDEMIC SURVEY AREA

Figure III-3-D

MSHCP Survey Areas and Criteria Cells

Romoland / Homeland MDP/ADP

Criteria for Determining Significance

Impacts on biological resources may be considered potentially significant if the proposed project would:

- Adversely effect, either directly or indirectly through habitat modifications, any species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Adversely effect any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service or federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

Project Compliance with Existing Regulations

Federal Endangered Species Act

Under the Federal Endangered Species Act (ESA) (16 U.S.C.1531, et seq.), “take” of a Federally listed Endangered or Threatened species requires incidental take permits or authorization through the Section 7 consultation process. The proposed project however, is not expected to require such authorizations as it is not expected to result in “take” of a listed species. The proposed project will avoid known occurrences of listed plants and habitat for listed wildlife species.

California Endangered Species Act

California Endangered Species Act (Fish and Game Code 2050, et seq.) (CESA) establishes that it is the policy of the State to conserve, protect, restore, and enhance Threatened or Endangered species and their habitats. CESA mandates that State agencies should not approve projects which would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. CESA requires State lead agencies to consult with the Department of Fish and Game (CDFG) during the CEQA process to avoid jeopardy to threatened or endangered species. CESA prohibits any person from taking or attempting to take a species listed as endangered or threatened (Fish and Game Code Section 2080). Section 2080 provides the permitting structure for CESA. The “take” of a State listed Endangered or Threatened species or Candidate species requires incidental take permits as authorized by the CDFG. The proposed project however, is not expected to require such authorizations as it is not expected to result in “take” of a listed species. The proposed project will avoid known occurrences of listed plants and habitat for listed wildlife species.

Federal Migratory Bird Treaty Act

The Federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code Sections 3503, 3503.5, and 3800 prohibit the take, possession, or destruction of any birds, their nests or eggs. Limited native habitat communities are present and the site is located in a predominately agricultural environment. However, certain common and special-status bird species, especially

raptors, may utilize portions of the project area for breeding and/or seasonal foraging. The proposed project will be required to comply with the MTBA and California Fish and Game Code, which prohibits the take of migratory and native bird species that may utilize the site.

Western Riverside County Multiple Species Habitat Conservation Plan

The Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) is a comprehensive, multi-jurisdictional Habitat Conservation Plan (HCP) focusing on conservation of 146 species and their associated habitats in Western Riverside County. The MSHCP will enhance and maintain biological diversity and ecosystem processes while allowing future growth. The MSHCP serves as a HCP pursuant to Section 10(a)(1)(B) of the federal Endangered Species Act of 1973, as amended, as well as a Natural Communities Conservation Plan (NCCP) under the NCCP Act of 2001. The MSHCP will result in an MSHCP Conservation Area in excess of 500,000 acres. On June 17, 2003 the Riverside County Board of Supervisors approved the MSHCP, certified the EIR/EIS for the Plan, and authorized the Chairman to sign the Implementing Agreement. The District, a signatory to the Implementing Agreement (IA), is required to comply with all applicable policies and requirements of the MSHCP.

The proposed project area is located within the boundaries of the western Riverside County MSHCP. As outlined in Section 6.1.6 Mitigation Responsibilities, the District has the following obligations under the MSHCP and the Implementing Agreement (IA):

- *Adopt and maintain resolutions as necessary to implement the requirements and to fulfill the purposes of the Permits, the MSHCP and the IA for its Covered Activities. Such requirements include: (1) compliance with the policies of the Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools as set forth in Section 6.1.2 of this document; (2) compliance with the policies of the protection of Narrow Endemic Plant Species as set forth in Section 6.1.3 of this document; (3) conduct surveys as set forth in 6.3.2 of this document; (4) compliance with all requirements of Section 7.3.7 of this document; (5) compliance with Urban/Wildlands Interface Guidelines as set forth in Section 6.1.4 of this document; (6) compliance with the Best Management Practices and the siting requirements and design criteria as set forth in Section 7.0 and Appendix C of this document [MSHCP].*
- *Contribute mitigation through payment of three (3) percent of total capital costs for a Covered Activity. Such payment may be offset through acquisition of replacement Habitat or creation of new Habitat for the benefit of Covered Species, as appropriate. Such mitigation shall be implemented prior to impacts to Covered Species and their Habitats.*
- *Manage land owned or leased within the MSHCP Conservation Area that has been set aside for Conservation purposes pursuant to a management agreement to be executed between the District and the California Department of Fish and Game (CDFG).*
- *Carry out all other applicable requirements of the MSHCP, the IA and Permits. Notwithstanding the foregoing, nothing in the IA shall be construed to require the District to provide funding, or any other form of compensation, beyond the fees collected or dedicated lands required pursuant to the Permits, the IA and the MSHCP, consistent with the terms and conditions of the MSHCP.*

- *Participate as a member of the RMOC as set forth in Section 6.6.4 of this document.*

A MSHCP Compliance Report was prepared by Albert A. Webb Associates to address the consistency of the Homeland and Romoland Master Drainage Plans with the provisions of the western Riverside County MSHCP. The report is contained in its entirety in Appendix C. The following is a summary of the conclusions contained in the MSHCP Compliance Report.

Section 6.1.2

The proposed facility alignments of the Homeland and Romoland MDPs are expected to avoid riparian/riverine areas, as defined in section 6.1.2 of the MSHCP. The proposed facility alignments do not contain vernal pools or suitable habitat for least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, Riverside fairy shrimp, Santa Rosa Plateau fairy shrimp, or vernal pool fairy shrimp. Because the project will avoid areas subject to this section of the MSHCP, a Determination of Biologically Equivalent or Superior Preservation is not required pursuant to the MSHCP. The proposed project satisfies the Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools requirements of the MSHCP.

Section 6.1.3

The Homeland and Romoland MDP project does not impact any known Narrow Endemic Plant Species populations. Proposed linear facilities, Romoland MDP Line A, and future facilities Romoland MDP Lines A-15, A-15a, A-14, A-14a and A-12 are partially or entirely located within the Narrow Endemic Plant Species Survey Area. Habitat assessments were conducted for these facility alignments to meet CEQA and MSHCP requirements. A focused survey was conducted in the proposed alignment of Line A in June 2004. No sensitive plant species, including narrow endemics, were found in the Line A alignment. Therefore, no additional plant surveys or conservation measures are required for Line A. It was determined from the habitat assessment conducted for Lines A-15, A-15a, A-14, A-14a, and A-12 that suitable habitat for narrow endemic plant species does not occur within these master planned facility alignments. Therefore, no additional surveys or conservation measures are required. The Homeland and Romoland MDP project satisfies the Protection of Narrow Endemic Plant Species requirements of the MSHCP.

Section 6.3.2

The proposed MDP facilities, to a large extent are within the Burrowing Owl Survey Area. Thus a habitat assessment and focused wintering survey were conducted for the proposed facilities. Because burrowing owls were not observed within the facilities alignments and the facilities alignments do not provide habitat viable for the long-term conservation of the species, additional conservation measures are not required pursuant to the MSHCP. To avoid impacts to any active nests, pre-construction surveys will be conducted in areas supporting suitable burrowing owl habitat. The proposed project satisfies all the plant, mammal, amphibian, and bird Additional Survey Needs and Procedures requirements of the MSHCP.

Section 6.6.2

Section 6.6.2 of the MSHCP requires Joint Project Review by the RCA prior to the construction of facilities located within Criteria Cells. The lower reaches of proposed Romoland MDP Lines A and A-15 are located within Criteria Cells #3467 and #3470, respectively. The lower reach of Line A and the entire line A-15 are future facilities and will not be constructed at this time. The construction of Phase I will not include any construction of Line A within the Criteria Area. Likewise, initial construction will not include construction of Line A-15 in the Criteria Area. Although Lines A and A-15 will not adversely affect the conservation efforts outlined for Criteria Cells #3467 and #3470, the detailed design phase could result in changes from what is shown in the MDP. Thus, the actual construction of these facilities could change and a final assessment of the potential impacts within Criteria Cells is not feasible at this time due to the numerous unknowns. The District will submit an application for initial project review to the RCA during the design phase of any future MDP facility within the Criteria Area.

Section 6.1.4

Master drainage plans are different from typical industrial, commercial, and residential development projects, since the project consists solely of proposed drainage facilities. Therefore, this project will not create the same type of impacts to wildland areas related to traffic, noise, landscaping, introduction of people, chemicals and pets within proximity to a wildland area. The Homeland and Romoland MDP project will not conflict with the Guidelines Pertaining to The Urban/Wildlands Interface, including Drainage, Noise, Invasives, Toxics, Barriers Lighting and Grading/Land Development.

Section 7.0 Design Criteria and Appendix C BMPs

Section 7.5 of the MSHCP sets forth *Guidelines for Facilities Within the Criteria Area and Public/Quasi-Public Lands*. Section 7.5.1 outlines guidelines for planned roadways that are Covered Activities within the Criteria Area and Public/Quasi-Public Lands and Section 7.5.2 outlines design guidelines for roads with the potential to result in impediments to wildlife movement. The guidelines in Sections 7.5.1 and 7.5.2 apply to projects involving the construction of roads and do not apply to the Homeland/Romoland MDP project. Section 7.5.3, however, outlines construction guidelines. Compliance with the construction guidelines outlined in this section of the MSHCP is required when constructing facilities within the Criteria Area or within Public/Quasi-Public Lands. The applicable measures shall be implemented during construction of Romoland MDP Line A and Line A-15 within the Criteria Area along the San Jacinto River. The applicable Appendix C BMPs shall also be implemented during construction.

Stephens' Kangaroo Rat Habitat Conservation Plan

The proposed project is located within the boundary of the adopted Habitat Conservation Plan (HCP) for the endangered Stephens' kangaroo rat (SKR) implemented by the Riverside County Habitat Conservation Agency (RCHCA). The SKR HCP mitigates impacts from development on the SKR by establishing a network of preserves and a system for managing and monitoring them. Through implementation of the SKR HCP, more than \$45 million has been dedicated to the establishment and management of a system of regional preserves designed to ensure the

persistence of SKR in the plan area. This effort has resulted in the permanent conservation of approximately 50% of the SKR occupied habitat remaining in the HCP area. Through direct funding and in-kind contributions, SKR habitat in the regional reserve system is managed to ensure its continuing ability to support the species. The proposed project is located within the SKR HCP area and will be required to comply with applicable provisions of this plan.

Jurisdictional Resources

As outlined above, drainage features that fall under the jurisdiction of the Army Corps of Engineers, the California Regional Water Quality Control Board, and the California Department of Fish and Game may occur in the project area. Where applicable, the proposed project will comply with the Clean Water Act, Sections 404 and 401 and Section 1600, et seq. of the California Fish and Game Code by obtaining any necessary jurisdictional determinations or permits prior to construction.

Design Considerations

The Romoland MDP Lines A and A-15 will outlet into the San Jacinto River channel. However, the outlets of Lines A and A-15, as master planned, would not infringe on the existing riparian vegetation or the ACOE jurisdictional area in the San Jacinto River channel. No other specific design measures have been implemented to avoid or reduce potentially significant impacts to sensitive biological resources. However, most of the proposed facilities are located within existing roads and other disturbed areas that lack significant biological resources.

Environmental Impacts before Mitigation

Threshold: The proposed project would adversely effect, either directly or indirectly through habitat modifications, any species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

The small, isolated patches of RSS, disturbed/ruderal, non-native grasslands, exotic trees and agricultural areas in the project area are considered of a relatively low biological value. This is due to the high level of disturbance that has resulted in low biological diversity, absence of special-status plant communities, and overall low potential for special-status species to utilize or reside within these areas.

Special-Status Plant Species

Areas with moderate to high occurrence potential for special status plants are located in the San Jacinto River floodplain and adjacent areas. These areas generally have more potential to support special-status resources and a higher plant diversity due to local soil types, the periodic presence of water and the potential to pool water following rainfall events.

Several special-status plant species have low to moderate potential for occurrence along or adjacent to the San Jacinto River channel due to the presence of marginal habitat located there. Plant species such as the San Jacinto Valley crownscale, Parish's brittlescale, thread-leaved

brodia, smooth tarplant, mud nama, and vernal barley are closely associated with the San Jacinto River area and /or soil types in the vicinity. As outlined above, a focused survey was conducted by Glenn Lukos Associates in the spring of 2000 which covered the proposed project area near the San Jacinto River. San Jacinto Valley crowscale and smooth tarplant were identified in areas located north and east of Line A and west of the Murrieta Road.

Romoland MDP Lines A, A-15, A-14, and A-12 are partially or entirely located within the MSHCP Narrow Endemic Plant Species Survey Area. Habitat assessments were conducted for these facility alignments. A focused survey was conducted in the proposed alignment of Line A in June 2004. No sensitive plant species, including narrow endemics, were found in the Line A alignment. It was determined from the habitat assessment conducted for Lines A-15, A-14, and A-12 that suitable habitat for sensitive plant species, including narrow endemic plants does not occur within the facility alignments. The proposed project is not expected to directly impact any sensitive plant species.

In addition, the proposed project is not expected to result in indirect impacts to these plant species. Sensitive plant species previously identified near the project area are located within the 100-year floodplain of the San Jacinto River. The proposed project will not alter the San Jacinto River 100-year floodplain and will not significantly alleviate flooding in the project area west of Interstate 215. The proposed project will not alter the floodplain or habitat for these species. Any existing sensitive plant populations will also continue to receive local runoff and rainfall. Thus, the proposed project is not expected to indirectly affect sensitive plant species. Refer to Section III.6 of this document for a more detailed discussion of potential impacts to hydrology.

Special-Status Wildlife Species

Despite the fact that the project site is located in a predominately agricultural and disturbed environment, special-status native species, primarily birds, may occur in less than optimal and/or disturbed conditions, and may forage over agricultural and ruderal habitats present in the project area. The proposed project would impact disturbed habitats potentially suitable for foraging by several species of raptors (e.g., white-tailed kite, northern harrier, ferruginous hawk, burrowing owl). Because most potentially occurring raptor species are very widespread and roam over large areas of foraging territory, these losses would amount to a relatively small, incremental reduction of seasonal foraging habitat and occasional use areas. Potential impacts to disturbed foraging habitats would not constitute significant adverse impacts to any of the affected species locally or regionally.

Several special-status wildlife species are common throughout the region and were determined to have a moderate to high potential to occur. Many of these species are considered to be too widespread and common to warrant listing as threatened or endangered by the U.S. Fish and Wildlife Service (FWS) or CDFG. Potential impacts to these species (e.g., loggerhead shrike, horned lark, prairie falcon, black-tailed jackrabbit) would include a small, temporary loss of breeding and/or seasonal foraging habitat locally, neither of which are considered significant. Individuals present within the project area would be displaced by construction activities. Following construction, many species may continue to forage within the proposed earthen channels and basins. It is also important to note that the adopted MSHCP will provide for the

regional conservation of wildlife species. Given the relative abundance of these species in other areas, the temporary loss of highly disturbed habitats and an undetermined, but expected low number of individuals displaced, the proposed project would not cause a significant adverse impact to wildlife species on a local or regional basis or to the species or their overall range.

Portions of the project area may provide suitable nesting habitat for burrowing owls. Focused surveys for burrowing owl were conducted in December 2004. No burrowing owls were identified within the proposed facility alignments or basin locations. Two individual burrowing owls were observed within 100 meters (+/-300 feet) of the proposed Romoland MDP Line B alignment near the I-215. However, the four lane I-215 freeway and the associated heavy traffic passes between the location of the observed owls and the proposed facility alignment. Project implementation is not expected to result in impacts upon this particular burrowing owl location, its occupied burrows, or its potential foraging habitat. During the focused survey for burrowing owl, numerous potential burrows were observed along proposed facility alignments. Although, the burrows may not currently be occupied during the winter survey season (December 1 to January 31), burrowing owls could potentially begin using them before construction is initiated. Construction activities could adversely impact burrowing owls, if active nests are located near the proposed facilities at the time of construction. Construction noise and activity may indirectly disrupt normal breeding and nesting patterns or activities of these species or occupied burrows could be directly impacted. Mitigation measures are required to ensure that potential burrowing owl impacts remain less than significant. Refer to MM Bio 1.

Stephens' kangaroo rat (SKR) (*Dipodomys stephensi*) has a relatively high potential to occur within the project area. Marginally suitable habitat for the species is present in areas supporting Riversidean Sage Scrub (RSS) and grassland. The proposed project could adversely affect, either directly or through habitat modifications, the Stephens' kangaroo rat which is federally and state listed as endangered. The proposed project is located within the boundary of the Riverside County Habitat Conservation Agency (RCHCA) Habitat Conservation Plan (HCP) for the Stephens' kangaroo rat. The SKR HCP provides an existing mechanism for the long-term regional conservation of the species. Potential impacts to Stephens' kangaroo rat are mitigated on a regional basis through compliance with the adopted and permitted SKR HCP. Potential impacts to Stephens' kangaroo rat are thereby less than significant.

Special-Status Communities/Habitats

Riversidian sage scrub (RSS) is native vegetation community usually associated with hillsides and other upland areas. This vegetation community could provide habitat for sensitive bird and mammal species. As shown in Figure III-3-A, a few patches of remnant RSS are located near the base of the foothills near the proposed Mapes Basin, Juniper Flats Basin, and Line 1A. Portions of these proposed facilities may impact limited areas of RSS. Patches of RSS in the project vicinity are small, isolated, and disturbed and are not likely to provide sufficient acreage to support extensive populations of special-status resources associated with this habitat type. These areas have a high level of disturbance that has resulted in low biological diversity, absence of special-status plant communities, and overall low potential for special-status species to utilize or reside within these areas. The potential loss of small and highly disturbed patches of remnant RSS are not significant.

Within the project area, riparian vegetation occurs within the existing San Jacinto River low-flow channel and limited areas adjacent to the channel. Based on the General Biological Resource Evaluation prepared by Ecological Sciences in 2003, riparian vegetation in the project area is described as riparian woodland/willow scrub and contains tamarisk or salt cedar (*Taxarix aphylla* and *T. ramosissima*) Fremont's cottonwood (*Populus fremonti*), arroyo willow (*Salix lasiolepis*), black willow (*Salix gooddingii*), Mexican elderberry (*Sambucus mexicana*), with an understory of mulefat (*Baccharis salicifolia*), dock (*Rumex* sp.), saltbush (*Atriplex* sp.), and mugwort (*Artemisia douglasiana*).

The riparian vegetation associated with the San Jacinto River channel will likely be avoided by the proposed project. Although the Romoland MDP Line A and Line A-15 will outlet into the San Jacinto River channel, the outlets of Lines A and A-15, as master planned, would not infringe on the existing riparian vegetation in the San Jacinto River channel. Riparian habitat within the San Jacinto River channel in the project area generally follows the low flow channel and does not extend laterally to the existing levees. If constructed in accordance with the Romoland MDP, the Line A-15 outlet will be located in an area that is not currently vegetated. Line A would tie into the existing levee, or following construction of the ultimate San Jacinto River, the improved river channel.

Because the lower reach of Line A and the entire Line A-15 are future facilities, they will not be constructed with the initial Phase 1 facilities or in the near future. The detailed design phase of these future facilities may result in changes to the location and footprint of the outlets. While these facilities are not expected to impact riparian areas, a final determination cannot be made at this time whether the Line A or Line A-15 outlets, if or when constructed, would impact any riparian/riverine areas, and if so, to what extent. When the District actually proposes to construct facilities near the San Jacinto River, a final MSHCP Section 6.1.2 analysis will be completed. As master planned, these facilities would not impact riparian vegetation in the San Jacinto River channel. Refer to MM Bio 2.

Within the project area, riparian vegetation is also associated with the artificial Watson Ditch, a linear feature that is located north of, and runs parallel to, Ethanac Road and extends from Murrieta Road west to the San Jacinto River channel. The future construction of Line A may impact a small portion of the riparian vegetation associated with the Watson Ditch. The potential loss of small and highly disturbed patches of riparian vegetation associated with the Watson Ditch is not expected to be significant.

Two ephemeral washes currently traverse the eastern portion of the project area. One runs north-south within the proposed Homeland MDP Juniper Flats Basin site and one along Line 4 and across the Briggs Road Basin site. Within the project area, these ephemeral washes do not support any riparian habitat and rarely convey storm water.

Based on reconnaissance-level field survey, habitats present, existing site conditions, and pertinent literature and database review, the proposed facility alignments for the Homeland and Romoland MDPs do not contain vernal pools or suitable habitat for the southwestern willow flycatcher, least Bell's vireo, western yellow-billed cuckoo, or fairy shrimp. No features meeting the MSHCP definition of a vernal pool were observed on or near the proposed facility alignments.

Riparian habitat located in the project area is also associated with drainage features that are potentially jurisdictional. See the Jurisdictional Resources section below for a more detailed discussion of potential impacts to the jurisdictional resources in the project area.

Threshold: The proposed project would adversely affect any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service or federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

A Routine Jurisdictional Delineation was conducted for the entire project area to identify potential jurisdictional resources that could be affected by the proposed project. Final Jurisdictional Delineations will be obtained prior to the construction and will be based on the final design of these facilities to determine the extent of impact to jurisdictional waters of the U.S., waters of the state and /or streambeds regulated by the ACOE, RWQCB and CDFG.

Based on the Routine Jurisdictional Delineations prepared in 2003, drainage features located in some of the proposed facilities are potentially jurisdictional, pending regulatory agency verification. Three small areas at or near the San Jacinto River channel in the western project area are potentially jurisdictional. These three drainages are referred to as the San Jacinto River, SJ River Drainage A and SJ River Drainage B for purposes of this project. Additionally, three unnamed potentially jurisdictional drainage features are located in the eastern project area and are referred to as Juniper Flats Basin Drainage, Briggs Road Basin Drainage and Line 4 Drainage due to their location relative to these proposed facilities. An unnamed drainage feature, potentially jurisdictional as well, was identified at the proposed Mapes Basin site. Please refer to Figure III-3-C for locations of these features.

No wetlands were identified within the proposed project alignment; therefore the project would not result in impacts to a jurisdictional wetland. Although drainage features present in the project alignment may qualify as streambeds and waters of the U.S., they do not satisfy the criteria of a wetland pursuant to the 1987 ACOE Wetlands Delineation manual (subject to ACOE approval). As defined by the ACOE, wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support vegetation typically adapted for life in saturated soil conditions. An area is only considered a wetland if all parameters of the “three parameter test” established by the ACOE are present. The three parameters include hydrophytic vegetation, wetland hydrology, and hydric soils.

San Jacinto River

The reach of the San Jacinto River located in the project area is channelized with earthen levees. The river channel is usually dry except during rain events. In this reach, the more frequent flows emanate from the Perris Valley Channel. The channel primarily supports upland vegetation, supporting non-native annuals such as brome grasses and mustard with scattered mule fat and does not support any hydrophytic vegetation. The ACOE has jurisdiction up to the “ordinary high water mark” of the San Jacinto River.

The ultimate Line A and Line A-15 facilities near the San Jacinto River will be incorporated into the separate and unrelated San Jacinto River Improvement Project that includes the proposed lowering and ultimate configuration of the San Jacinto River channel. Due to the uncertainty related to the San Jacinto River Improvement Project, impacts to jurisdictional features resulting from construction of the ultimate Line A and Line A-15 facilities cannot be determined at this point in time. In conjunction with the San Jacinto River Improvement Project, a jurisdictional delineation will be required to determine the extent of potential impacts resulting from construction of the ultimate configuration of Line A and Line A-15. The construction and environmental analysis of the ultimate Line A and Line A-15 facilities near the San Jacinto River will likely be incorporated into the San Jacinto River Improvement Project. MM Bio 3-4 under Proposed Mitigation Measures below addresses how potential impacts related to the construction of Line A and Line A-15 will be mitigated. Additional mitigation is required to ensure that these facilities would not significantly and adversely affect any riparian/riverine habitat or other sensitive natural community. See MM Bio 3-4 under Proposed Mitigation Measures below.

The anticipated California Department of Fish and Game's (CDFG) jurisdiction of the San Jacinto River is expected to include any riparian vegetation within or adjacent to the channel. For this project, there is no adjacent riparian vegetation at this point of the river and therefore the CDFG jurisdiction should only be associated with riparian areas within the existing levees. Again, the Line A and Line A-15 ultimate outlets would be constructed with the future San Jacinto River project. Other potential construction phases are not expected to impact jurisdictional areas located in the San Jacinto River.

SJ River Drainage A

Line A west of Interstate 215 will consist of interim and ultimate facilities. The construction of Phase I facilities will not affect SJ River Drainage A. The ultimate Line A alignment crosses a man-made drainage ditch (also known as the Watson Ditch) that runs in an east-west direction and is likely tributary to, or drains into, the San Jacinto River channel. Dominant plant species in the ditch at the area of impact consists of heliotrope (*Heliotrope curassavicum*) and tamarisk (*Tamarix* sp.). The soils associated with this drainage ditch have high clay content and mud cracks, which is evidence of water pooling in the area. Based on the 2003 Routine Jurisdictional Delineation this tributary drainage would likely be considered "waters of the United States" due to the connection of Drainage A to the San Jacinto River. The potential ACOE jurisdiction is approximately 0.34 acre at the location where Line A intersects Drainage A. Drainage A does not meet the ACOE definition of a "wetland." Drainage A also contains riparian vegetation that qualifies as a CDFG jurisdictional area. Approximately 0.45 acre of CDFG jurisdictional area at Drainage A that would be affected by the project. Since Line A must connect to the existing San Jacinto River levee to provide adequate drainage, it is not feasible to avoid this drainage ditch. The proposed mitigation measures provided below will ensure that potential adverse impacts remain less than significant.

SJ River Drainage B

Approximately 25 feet west of Drainage A, the man-made drainage ditch, is another small man-made drainage ditch (Drainage B). The construction of Phase I facilities will not affect SJ River Drainage B. The vegetation in this drainage ditch is classified as mule fat scrub. The channel width is between 1 and 3 feet. Based on the 2003 Routine Jurisdictional Delineation the area that would be affected by the ultimate Line A facility under potential ACOE jurisdiction was estimated to be 0.01 acre. This site also fails to meet the ACOE "wetland" definition. CDFG also has jurisdiction at Drainage B. The area of impact for Drainage B under CDFG jurisdiction is the same as ACOE, approximately 0.01 acre. Since the ultimate Line A must connect to the existing San Jacinto River levee to provide adequate drainage, it is not feasible to avoid this drainage ditch. The proposed mitigation measures provided below will ensure that potential adverse impacts remain less than significant.

Juniper Flats Basin Drainage

A fairly narrow and highly degraded unnamed drainage course traverses the proposed Juniper Flats basin location from north to south. The ephemeral drainage is deeply incised and defined with riparian habitat upstream of the project site where it exits the hills and crosses Juniper Flat Road (see Figure III-3-C). As the drainage extends south across the alluvial plain in the project vicinity it loses definition and becomes very shallow. Downstream of the basin site, this drainage feature loses definition before reaching Highway 74. Vegetation in this feature at the proposed basin site is generally sparse and includes annual bur-sage (*Ambrosia acanthicarpa*), and California croton (*Croton californica*). Plants in the adjacent upland area include foxtail chess (*Bromus madritensis* spp. *rubens*), mustards (*Brassica* spp.), doveweed (*Eremocarpus setigerus*), giant cane (*Arundo donax*), California buckwheat, and popcorn flower (*Cryptantha* ssp.) Based on the 2003 Routine Jurisdictional Delineation the total potential jurisdictional area located in Juniper Flats Basin that would be affected by the project is 0.58 acre. However, this drainage course is likely isolated and therefore not expected to be regulated by the ACOE under Section 404.

Line 4 Drainage

An ephemeral drainage course along proposed Homeland MDP Line 4 is deeply incised and degraded by illegal dumping. The channel bottom is eroded and free of vegetation. Low terraces and banks support a combination of upland and dry-end wetland shrubs and grasses including mustard, telegraph weed (*Heterotheca grandiflora*), horseweed (*Conyza canadensis*), bur-sage, California broom (*Lotus scoparius*) and patches of mule fat (*Baccharis salicifolia*). Based on the 2003 Routine Jurisdictional Delineation a total of 0.8 acre of potential ACOE jurisdictional waters of the U.S. and 0.95 acre of CDFG streambed area are present within the proposed Line 4 alignment. This drainage course is likely isolated as well and is not expected to be regulated by the ACOE under Section 404 of the Clean Water Act.

Briggs Road Basin Drainage

The ephemeral drainage course along Line 4, described above, continues westward and transverses the proposed Briggs Road basin site from east to west. A continuous watercourse is not apparent downstream of the proposed basin site. Past agricultural activities, illegal dumping and off-road vehicle use have degraded the habitat quality of this drainage feature and adjacent areas. Vegetation on the banks comprises upland plants such as mustards, annual bur-sage, sunflowers (*Helianthus* sp.), horseweed, scattered mule fat, tamarisk and annual grasses. Based on the 2003 Routine Jurisdictional Delineation, the area that would be affected by the project potentially under ACOE jurisdiction is approximately 0.19 acre. The area to be affected by the project under CDFG jurisdiction is 0.39 acre. This drainage course is likely isolated as well and is not expected to be regulated by the ACOE under Section 404 of the Clean Water Act.

Mapes Basin

The proposed Mapes Basin area within the Romoland MDP is characterized by low rolling topography with adjacent foothills. Most of the area has been disced and/or farmed. Shallow swales occur within the proposed basin site. Although beds and banks were obscured by discing, evidence of flows were observed in discrete drainage features. Based on the 2003 Routine Jurisdictional Delineation, ephemeral drainages range from 2–4 feet wide and less than 6 inches in depth. The swale drainage features in the proposed Mapes Basin site are potentially jurisdictional. These drainage features are likely isolated due to their lack of connectivity to the San Jacinto River, or any other water of the U.S., and are not expected to be regulated by the ACOE under Section 404 of the Clean Water Act.

The site conditions, drainage feature location and dimensions, may change prior to the construction of this future facility. For this reason, a final jurisdictional delineation will be required to confirm the extent of potential impacts to waters of the U.S. and streambeds prior to construction of this future facility. See MM Bio 3 under Proposed Mitigation Measures below.

Impacts to jurisdictional resources are regulated by the ACOE, CDFG, and the Regional Water Quality Control Board (RWQCB). Permits from the ACOE, CDFG, and RWQCB will be required prior to construction for activities conducted within jurisdictional areas. Mitigation for permanent and temporary impacts is normally required by these agencies as a permit condition.

Mitigation measures will be implemented to reduce potentially significant impacts to jurisdictional drainage features to less than significant levels. Impacts to these features would result from construction and maintenance activities. Direct impacts would likely include removal of vegetation and alteration of the streambed or channel to construct the proposed flood control facilities. Permanent impacts to these features from the project would result from the conversion of the area within the facility alignment from the current condition to permanent flood control facilities. These permanent conversions may reduce or eliminate the stream functions and values of these features which may include some limited functions such as water quality, groundwater recharge, and/or wildlife habitat. Overall, many of these existing drainage features have low functional value due to past disturbance and many functions will continue to be performed in the proposed earthen channels and basins. As discussed, the jurisdictional areas associated with the San Jacinto River channel are expected to be avoided.

The proposed project has the potential to result in indirect impacts to the San Jacinto River, and the biological resources that it may support, by changes to existing hydrologic conditions in the area and concentration and conveyance of storm water pollutants. Although the proposed facilities are planned to emulate, or follow, the historic and natural drainage of the area, from the Lakeview and Double Butte Mountains towards the San Jacinto River channel, they have the potential to alter the existing drainage pattern by diverting, redirecting and concentrating storm flows. The proposed project, through design and implementation of proposed mitigation measures, is not expected to result in significant impacts related to siltation, erosion, flooding or discharges of pollutants. The proposed earthen channels and detention basins may provide some downstream water quality benefits. For a more detailed discussion of potential indirect impacts to hydrology and water quality from the proposed project, please see Section III.6.

Proposed Mitigation Measures

An Environmental Impact Report is required to describe feasible mitigation measures which could minimize significant adverse impacts (CEQA Guidelines, Section 15126.4). Mitigation measures were evaluated for their ability to eliminate the potential significant adverse impacts to special-status species and their habitat, as well as impacts to jurisdictional features, to below the level of significance.

MM Bio 1: Pre-construction presence/absence surveys for burrowing owl within the MSHCP Burrowing Owl Survey Area where suitable habitat is present shall be conducted. (These areas are identified in the MSHCP Compliance Report contained in Appendix C of this document.) Surveys shall be conducted utilizing approved protocols. Surveys shall be conducted within 30 days prior to disturbance. Take of active nests shall be avoided. If burrowing owls cannot be avoided, active or passive relocation (use of one way doors and collapse of burrows) shall occur outside the burrowing owl nesting season (February 1st to August 31st). Construction of replacement burrowing owl burrows within the proposed detention basins shall be considered.

MM Bio 2: A final MSHCP Section 6.1.2 riparian/riverine analysis will be completed prior to the construction of the Line A and Line A-15 outlets near the San Jacinto River channel.

MM Bio 3: Final jurisdictional delineations shall be obtained prior to construction of Line A, Line A-15 near the San Jacinto River, Briggs Road Basin, Line 4, Juniper Flats Basin and Mapes Basin to determine the extent of impact to jurisdictional waters of the U.S., waters of the State and/or streambeds regulated by the ACOE, RWQCB and CDFG. Applicable permits shall be obtained prior to construction if jurisdictional resources will be impacted.

MM Bio 4: Romoland MDP Lines A and A-15 shall be designed to avoid or reduce impacts to Riparian Habitat areas shown on Figure III-3-A to the maximum extent feasible. Any applicable permits from the ACOE, RWQCB, and CDFG shall be obtained prior to disturbing any riparian vegetation. Proof of compliance with Section 6.1.2 of the MSHCP shall be demonstrated prior to disturbing any riparian vegetation that meets the criteria of Section 6.1.2. In accordance with Section 13.4.B of the MSHCP Implementation Agreement, the District shall contribute mitigation through payment of 3% of total capital costs. Such payment may be offset through

acquisition of replacement habitat or creation of new habitat. This mitigation must be implemented prior to impacts to Covered Species or their habitat.

Summary of Environmental Effects after Mitigation Measures are Implemented

Based on the biological resource evaluations (Appendix C), compliance with the MSHCP, and after the mitigation measures identified above are implemented, potential adverse impacts associated with special-status species, both plant and wildlife, as well as special-status communities/habitats will be reduced to a less than significant level.

Since permits from ACOE, CDFG and RWQCB will be obtained for impacts to jurisdictional areas and those permits will likely include mitigation measures like those included in this document, then impacts to jurisdictional features are less than significant.

4. Cultural Resources

The proposed project was found to have no impact on human remains in the NOP prepared for this project (Appendix A). The focus of the following discussion is related to historic resources, archaeological resources, and paleontological resources as well as the project's potential to alter those resources through construction and operation. The following discussion is a summary of the Historical/Archeological Resources Survey Report prepared for the proposed project by CRM TECH in August 2003. This report is contained in its entirety as Appendix E of this document.

Setting

Ethnohistoric Context

The Perris and San Jacinto Valleys are Luiseño Indian territory. The Luiseño Indians are a Takic-speaking people whose territory extended from present-day Riverside to Escondido and Oceanside. At this time there are not enough archaeological data to fine tune the chronology of prehistoric cultural history of inland southern California. However the following is a basic timeline for the area:

11,000 – 8,000 years ago	Pleistocene/Early Holocene (Early Man) Period
8,000 – 5,500 years ago	San Dieguito Period
5,500 – 1,500 years ago	Millingstone/La Jolla-Pauma/Archaic/Encinitas Period
1,500 – 300 years ago	Late Prehistoric/Luiseño Period

The more recent Native American history in California, starting with the first European contact, as determined by anthropologists and historians is as follows:

1500s–1770s	Long-distance contact with Europeans
1770s–1830s	Mission Period
1830s–1850s	Rancho Period
1850s–1880s	American Migration to California
1880s–Present	Reservation Period

Cultural Resources Known in the Project Vicinity

No archaeological sites or other potential historical resources were identified within the project boundaries. Within a one-mile radius of the project area, over 50 cultural resources studies have been conducted by others on various tracts of land and linear features. Resources identified in these studies and reported to the Eastern Information Center (EIC) at the University of California, Riverside include a total of 39 archaeological sites, 7 historic-era buildings, and 8 isolated finds. Of these sites, 25 were prehistoric in nature and consisted of bedrock milling features, rock cairns, rock shelters, lithic scatters, midden, and groundstone implements. Nine of these sites were historic era and included trash scatters, foundations, and a stockyard. Five sites included prehistoric and historic-era components and included bedrock milling features, a lithic

scatter, and historic-period refuse scatters. Historic-era buildings included single-family residences dating from the late 1910s to 1940.

Criteria for Determining Significance

California Environmental Quality Act (CEQA). Sections 21083.2 and 21084.1 of CEQA address historical resources, unique archeological resources, and nonunique archaeological resources. Section 21083.2 directs the lead agency to determine whether the project may have a significant effect on unique archaeological resources. If the lead agency determines that the project may have a significant effect on unique archaeological resources, the environmental impact report shall address the issue of those resources. Section 21084.1 directs the lead agency to determine whether the project may have a significant effect on historical resources, irrespective of the fact that these historical resources may not be listed or determined to be eligible for listing in the California Register of Historic Resources, a local register of historical resources, or they are not deemed significant pursuant to criteria set forth in subdivision (g) of Section 5024.1.

Impacts on cultural resources may be considered significant if the proposed project would:

- Cause a substantial adverse change in the significance of a historical resource as defined in California Code of Regulations, Section 15064.5.
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to California Code of Regulations, Section 15064.5.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Project Compliance with Existing Regulations

The National Historic Preservation Act Standards and Guidelines for Section 106 Consultation (NHPA)

Section 106 of the NHPA requires a Federal Agency with jurisdiction over a federal, federally assisted, or federally licensed undertaking to take into account the effects of the agency's undertaking on properties included in, or eligible, for the National Register of Historic Places (NRHP) and, prior to approval of an undertaking, to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on the undertaking. ACHP accommodates preservation through consultation among the Agency Official, the State Historic Preservation Officer, and other interested persons during the early stages of planning. To this end, the Council encourages agencies to examine their administrative processes to see that they provide adequately for the efficient identification and consideration of historic properties, for participation by the State Historic Preservation Officer and others interested in historic preservation, for timely requests for Council comment, and for the promotion of cost-effective implementation of the Section 106 process.

NRHP Criteria for Listing

The National Register's standards for evaluating the significance of properties were developed to recognize the accomplishments of all peoples who have made a significant contribution to the country's history and heritage. The criteria are designed to guide state and local government, Federal agencies, and others in evaluating potential entries in the National Register.

Design Considerations

The proposed project has not been designed to specifically avoid potential impacts to historic or archaeological resources within the project site, as none were identified.

Environmental Impacts Before Mitigation

Threshold: The proposed project would cause a substantial adverse change in the significance of an archaeological resource pursuant to California Code of Regulations, Section 15064.5.

The cultural resources field survey for the proposed project determined the project would not affect known cultural resources. The Line A/ Line 1 System (*i.e.*, Phase I) facilities, including the Juniper Flats Basin and the Briggs Road Basin, were closely inspected for any evidence of human activities dating to the prehistoric or historic periods. No archaeological resources are known to be located within these areas. However, prehistoric resources may be accidentally uncovered during project-related excavations. Mitigation measures listed below will reduce potential project impacts to unknown archaeological resources to less than significant levels.

The cultural resources field survey for the proposed project determined the construction of possible future linear facilities (including underground storm drains and open channels), as proposed, would not affect known cultural resources in the area. No archaeological resources are known to be located within the future linear facilities alignments. Therefore, potential impacts to cultural resources are not expected. However, prehistoric resources may be accidentally uncovered during project-related excavations. Mitigation measures listed below will reduce potential project impacts to currently unknown archaeological resources to an insignificant level.

Possible future facilities include two basins referred to as the Mapes Basin and the Melba Basin. These two facilities would be generally located in the northern portion of the project area near Mapes Road and just north of Highway 74, respectively. The Mapes Basin and Melba Basin sites were not surveyed during the cultural resources field survey conducted by CRM Tech. Whether and when the facilities will be constructed is unknown. Prior to construction, it will be necessary to conduct a site-specific cultural resources field survey.

An archaeological site and an isolate were previously recorded approximately 100 feet northeast of Mapes Basin, indicating this area has the potential of containing additional archaeological resources.

Threshold: The proposed project would cause a substantial adverse change in the significance of a historical resource as defined in California Code of Regulations, Section 15064.5.

No potential historical resources (such as historic structures) were previously recorded within the proposed linear facility alignments or proposed basin locations, and none were encountered during the field survey conducted by CRM Tech. Therefore, potential impacts to historical resources are expected to be less than significant.

Threshold: The proposed project would directly or indirectly destroy a unique paleontological resource, or site, or unique geologic feature.

According to the RCIP General Plan Figure OS-8, Paleontological Sensitivity, the proposed project spans areas identified as “High B (Hb),” “Low,” and “Undetermined” sensitivity for paleontological resources. Excavation will be required for construction of the proposed project. Impacts to buried paleontological resources could occur if fossil bearing soils are encountered during construction. A mitigation measure will be incorporated to reduce potential impacts to less than significant levels.

Proposed Mitigation Measures

An EIR is required to describe feasible mitigation measures that could minimize significant adverse impacts (CEQA Guidelines, Section 15126.4). Mitigation measures were evaluated for their ability to eliminate the potential significant adverse impacts upon cultural resources.

MM Cul 1: A cultural resource survey at the Mapes and Melba Basins shall be conducted by the District or designee prior to construction. If significant cultural resources are found, additional actions, such as further study and salvage, in accordance with the recommendations of a professional archeologist shall be completed prior to construction of these basins.

MM Cul 2: Should any unknown cultural and/or archaeological resources be uncovered during construction, construction activities shall be temporarily diverted to other parts of the project area away from the find until a qualified archaeologist determines the significance of these resources. If the find is determined to be an historical or unique archaeological resource, as defined in Section 15064.5 of the CEQA Guidelines, avoidance or other conservation measures as recommended by a qualified archaeologist shall be implemented.

MM Cul 3: If fossil bearing soils are encountered and impacted by extensive/deep excavations and/or fossils are identified during any excavations, a qualified paleontologist shall be contacted and permitted to recover and evaluate the find(s). The paleontologist will be required to place any collected fossils in an accredited scientific institution for the benefit of current and future generations.

MM Cul 4: Although the proposed project is not expected to impact human remains, if human remains are uncovered at any time, the County Coroner shall be notified and all activities in the area of the find shall be halted. If the Coroner determines that the remains are of Native American origin, the Native American Heritage Commission shall be notified and consultation with local Native American representatives shall be initiated to determine the disposition of the remains in accordance with State and County guidelines.

Summary of Environmental Effects After Mitigation Measures are Implemented

With the mitigation measures above implemented, impacts to unknown yet potentially significant archeological and paleontological resources will be reduced to a less than significant level.

5. Hazards and Hazardous Materials

Potential impacts related to hazardous materials including transport, accidents, emissions or handling near a school; airport land use plans; hazardous fire areas and emergency response plans were all found to be less than significant in the NOP prepared for this project (Appendix A).

The focus of the following analysis is related to the potential impacts associated with the list of hazardous materials sites compiled pursuant to Government Code section 65962.5 that could be impacted by the project and therefore result in a significant hazard to the public or the environment. An environmental database search, which covers the lists under Government Code section 65962.5, was completed for the proposed Line A/ Line 1 System by Environmental Data Resources, Inc (EDR) in October 2003 and is included in its entirety in Appendix F. The database search covered the proposed facility locations as well as adjacent areas.

Because the location and size as well as the timing of future stages of construction of the drainage facilities are unknown, an environmental database search was not undertaken for possible future facilities. Prior to construction of such facilities, it will be necessary to conduct a site-specific search.

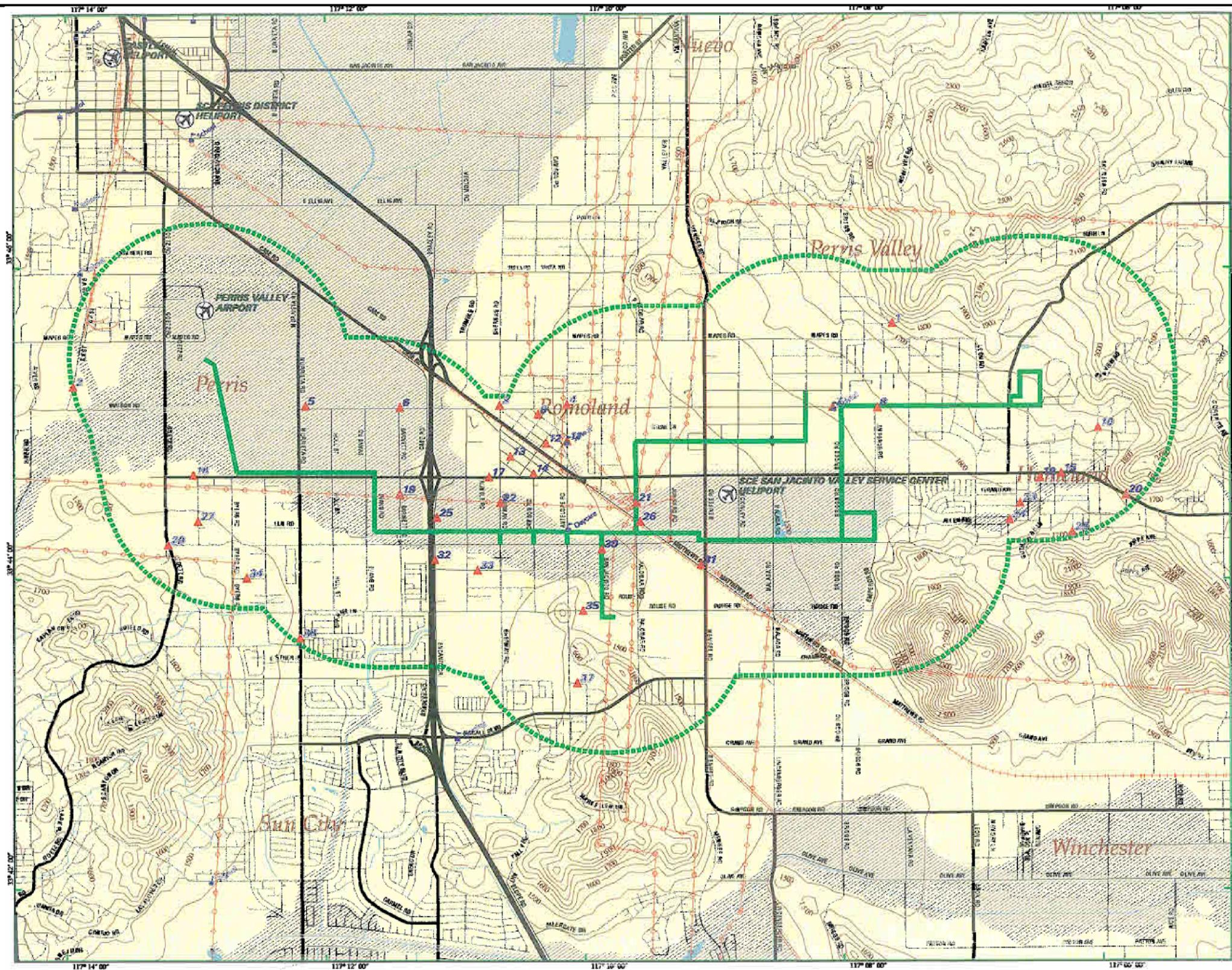
Setting

The project site is located in the unincorporated communities of Homeland and Romoland and in portions of the city of Perris, all within western Riverside County. The following list of databases were searched for hazardous materials sites occurring within the project area. Hazardous materials sites located in the project vicinity include those resulting from illegal drug labs, commercial uses (e.g., gas stations and automotive service stations and photo processing), and agricultural uses (fuel tanks and organic waste).

The databases searched include:

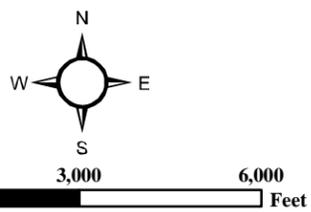
- Hazardous Waste Information System (HWIS) is a database maintained by the California Environmental Protection Agency (Cal EPA) and contains facility and manifest data extracted from copies of hazardous waste manifests received each year by the Department of Toxic Substances Control (DTSC).
- California Hazardous Material Incident Report System (CHMIRS) is a database maintained by the State of California's Office of Emergency Services (OES) and contains information on reported hazardous material incidents (accidental releases or spills).
- Leaking Underground Storage Tank Information System (LUST) is a database maintained by the State Water Resources Control Board (SWRCB) and contains an inventory of leaking underground storage tank incidents.
- Underground Storage Tank Information System (UST) is a database maintained by the SWRCB and contains information on active UST facilities gathered from local regulatory agencies.

- Resource Conservation and Recovery Information System (RCRIS) is a database maintained by the Environmental Protection Agency and contains selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).



LEGEND

- Listed Sites
- Earthquake Epicenters (Richter 5 or greater)
- Search Boundary
- Roads
- Major Roads
- Waterways
- Railroads
- Contour Lines
- Pipelines
- Powerlines
- Fault Lines
- Water
- Superfund Sites
- 100-Yr Flood Zones



Source: EDR, Inc.

ALBERT A.
WEBB
ASSOCIATES
ENGINEERING CONSULTANTS

Figure III-5-A

Hazardous Materials Sites
Along Project Corridor

Romoland / Homeland MDP/ADP

Criteria for Determining Significance

Impacts related to toxic substances may be considered potentially significant if the proposed project would:

- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.

Project Compliance with Existing Regulations

Government Code Section 65962.5 mandates that the DTSC, the State Department of Health Services, the SWRCB, and the local enforcement agency shall compile and update as appropriate lists of hazardous waste facilities, hazardous waste property or border zone property, hazardous waste disposals on public land, sites included in the Abandoned Site Assessment Program, all public drinking water wells that contain detectable levels of organic contaminants, underground storage tanks in which an unauthorized release report is filed, solid waste disposal facilities from which there is a migration of hazardous waste, all cease and desist orders and cleanup or abatement orders issued after 1986 that concern the discharge of hazardous material waste, list of solid waste disposal facilities with known hazardous waste migration. These lists are consolidated and distributed to cities and counties in which sites on the list are located. The intent of CEQA, as outlined in the criteria above, is to disclose if a proposed project is located within one of these listed sites. Please see discussion below for hazardous materials sites, compiled pursuant to Government Code Section 65962.5 that are located within the project area.

Design Considerations

No specific design measures are proposed that would avoid or reduce potentially significant impacts associated with hazardous materials sites that may occur in the project alignment. However, the proposed facilities will be designed to avoid significant hazardous waste sites where feasible during the final design phase.

Environmental Impacts Before Mitigation

Threshold: The proposed project would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.

According to the environmental regulatory database search that was performed by EDR, dated October 30, 2003 (Appendix F), four recorded sites occur along the Line A/ Line 1 System alignment. Information on each site is included in Table III-5-1 below. The location of each site relative to the project alignment is shown on Figure III-5-A. Based on the information provided in the EDR report these sites do not pose a potential significant hazard to the public or environment. Additionally, construction of project facilities near these sites will not result in a hazard to the public or environment.

According to the environmental regulatory database search (Appendix F), the proposed alignment of the Line A/Line 1 System does not pass through a known contaminated site, nor are there significantly contaminated or listed sites within the project vicinity that would create a significant hazard to the public or the environment. Impacts to the Line A/ Line 1 System are considered less than significant.

Table III-5-1, Hazardous Materials Sites Along The Line A/Line 1 System Alignment

Site Address	Site # (Figure III-5-A)	Database List	Description
26625 San Jacinto Road, Homeland	30	CHMIRS	Previously a drug lab raided by police on 10/27/98. Lab waste cleaned up and contained by DTSC
30130 Watson Street, Homeland	8	CHMIRS	Site was also a drug lab that was raided by the police on 5/24/94. The drug lab waste present at the site was cleaned up by County Health.
Ramona Auto Service Inc. at 27526 Highway 74, Orco Block Company at 26380 Palomar Road, and Block Graphics at 28401 Matthews Road, in Romoland	26	HWIS	Ramona Auto Service and Orco Block Company are listed as having generated aqueous solutions with less than ten percent total organic residues, while Block Graphics generates photochemicals/photoprocessing waste. In addition, Block Graphics is also listed on the RCRIS as being a small quantity generator (SQG) of hazardous waste, generating between 100 kg and 1,000 kg of hazardous waste per month.
Sannipoli Corporation at 26250 Palomar Road, Romoland	21	HWIS	This site was listed in the database as generating organic liquid mixtures, aqueous solutions, waste oil and mixed oil wastes.

Other sites within close proximity or adjacent to the proposed facilities alignments were also analyzed for their potential impacts to the public or environment. Table III-5-2 includes a summary of the sites within half a mile of the Line A/Line 1 System. The location of these sites is also shown on Figure III-5-A. Based on the information provided in the database report, these listed sites do not pose a potential significant hazard to the public or environment.

Table III-5-2, Hazardous Materials Sites Within ½ Mile of the Line A/ Line 1 System

Site Address	Site # (Figure III-5-A)	Database List	Comments/ Description
Valley District of San Jacinto at 26100 Menifee Road, Romoland	31	LUST	The gasoline leak was discovered on 12/5/86 after a tank closure and was found to be confined to soil contamination only. The case was closed on 4/4/89. This site is currently occupied by Southern California Edison and is listed in the HWIS database as a generator of organic and inorganic solid, solvent mixture, and oil-containing wastes.
Eastern Municipal Water District (EMWD) Perris Pumping Plant at 1330 Watson Road, Perris	5	LUST	The hydraulic oil leak was discovered on 1/4/95 after a tank closure and was found to have affected the aquifer. The case was closed on 8/24/95.
James Lumber Company at 27126 Watson Road, Sun City	6	LUST	The gasoline leak was discovered on 4/26/93 after a tank closure. The case was closed on 6/28/96. This site was then listed in the Waste Management and Unit Database as an active soil treatment facility.
Summit/Patricia's Mobil at 1500 Patricia Lane, Sun City	19	UST	Contains four active USTs.
Rancho Ford at 26786 Encanto Drive, Sun City	25	CA FID UST	Contains an active USTs.
Flying U Farms, Inc. at 28495 Rouse Road, Sun City	35	Hazardous Substance Storage Container Database	Contains two USTs.
Century Retail/ARCO AMPM at 26050 Menifee Road, Romoland	31	UST	Contains four active USTs.
29950 Watson Road, Homeland	7	CHMIRS	An incident was reported on this site on 7/24/88. However, there is no information available as to what materials were associated with this incident.

Site Address	Site # (Figure III-5-A)	Database List	Comments/ Description
Southern California Edison Valley Substation at 26125 Menifee Road, Romoland	31	HWIS, RCRIS	Listed in databases as a SQG with no violations. The hazardous wastes generated include organic solids, polychlorinated biphenyls and materials with PCBs, and mixed oil and waste oil.
Richardson RV Centers at 26786 Encanto Drive, Sun City	32	HAZNET	Generates organic solids, aqueous solutions with less than ten percent total organic residues, and solvent mixture wastes.
Gilbert Brown at 27395 Airstream Way, Romoland	33	HAZNET	Generates liquids with pH less than 2 and alkaline solutions, without metals, with pH greater than 12.5.
Mike Dallman at 26061 Sherman Road, Romoland	22	HAZNET	Generates liquids with pH less than 2, organic liquid mixture, and organic solid wastes.
BP John Hauling at 28700 Matthews Road, Romoland	31	HAZNET	Surplus of organic wastes disposed previously.
CA FID UST = California Facility Inventory Database compiled by the State Water Resource Control Board; HAZNET = Data extracted from copies of hazardous waste manifests received by the DTSC, compiled by the DTSC.			

According to the database search, eight recorded sites occur along the future facilities alignments. Information on each site is included in Table III-5-3 below, while the location of each site is shown on Figure III-5-A. Based on the information provided in the EDR report these sites do not pose a potential significant hazard to the public or environment. Construction of project facilities near these sites is not expected to result in a hazard to the public or environment.

Table III-5-3, Hazardous Materials Sites Along Future Facilities Alignments

Site Address	Site # (Figure III-5-A)	Database List	Description
United Parcel Service Hemet at 25283 Sherman Road, Romoland	3	RCRIS, FINDS, HAZNET, LUST, Cortese	This site is classified as a small quantity generator for miscellaneous motor vehicle fuels that was discovered through a tank closure on 4/15/1991. The leak was confined to soil contamination only. Disposal method included recycler and transfer station. The case was closed 8/29/1991.
25650 Antelope Road, Romoland	4	CHMIRS	Site was a drug lab in which Fire Department was called to on 4/10/2002. The drug lab waste present at the site was contained and cleaned up by DDTSC. This drug lab was found during a police chase on 5/7/1998 and was contained and cleaned up by Riverside County Sheriff.
27847 Monroe, Romoland	12	CHMIRS	This site was also an illegal drug lab raided by Sheriff's department. Riverside Fire department was called in and cleaned up the site.
Circle K Stores Inc. #346 at 31770 Highway 74, Homeland	15	HAZNET, LUST, Cortese	The site is listed as an underground storage tank leak. The chemical is unleaded gasoline and as of the last review date on 9/21/1994, the leak was being confirmed. The leak was confined to soil contamination only. No close date was reported.
Native Plant at 202 Ethanac Road, Perris	16	LUST	The gasoline leak was discovered on 5/29/90 after a tank closure and was found to be confined to soil contamination only. The case was closed on 11/8/93.
Chaney's Auto at 27411 Ethanac Road, Romoland	17	LUST, Cortese	The site included the release of waste oil and was discovered by a tank closure in 9/30/1993. An aquifer used for drinking water supply was contaminated. A site workplan was issued 7/9/1993 and the case was closed 9/29/2000.
26260 Homeland, Homeland	23	CHMIRS	The property use at this location is residential. The incident date was 10/16/1990. The chemical name and extent of release was not reported.
26043 Guthridge, Homeland	24	CHMIRS	This site is residential use as well. The incident report was date 2/26/1988 however the chemical name and extent of release were not reported.

Based on the database search conducted for the Line A/ Line 1 System facilities, it does not appear that future phase facilities would be affected by currently listed hazardous waste sites. However, the phasing, and construction schedule for the future facilities is not known at this time. Depending on the construction timing of the future facilities, the status of known and/or unknown hazardous waste sites could change. The following mitigation measure will ensure that potential impacts associated with construction of future facilities remain less than significant.

Proposed Mitigation Measures

MM Haz 1: Prior to construction of future facilities, an environmental regulatory database search shall be conducted in order to determine if proposed facilities would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. If hazardous waste sites occur, further remedial actions shall be taken to ensure that hazardous materials are removed prior to construction.

Summary of Environmental Effects After Mitigation Measures are Implemented

Based on the information provided in the database report and after review of listed sites within a half mile of proposed facilities, impacts associated with the project site being listed on a known hazardous materials site list are less than significant. As required by MM Haz 1, an environmental regulatory database search shall be obtained prior to the construction of future facilities in order to ensure that there are not any additional hazardous sites or a change in status of a known site that would pose a potential significant hazard to the public or environment from the construction of project facilities.

6. Hydrology and Water Quality

Potential impacts related to groundwater supplies and recharge, placing housing within a 100-year flood hazard area, and exposure of people or structures to a significant risk of loss, injury or death involving flooding were considered to be less than significant in the NOP prepared for this project (Appendix A). The focus of the following discussion is related to the potential impacts to water quality, from alteration of existing drainage patterns, from the creation or contribution of runoff water, from changes to the amount of surface water in any water body or wetland, or from placing structures or fill within a 100-year flood hazard area that would impede or redirect flood flows.

Setting

The project site is located in the San Jacinto River Basin. The San Jacinto River drains approximately 765 square miles of watershed, and is the principal surface water body within the region. It originates in the San Jacinto Mountains which are located in the east of the project area. Initially the San Jacinto River flows in a northwesterly direction, then southwesterly for the second half of its course. Most stream flows in the San Jacinto watershed are dominated by storm water, urban and agricultural runoff; only occasionally do flows from the upper San Jacinto River watershed reach Canyon Lake, and flows reaching Lake Elsinore are even rarer. The more frequent flows in this reach of the San Jacinto River are derived from the Perris Valley Channel, which drains the Moreno Valley and Perris areas.

Canyon Lake and Lake Elsinore are downstream of the project area and are on the Clean Water Act Section 303(d) list as impaired water bodies. Canyon Lake is impaired due to nutrients and pathogens. Lake Elsinore has water quality impairments due to nutrients, organic enrichment/low dissolved oxygen, sedimentation/siltation, and toxicity from unknown sources. In large storm events, Lake Elsinore overflows into the Lake Elsinore Outlet Channel and Temescal Creek, which then discharges to the Santa Ana River near Corona. In this way, the San Jacinto River Watershed is occasionally linked to the Santa Ana River Watershed.

The San Jacinto River channel is located at the western boundary of the proposed project area. The storm water drainage of the Homeland/Romoland area generally occurs as sheet flow in a westerly direction from the base of Double Butte Mountain and Lakeview Mountain to the San Jacinto River. Runoff from the watershed is ephemeral and the project area lacks a continuous watercourse, connecting the easterly watershed to the San Jacinto River.

Criteria for Determining Significance

Impacts on water quality may be considered potentially significant if the proposed project would:

- Result in substantial discharges of typical storm water pollutants or substantial changes to surface water quality.
- Substantially alter the existing drainage pattern of the site or area in a manner which would result in substantial flooding, erosion or siltation on- or off-site.

- Create or contribute runoff which would exceed the capacity of existing or planned storm water drainage systems.
- Substantially change the amount of surface water in any water body or wetland.
- Place structures or fill within a 100-year flood hazard area, which would impede or redirect flood flows.

Project Compliance with Existing Water Quality Regulations

State Porter-Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act Section 13000 directs each Regional Water Quality Control Board (RWQCB) to develop a Water Quality Control Plan (Basin Plan) for all areas within its region. The Basin Plan is the basis for each RWQCB’s regulatory programs. The proposed project site is located within the purview of the Santa Ana RWQCB (Region 8), and must comply with applicable elements of the 1995 Santa Ana River Basin Plan, as well as the Porter-Cologne Water Quality Control Act, which regulates the discharge of waste into waters of the state.

Federal Clean Water Act, Sections 404 and 401

In 1972, the Federal Water Pollution Control Act Amendments (also known as the Clean Water Act) added what is commonly called Section 404 authority (33 U.S.C. 1344) to the regulatory program of the Department of the Army. The U.S. Army Corps of Engineers (ACOE) is authorized to issue permits for the discharge of dredged or fill material into waters of the United States. Section 401 of the Clean Water Act specifies that permits issued by the ACOE under Section 404 require a State Water Quality Certification. In California, the RWQCB must certify that a project will comply with water quality standards by issuing a Water Quality Certification before the ACOE can issue the final Section 404 permit. A Section 404 permit from the ACOE and a 401 Water Quality Certification from the RWQCB are required prior to discharging dredged or fill material into a waters of the U.S.

Federal Clean Water Act Section 402 and NPDES

The Clean Water Act also prohibits the discharge of pollutants to waters of the United States unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Initially, the Environmental Protection Agency (EPA), which has the primary responsibility for implementing this provision, focused on major point sources, primarily waste water treatment facilities and industrial waste dischargers, and required implementation of control measures to minimize pollutant discharges. The Clean Water Act was amended again in 1987, adding Section 402(p), to provide a framework for regulating municipal and industrial storm water discharges. In November 1990, EPA published final regulations that establish requirements for specific categories of industries, including construction projects that encompass 5 or more acres of land. In December 1999, EPA published the so-called Phase II regulations that expanded regulation of construction sites to those greater than or equal to 1 acre. The regulations require that storm water associated with construction activity, which discharges either directly to surface waters, or indirectly through municipal separate storm sewer systems (MS4s), must be

regulated by an NPDES permit. Pollution control is achieved by implementing Best Management Practices (BMPs) to provide site design features, source and treatment controls, to eliminate or reduce pollutants in storm water and non-storm water discharges with the Best Available Technology/Best Conventional Technology (BAT/BCT) economically achievable standards. The EPA has delegated authority to implement most aspects of the NPDES permit program to the State.

In 1999, the State Water Resources Control Board (SWRCB) adopted Water Quality Order 99-08-DWQ, the NPDES General Permit for Storm Water Discharges Associated with Construction (General Permit). All construction activities on areas greater than or equal to 1 acre are required to obtain coverage under the General Permit. Construction activities include: clearing, grading, and disturbances to the ground such as stockpiling, or excavation that results in the disturbance of at least one acre of total land area.

The RWQCB implements the NPDES permit program regulating storm water from construction activities for projects greater than or equal to 1 acre in size. The main component of the NPDES permits is the preparation and implementation of a storm water pollution prevention plan (SWPPP). The purpose of a SWPPP is to identify potential pollutants, identify and implement appropriate storm water pollution prevention measures to reduce or eliminate discharge of pollutants to surface water from storm water and non-storm water discharges.

Storm water BMPs (Best Management Practices) during construction and grading will be outlined in the construction NPDES permit and the SWPPPs prepared prior to construction of the proposed facilities. Examples of BMPs include: detention basins, use of silt fencing, sandbags or strawbales to control runoff and identification of emergency procedures in case of hazardous materials spills. Construction NPDES permits and SWPPPs will be required prior to site disturbance.

As mentioned above, Canyon Lake and Lake Elsinore are included on the Clean Water Act Section 303(d) list as impaired waterbodies. The RWQCB issued watershed-wide waste discharge requirements for discharges of storm water runoff associated with new developments in the San Jacinto Watershed (Order No. 01-34). The order regulates pollutants in storm water discharges to surface waters from areas tributary to Lake Elsinore and Canyon Lake, in the San Jacinto Watershed. Order No. 01-34 is similar to the State Water Resources Control Board's general Storm Water Construction Activity Permit (Water Quality Order No. 99-08-DWQ) with the following general additions: monitoring and reporting requirements have been added and SWPPPs, Monitoring Programs, and Post-construction Management Plans must be submitted for approval in advance of construction activities; and, offset provisions have been added.

In addition, the District is a co-permittee under the RWQCB's NPDES MS4 municipal storm water permit. Thus, the proposed drainage facilities will be regulated under the applicable provisions of the MS4 permit as well.

Santa Ana River Basin Water Quality Control Plan (Basin Plan)

The Regional Water Quality Control Board (RWQCB), Santa Ana Region (Region 8) is also responsible for regulating water quality in the Santa Ana River watershed, consistent with the Region’s Basin Plan. The RWQCB sets water quality standards for all ground and surface waters within its region. Water quality standards in the Basin Plan include both the beneficial uses of specific water bodies and water quality objectives (either narrative or numeric) which are protective of those uses. Beneficial uses consist of all the various ways that water can be used for the benefit of people and/or wildlife. Beneficial uses and water quality objectives applicable to surface water bodies in proximity to the proposed project site as outlined in the Basin Plan are summarized below in Tables III-6-1 and III-6-2.

Table III-6-1, Water Quality Beneficial Uses

Water Body	Beneficial Uses
SJR Reach 3 (Canyon Lake to Nuevo Road)	Intermittent AGR, GWR, REC1, REC2, WARM, WILD
SJR Reach 1 (Lake Elsinore to Canyon Lake)	Intermittent MUN, AGR, GWR, REC1, REC2, WARM, WILD
Canyon Lake	MUN, AGR, GWR, REC1, REC2, WARM, WILD
Lake Elsinore	REC1, REC2, WARM, WILD
Definitions	
AGR	Waters are used for farming, horticulture or ranching. Uses may include, but are not limited to, irrigation, stock watering, and support of vegetation for range grazing.
GWR	Groundwater recharge waters, used for natural or artificial recharge of groundwater for purposes that may include future extraction, maintaining water quality, or halting saltwater intrusion in freshwater aquifers.
REC1	Water contact recreation waters, used for recreational activities involving body contact with water where ingestion of water is reasonably possible. Uses may include swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, and use of natural hot springs.
REC2	Non-contact water recreation waters, used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water would be reasonably possible. These uses may include picnicking, sunbathing, hiking, beachcombing, camping, boating, sightseeing and aesthetic enjoyment in conjunction of the above activities.
WARM	Warm freshwater habitat waters support warmwater ecosystems that may include preservation and enhancement of aquatic habitats, vegetation, fish and wildlife, including invertebrates.

WILD	Wildlife habitat waters support wildlife habitats that may include the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife.
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Table III-6-2, Numeric Water Quality Objectives

Water Body	Water Quality Objectives (mg/L)						
	TDS	Hardness	Na	Cl	TIN	SO ₄	COD
SJR Reach 3 (Canyon Lake to Nuevo Road)	820	400	---	250	6	---	15
SJR Reach 1 (Lake Elsinore to Canyon Lake)	450	260	50	65	3	60	15
Canyon Lake	700	325	100	90	8	290	---
Lake Elsinore	2000	---	---	---	1.5	---	---

Table III-6-3, Narrative Water Quality Objectives

<u>Algae</u>	
Waste discharges shall not contribute to excessive algal growth in inland surface receiving waters.	
<u>Bacteria, Coliform</u>	
REC-1	Fecal coliform: log mean less than 200 organisms/100 mL based on five or more samples/30 day period, and not more than 10% of the samples exceed 400 organisms/100 mL for any 30-day period
REC-2	Fecal coliform: average less than 2000 organisms/100 mL and not more than 10% of the samples exceed 4000 organisms/100 mL for any 30-day period
<u>Oil and Grease</u>	
Waste discharges shall not result in deposition of oil, grease, wax or other materials in concentrations which result in a visible film or in coating objects in the water, or which cause a nuisance or adversely affect beneficial uses.	
<u>Solids, Suspended and Settleable</u>	
Inland surface waters shall not contain suspended or settleable solids in amounts which cause a nuisance or adversely affect beneficial uses as a result of controllable water quality factors.	

Design Considerations

The proposed project is intended to control existing flooding conditions currently experienced in the Homeland and Romoland areas. The proposed detention basins act as mechanisms to slow and control erosion, siltation, and flooding currently experienced as runoff leaves the Lakeview and Double Butte Mountains and flows west through the project area towards the San Jacinto River channel. Additionally, the proposed MDP system is sized to accommodate future runoff

from planned land uses for the Homeland and Romoland areas as determined by the Riverside County and City of Perris General Plans.

Environmental Impacts Before Mitigation

Threshold: Result in substantial discharges of typical storm water pollutants (e.g., sediment from construction activities, hydrocarbons, and metals from motor vehicles, nutrients and pesticides from landscape maintenance activities, metals of other pollutants from industrial operation) or substantial changes to surface water quality including, but not limited to, temperature, dissolved oxygen, pH, or turbidity.

The proposed project will reduce flooding from storm water runoff currently experienced in the Homeland and Romoland areas. The proposed drainage facilities themselves will not generate or create a significant increase in runoff or storm water pollutants. The proposed detention basins will allow for some sediment transported in storm water runoff to settle out over time, but will not detain water long enough to result in significant changes to pH, temperature or turbidity. Project activities will be regulated by the Santa Ana RWQCB under the NPDES Construction and MS4 permitting programs. The RWQCB may also regulate portions of the proposed project under the Porter-Cologne Water Quality Control Act or Section 401 of the Clean Water Act. Storm water pollution prevention measures will be identified and must be followed to reduce or eliminate discharge of pollutants to surface water from storm water and non-storm water discharges.

Specific water quality impacts will be further mitigated at the time of facility construction through the ongoing compliance with existing water quality regulatory programs. The proposed facilities will need to be constructed in conformance with:

- 1) **The California State Water Resource Control Board's General Construction Permit (Order 99-08-DWQ).** This Permit requires the project proponent to mitigate downstream impacts from their construction activities. When applicable, the RWQCB's Order No. 01-34 for Watershed-Wide Discharge Requirements for Discharges of Storm Water Runoff Associated with New Developments in the San Jacinto Watershed will also be followed.
- 2) **The Santa Ana Region, Regional Water Quality Control Board (RWQCB), National Pollutant Discharge Elimination System (NPDES) Permit R8-2002-001.** This permit, required to comply with Clean Water Act NPDES requirements, regulates flood control facilities operated by the Riverside County Flood Control and Water Conservation District (District), among others, within the Santa Ana River Watershed. The Permit requires the District to conduct public education, monitoring, illicit connection/illegal discharge detection and removal, maintenance activities, and coordination with other MS4 operators to ensure that pollutants discharging from MS4 systems are mitigated to the maximum extent practicable. Facilities constructed under the proposed project would be required to comply with this permit.

In addition, any proposed facilities that impact waters of the United States or waters of the State will be regulated by the RWQCB under Section 401 of the CWA or the State's Porter-Cologne Water Quality Control Act. The project also incorporates unlined reaches of channels and basins, which can serve to infiltrate and/or treat pollutants in stormwater and non-stormwater discharges. Prior to construction of each proposed facility, the District will review the ability of individual projects to incorporate these and other types of water quality features applicable to conditions of concern in the area. Additional water quality control measures may be implemented at the time of construction in order to comply with Total Maximum Daily Load (TMDL) requirements established by the Santa Ana RWQCB within the watershed.

In light of the above water quality regulatory programs already in place, which the proposed project will have to comply with, and the proposed project features, potential direct impacts to water quality will be less than significant.

Planned development in the watershed may impact water quality within the project area. The proposed project may result in indirect impacts to water quality by removing one obstacle to development, and subsequent population growth, in the project area. However, as outlined in Section I, the proposed facilities are located in areas that are already planned for development in the Riverside County General Plan (Adopted October 7, 2003) and the City of Perris General Plan 2030 Draft EIR (October 2004). The Riverside County General Plan Final EIR (October 2003) addressed potential environmental impacts, including water quality, from implementation of policies and land use designations set forth in the General Plan. The City of Perris General Plan 2030 Draft EIR (October 2004) also addressed impacts to water quality from implementation of the General Plan 2030.

As outlined in the Riverside County General Plan EIR, the General Plan accommodates a substantial increase in population in the County. This increase in population would increase the quantity of wastewater generated, decrease the quality of treated wastewater, and increase the need for effluent disposal. The effluent, when discharged into a stream, or other surface water body, has the potential to degrade the quality of the water in the receiving water body. Additionally, stormwater runoff from urban areas contains a variety of organic and inorganic substances that may reduce the quality of water resources. Currently, Riverside County relies on imported water and local groundwater for its municipal water supply. Another supply option being pursued is desalted groundwater. If the amount of water required for agricultural use is reduced, it is anticipated that additional Colorado River water would be available for urban use. An increase in use of water from these sources and withdrawal of water during drought years from wells previously shut down because of contamination would result in the general deterioration of water quality in the County.

The General Plan includes policies and implementation measures to reduce or minimize water quality impacts. While the policies “encourage” the use of innovative and creative techniques and the “consideration” of wetlands for water treatment to reduce or minimize potential water quality impacts resulting from implementation of the General Plan, they do not provide concrete or specific requirements that will reduce potential water quality impacts to below a level of significance. Therefore, the General Plan identified additional mitigation measures, the implementation of which will reduce potential water quality impacts as a result of

implementation of the General Plan land uses to a less than significant level. Adopted mitigation measures from the General Plan include:

- a. The development of septic systems in accordance with applicable standards established by Riverside County and other responsible authorities;
- b. Point source pollution reduction programs shall fully adhere to applicable standards required by federal, State, and local agencies;
- c. Where development may contribute to worsening of local or regional groundwater quality, a water quality analysis shall be prepared and submitted to the County or responsible entity for review and approval prior to issuance of any entitlement that would result in the physical modification of the project site; and
- d. The project applicant shall submit to the County, for review and approval, evidence that the specific measures to limit or eliminate potential water quality impacts resulting from the entire development process, and will be implemented as set forth in the water quality analysis. Evidence shall be submitted and approved prior to issuance of any entitlement that would result in the physical modification of the project site.

As outlined in the City of Perris General Plan 2030 Draft EIR, future development consistent with the General Plan 2030 will increase stormwater runoff and non-stormwater runoff, and the volume of stormwater discharge into the San Jacinto River. Runoff from developed urban areas is likely to be contaminated with petroleum products, fertilizers, sediment, trash, heavy metals, nutrients, pathogens, and pesticides.

Through the development review process, the City of Perris complies with various statutory requirements necessary to achieve regional water quality objectives and protect groundwater and surface waters from polluted stormwater runoff. As a Co-Permittee with the County of Riverside under the MS4 permit, the City of Perris is responsible for eliminating illegal discharges and connections into storm drains that ultimately discharge into surface waters. The City of Perris is required to consider water quality impacts during review of development project proposals to ensure that appropriate structural and non-structural BMPs are incorporated into project design, construction, and operation phases to reduce contaminants in stormwater discharges, consistent with requirements of the NPDES permit. In addition to the MS4 permit, new development in Perris is also subject to requirements of the San Jacinto Watershed NPDES Construction Activities Permit.

Future actions identified in the City of Perris General Plan 2030 Draft EIR to improve water quality through reduction in contamination of stormwater and non-stormwater runoff. These future actions are set forth as Implementation Measures in the Conservation Element of the City of Perris General Plan 2030 and are as follows:

- a. Adopt a Stormwater Ordinance per Santa Ana Regional Area Management Plan (DAMP) requirements for stormwater management and discharge control (VI.A.1).
- b. Evaluate the Planning Department's CEQA implementation procedures to ensure adequate consideration of water quality impacts and mitigation measures as part of Initial Studies/Mitigated Negative Declarations and Environmental Impact Reports (VI.A.2).

- c. Prior to issuance of any grading permit involving a disturbance of one or more acres of land, required proof of a RWQCB San Jacinto Watershed Construction Activities Permit and a Storm Water Pollution Prevention Plan (VI.A.3).
- d. Review water quality impacts during the project review and approval phases to ensure appropriate BMPs are incorporated into the project design and long-term operations (VI.A.4).
- e. In accordance with the Riverside County NPDES permit, enact a Water Quality Management Plan to review and regulate new development approvals (VI.A.5).

Because of existing permitting requirements, the mitigation measures that were incorporated and adopted as part of the Riverside County General Plan, and the Implementation Measures of the Conservation Element of the City of Perris General Plan 2030, potential indirect impacts related to water quality remain less than significant.

Threshold: Substantially alter the existing drainage pattern of the site or area, including through the alteration of a watercourse or wetland, in a manner which would result in substantial flooding, erosion or siltation on- or off-site.

The proposed facilities are planned to emulate, or follow, the historic and natural drainage of the area, from the Lakeview and Double Butte Mountains towards the San Jacinto River channel. However, they have the potential to alter the existing drainage patterns by diverting, redirecting and concentrating storm flows. When completed, the proposed drainage facilities will provide a comprehensive system to convey runoff through the project area.

Currently, storm water sheet flows over much of the project area after storm events due to the lack of natural watercourses and any substantial drainage facilities. The proposed master planned drainage facilities are sized to convey the current storm water peak discharges as well as any additional runoff from future development in the area. With the implementation of the proposed project, storm water will be conveyed via channels, basins, and underground storm drains throughout the project area towards the San Jacinto River channel. By conveying storm water runoff across the project area towards the San Jacinto River channel, the proposed facilities will eliminate the primary sources of flooding currently experienced during significant storm events in the Homeland and Romoland areas.

Due to the relatively low volume of runoff, small more frequent storm events are not expected to result in substantial erosion or siltation on or off- site. However, the volume of runoff generated in larger storm events has the potential to result in substantial erosion and siltation on and off-site. The proposed detention basins are designed and strategically placed such that they will reduce the downstream peak discharge rates. The four proposed basins will also collect and retain some sediment and debris, thereby reducing the extent to which they would be conveyed downstream. Based on the hydrologic analysis and project features, potential impacts related to erosion and siltation are considered less than significant.

The proposed linear drainage facilities include open channels and underground storm drains. Underground storm drains will consist of RCP (reinforced concrete pipe) or RCB (reinforced concrete box). As such, substantial erosion will not occur within these facilities. All open

channels east of Interstate 215, except for Romoland MDP Lines B and B-1 westerly of Sherman Road, will need to be concrete lined due to erosive velocities in the easterly watershed. Most of the open channels west of Interstate 215 will be earthen. Due to the essentially flat nature of this area, the flows within this area will not have high enough velocities to result in substantial erosion of the earthen channels, even in large storm events. The earthen channel side slopes may be subject to erosion where the channel changes direction and therefore will be lined with rock riprap where necessary. Therefore, the proposed project is not expected to result in substantial erosion on- or off-site.

Usually small storm events do not result in substantial flooding, as high volumes of runoff are not generated during such events. However, the volume of runoff generated in larger storm events has the potential to result in flooding on and off-site. Due to the lack of adequate flood control infrastructure many areas within the project area are subject to flooding. The San Jacinto River and the Romoland MDP Line A floodplains are designated FEMA special flood hazard areas. The proposed drainage facilities will be designed to convey 100-year flood flows and eliminate the major flood hazards in the project area east of Interstate 215.

The proposed project, however, will not contain the San Jacinto River 100-year flood flows west of Interstate 215. The proposed facilities will contain 100-year event storm flows from the upper watershed, or eastern portion, of the project area to the point where Romoland MDP Line A crosses under Ethanac Road, just west of Interstate 215. At this point, the interim open channel will no longer contain the 100-year event storm flows from the eastern project area. And, Line A flood flows will outlet into the San Jacinto River floodplain. Thus, the proposed project will not result in flooding beyond current conditions.

The San Jacinto River and the lower Line A floodplains will continue to exist until the ultimate San Jacinto River channel is constructed, as a separate and unrelated project, often referred to as the San Jacinto River Improvement Project. The interim Line A west of Interstate 215 and surrounding area will still be subject to flooding until the ultimate San Jacinto River channel and the ultimate Line A are both constructed. The proposed project will not provide 100-year flood protection near the San Jacinto River channel until that project is constructed and the ultimate Line A channel can therefore be completed. However, the proposed project will not worsen flooding in the project area west of Interstate 215, since this area is already within an existing mapped floodplain.

The Line A floodplain crosses Interstate 215 at Ethanac Wash near an existing bridge under the freeway located just south of the Ethanac Road over pass. The proposed Line-A alignment also crosses under the freeway at this location. Peak flow rates and runoff volumes, for current and post-project conditions, were calculated for this location. Based on hydrological calculations, the Line A estimated peak rate of storm water runoff under current conditions at Interstate 215 during a 100-year, 6 hour storm event is 5,163 cfs (cubic feet per second). The volume of storm water runoff for current conditions at Interstate 215 during the same 100-year event is 1,104 ac-ft (acre-feet).

After the area has been built-out under the general plan land uses and the proposed facilities have been constructed, the estimated peak flow rate at Interstate 215 during a 100-year 6 hour storm event is calculated to be 3,673 cfs. The volume of storm water runoff at Interstate 215 during the

same event is calculated to be 1,390 ac-ft. Although other development of the area may add potential sources of water runoff, adding to the total volume of runoff for the area, the proposed basins will reduce peak discharge rates. Although the total volume of runoff may somewhat increase as a result of development in the watershed, the peak discharge rate is decreased as a result of the proposed drainage system by nearly 1,500 cfs. This reduction in the 100-year peak discharge rate will ensure that potential flooding impacts west of the I-215 are less than significant. In addition, the proposed project will not reduce the total volume of runoff discharged from the project area.

The proposed project will not increase peak flow rates in the San Jacinto River Channel or adversely impact the existing floodplain because: the proposed basins will reduce peak flows and the amount of the debris and sediment that could be conveyed downstream. Thus, the proposed project should not increase the need to maintain the existing San Jacinto River channel nor will the project worsen the existing flood plain.

Based on the hydrologic analysis and the project features, impacts related to siltation, erosion and flooding, resulting from the proposed project are less than significant. And, as discussed above, when completed, the proposed project will not substantially alter the existing drainage pattern of the Homeland and Romoland areas in a manner that would cause significant adverse impacts.

Threshold: Create or contribute runoff water, which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

The proposed project is intended to convey storm water runoff and eliminate major flooding that currently affects the area. The proposed project itself will not create or contribute additional runoff water. Storm water pollution prevention measures identified in the NPDES permits will be followed and will reduce or eliminate discharge of pollutants to surface water from storm water and non-storm water discharges. The proposed facilities will not affect storm water drainage systems or provide additional sources of polluted runoff, therefore impacts are considered less than significant.

Threshold: Substantially change the amount of surface water in any water body or wetlands.

Other offsite development may increase the amount of runoff in the area. The proposed project is planned to convey such runoff. The proposed facilities will convey runoff through the project area towards the San Jacinto River channel. The amount, or volume, of run-off from the project area as it crosses Interstate 215, south of Ethanac Road, during a 100-year, 6 hour storm event will be greater after area build-out by an estimated 286 ac-ft, mostly due to increased runoff from offsite development.

The total volume of storm water runoff conveyed by the San Jacinto River during a 100-year storm event is approximately 45,500 ac-ft. The proposed facilities will deliver an estimated additional 286 ac-ft of runoff to the river in a 100-year event. This increase in surface water quantity delivered to the San Jacinto River is not considered substantial, as it amounts to less

than 1 percent of the total volume of the river in a 100-year storm event. Impacts relating to the change in surface water of the San Jacinto River from the proposed project are considered less than significant.

Threshold: Place structures or fill within a 100-year flood hazard area, which would impede or redirect flood flows.

Portions of the proposed project will be constructed within a 100-year flood hazard area. Please refer to Figure I-2-D. Accordingly, the proposed project will need to comply with the Federal floodplain management regulations, as administered by FEMA (Federal Emergency Management Agency).

The proposed facilities will re-direct sheet flows across the project area into basins, open channels and underground storm drains and convey these flows towards the San Jacinto River channel. When completed, the proposed drainage system will provide 100-year protection and eliminate the major flood hazards in the project area east of Interstate 215. However, the interim Romoland MDP Line A Channel will not contain 100-year flood flows and completely alleviate flooding west of Interstate 215. The proposed facilities will fully contain 100-year storm flows east of Interstate 215 (to the point where Line A crosses under Ethanac Road). At this point, the flood flows will return to the San Jacinto River floodplain. However, with the construction of the proposed basins, the Line A 100-year peak flow rates will be reduced.

The Line A/alignment west of Interstate 215 and surrounding areas will still be subject to flooding until the ultimate San Jacinto River channel and the ultimate Line A are constructed. The proposed project will not provide 100-year flood protection near the San Jacinto River channel until that project is constructed and the ultimate Line A channel can therefore be completed. The proposed project will provide 100-year flood protection in the project area west of Interstate 215 once the ultimate Line A Channel has been constructed.

Proposed Mitigation Measures

An Environmental Impact Report is required to describe feasible mitigation measures which could minimize significant adverse impacts (CEQA Guidelines, Section 15126.4). However, after analysis of the proposed project's impacts to water resources, the proposed project was found to have less than significant impacts. Therefore, no mitigation measures are required to reduce effects to levels less than significant.

Summary of Environmental Effects After Mitigation Measures are Implemented

Impacts to the water resources of the area from the proposed project are less than significant. Mitigation measures are not required.

7. Population and Housing

In preparation of the NOP (Appendix A), the proposed project was found to have no direct impacts to population and housing by displacing substantial numbers of people or existing housing. The focus of the following discussion is related to the project's potential to indirectly induce substantial population growth in the Homeland and Romoland areas.

Setting

The Housing Element of the County of Riverside General Plan (Adopted October 7, 2003) identifies and establishes the County's policies with respect to meeting the needs of existing and future residents in the County. According to the General Plan, Riverside County has grown by over 96,000 people or approximately 7% between 1994 and 1999. Within Riverside County, the eastern area has grown at a slightly faster pace (11%) than the western area (6%). Unincorporated areas of the County grew by just 1.1%—significantly slower than the County as a whole. About 26% of Riverside County's population in 1999 lived in unincorporated areas.

As outlined in the County General Plan, the Regional Housing Needs Assessment (RHNA) process assigned 30,677 units in new construction to unincorporated Riverside County, making about 80% of this total allocated to the western portion of the County. The Vacant Land Analysis used in the General Plan demonstrates that the unincorporated County contains over 2.3 million acres of vacant land that allows residential development. It is estimated that approximately 396,000 additional dwelling units could be accommodated at build out under the General Plan residential land use designations.

The Land Use Element of the County of Riverside General Plan functions as a guide to planners, the general public, and decision makers as to the ultimate pattern of development in the unincorporated area of the County. The Land Use Element lays out the general distribution and location of land uses, such as housing, business, industry, open space, agriculture, natural resources, recreation, and public/quasi-public uses. The majority of the project area is located in unincorporated Riverside County and is primarily designated as Community Development (Figure LU-1, "Riverside County General Land Use") under the County General Plan. The General Plan establishes 19 area plans, which when combined, encompass the whole of western Riverside County and significant portions of eastern Riverside County. Each Area Plan contains guidelines for development. The proposed facilities span portions of the Harvest Valley/Winchester, Sun City/Menifee Valley, and Mead Valley Area Plans as well as the southeast corner of the City of Perris. As outlined in Section I.3, designated land uses of these three area plans within the footprint of the proposed project facilities include: mostly light industrial; commercial retail; business park; residential; and some recreational open space within a specific plan.

Through its adoption and the approval of a Final EIR and CEQA Findings and Statements of Overriding Considerations in October 2003 the General Plan authorizes residential and commercial land uses in the Homeland and Romoland areas. As identified in the County of Riverside Land Management System (LMS) database at the time of this writing, there are three specific plans (No. 260, No. 293, No. 301) and approximately 25 tentative tracts planned for

development in the Homeland and Romoland areas. These tentative tracts and specific plans are located in, adjacent to, or within approximately 1/2 mile of the proposed project. These 25 tentative tracts encompass an area of approximately 1,300 acres and include the development of approximately 4,000 single family residential lots. The three specific plans encompass a combined area of approximately 5,200 acres and include the development of residential units of various densities, commercial centers, as well as school and park sites. The total number of dwelling units proposed under these three specific plans combined is approximately 13,000 units.

Within the city of Perris, drainage facilities of the proposed project span Planning Area 9 of the Land Use Element of the City's General Plan 2030. Within the planning area, the proposed facilities are located in the Green Valley Specific Plan, which provides land use and development standards for the planning area. The Green Valley Specific Plan includes 28 Tentative Tract Maps. Within Planning Area 9 the Green Valley Specific Plan includes 1,032 acres proposed for housing, 116 acres for commercial/business and professional, and 41 acres for industrial uses. The proposed tentative tracts include 4,210 residential units, 750 of which are multi-family. Construction of the tentative tracts is planned to occur over four phases. (Personal communication, Gloria Ashley, Administrative Assistant, City of Perris, Planning and Community Development Department, May 11, 2004.)

Implementation of the Riverside County and City of Perris General Plan land use policies, and these proposed developments will increase the need for the flood control infrastructure contained in the proposed project. Some of the proposed drainage facilities may be constructed as components of the approved development projects described above or with other future development projects.

Criteria for Determining Significance

Impacts on population and housing may be considered significant if the proposed project would:

- Induce substantial population growth in the area, either directly or indirectly.

Project Compliance with Existing Regulations

There are no specific regulations related to growth inducement which relate to the proposed project. However, the proposed project is consistent with the land uses authorized by the Riverside County and City of Perris General Plans.

Design Considerations

There are no specific design measures that would avoid or reduce potential population growth in the Homeland and Romoland areas. The proposed project is intended to provide flood protection to existing development as well as the necessary flood control infrastructure as the area develops in accordance with the county's and city's land use policies.

Environmental Impacts Before Mitigation

Threshold: The proposed project would induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

The proposed project does not include the construction of new homes or business and therefore will not directly induce substantial population growth in the area. The proposed project however may indirectly induce substantial population growth in the project area by providing flood control infrastructure, needed to protect the project area.

The existing drainage system in the City of Perris is owned and operated by the City, the District, and Riverside County. Storm water runoff is generally intercepted by a network of City facilities. The local facilities then convey the flow to major District facilities, such as the Perris Valley Channel which, in turn, conveys the flow into the existing San Jacinto River channel. As outlined in the City of Perris General Plan 2030 DEIR and according to the Master Drainage Plan, the drainage system throughout the City is adequate only for existing development.

Comprehensive, area-wide flood control infrastructure improvements are required to accommodate the planned development throughout the Perris Valley and the Homeland and Romoland areas. It is anticipated that the westerly reach of the Romoland MDP Line A Channel, within the city of Perris, will ultimately have to be deepened and widened to accommodate runoff from both existing and future development. These improvements are feasible only in conjunction with future improvements to the San Jacinto River channel. Interim methods for handling stormwater runoff are required in the near term to accompany development in the city of Perris. Consistent with the City of Perris General Plan 2030 Implementation Measures, new development will be accompanied by construction of both on-site storm detention basins and related structures in the near term, and construction of stormwater master plan facilities that will accompany longer term improvements to the San Jacinto River channel and other master planned facilities. The proposed project would not provide 100-year flood protection and would not remove an obstacle to growth in the project area west of Interstate 215, including the southeastern limits of the City of Perris. The San Jacinto River and Line A floodplains will continue to exist in this area until such time as the ultimate San Jacinto River channel has been constructed. (Refer to Section III – Hydrology and Water Quality for a more detailed discussion of San Jacinto River floodplain.) Thus, the proposed project will not alleviate flooding within Planning Area 9 in the City of Perris General Plan 2030 nor provide the required area-wide flood control infrastructure improvements as identified in the City of Perris General Plan 2030 DEIR until the ultimate Line A and San Jacinto River channels are completed.

Flooding and lack of formal storm water conveyance facilities has resulted in one potential impediment to growth in the project area. Installation of the proposed facilities will protect areas of existing development as well as undeveloped properties within the Homeland and Romoland areas of unincorporated Riverside County. The proposed flood control infrastructure, in conjunction with ultimate street improvements, will contain 100-year flood flows and will alleviate the primary sources of flooding within the area and provide adequate drainage outlets. Construction of the proposed facilities will alleviate one obstacle, the completion of necessary flood control facilities, for future development within the project area.

The County of Riverside has placed various conditions of approval on planned development in the Homeland and Romoland areas in particular, conditions of approval that require payment of Homeland/Romoland Area Drainage Plan fees and/or construction of various components of the Homeland and Romoland Master Drainage Plan facilities prior to tract map development. Therefore, since various tracts have already been conditioned to either fund or build MDP facilities prior to site development, the proposed project could indirectly induce growth by removing one obstacle for development in the Homeland and Romoland areas. Nonetheless, the development that may occur is not expected to exceed that which is outlined in the approved General Plans.

A project could indirectly induce growth by removing barriers to growth, by creating a condition that attracts additional population or new economic activity, or by providing a catalyst for future unrelated growth in an area. While a project may have a potential to induce growth, it does not automatically result in growth. Growth can only happen through capital investment in new economic opportunities by the public or private sectors. The land use policies established by the County of Riverside will regulate growth in the unincorporated areas of Homeland and Romoland. Growth induced by a project is considered a significant impact if it directly or indirectly affects the ability of agencies to provide needed public services, or if can be demonstrated that the potential growth significantly affects the environment in some other way.

Development that could occur as a result of potential growth inducement will be in accordance with the adopted General Plan and other development policies of Riverside County. As outlined in Section I, the proposed facilities are located in areas already planned for development in the Riverside County General Plan (Adopted October 7, 2003). Pursuant to the Sun City/Menifee, Harvest Valley/Winchester, and Mead Valley Area Plans, included within the adopted County General Plan, the proposed facilities span areas designated for industrial, commercial and residential land uses and a few small areas designated for recreational open space.

The Riverside County General Plan Final EIR October 2003 (SCH No. 2002051143) and its associated Statement of Overriding Considerations document (October 7, 2003) addressed all potential environmental impacts, including growth inducement, from implementation of policies and land use designations set forth in the General Plan. As outlined in the Riverside County General Plan Final EIR, development following the General Plan would result in growth and the associated environmental impacts. Based on the definition of growth inducement, a General Plan is inherently growth inducing. The growth planned by the adopted General Plan leads to various significant unavoidable adverse impacts. The General Plan is a master plan providing the framework by which public officials will be guided on making decisions relative to development within Riverside County. However, it is the implementation of land use policies that will incrementally increase demands for public services, utilities, and infrastructure, and the need for medical, educational, and recreational facilities. The County of Riverside has the land use authority and has previously adopted a FEIR, findings and a Statement of Overriding Consideration that addresses such growth and any related impacts.

The City of Perris General Plan 2030 Draft EIR (SCH No. 2004031135) addresses potential environmental impacts, including growth inducement, from implementation of policies and land use designations as set forth in the General Plan 2030. As outlined in the Draft EIR, adoption and

implementation of General Plan 2030 would indirectly induce substantial population growth through increased residential and non-residential development, resulting in a significant impact. No mitigation measures were identified as appropriate and impacts are considered significant and unavoidable.

The proposed project could indirectly induce growth by removing one potential barrier to growth, by providing flood control infrastructure within the project area. The Riverside County and City of Perris General Plans already outline the type of development and growth that will be allowed in the project area. Thus, potential indirect impacts from development in the project area are not expected to exceed the potential impacts that have already been disclosed in the Riverside County and City of Perris General Plan EIRs. It was concluded that the general planned development in unincorporated Riverside County would result in significant adverse impacts to agricultural/open space resources, air resources, biological resources, transportation, and water resources. Because the General Plan EIRs concluded that development in accordance with the general plans could cause significant adverse impacts and since implementation of the proposed project could indirectly induce substantial population growth in Homeland and Romoland, potential impacts are considered significant.

Proposed Mitigation Measures

An EIR is required to describe feasible mitigation measures which could minimize significant adverse impacts (CEQA Guidelines, Section 15126.4). Potential mitigation measures are evaluated for their ability to eliminate the potential significant adverse impacts upon population and/or housing or to reduce impacts to below the level of significance. However, the District, which is the CEQA Lead Agency for the proposed project, does not have the necessary land use authority to impose any CEQA mitigation measures, upon future development projects. Thus, there are no feasible mitigation measures to reduce or eliminate potential growth inducement impacts of the project.

Summary of Environmental Effects After Mitigation Measures are Implemented

The proposed project could indirectly induce substantial population growth in the Homeland and Romoland areas, by removing an obstacle to development. Although the proposed project also spans the southeast corner of the city of Perris, the project will not indirectly induce substantial population growth west of Interstate 215 near the San Jacinto River channel, since the proposed project alone will not provide 100-year flood protection in this area. The adopted Riverside County General Plan (and applicable Area Plans), and the City of Perris General Plan outlines the type of development and growth that will be allowed in the area. The proposed project will provide flood control infrastructure consistent with the General Plan land uses. The proposed project's potential growth inducement impacts would not exceed the impacts that have already been addressed during the adoption of the Riverside County General Plan Final EIR (October 2003). Nonetheless, there are no feasible mitigation measures that would reduce potential growth inducement impacts to less than significant levels. Adoption of CEQA findings and a statement of overriding considerations would be required prior to project approval.

IV. MANDATORY CEQA TOPICS

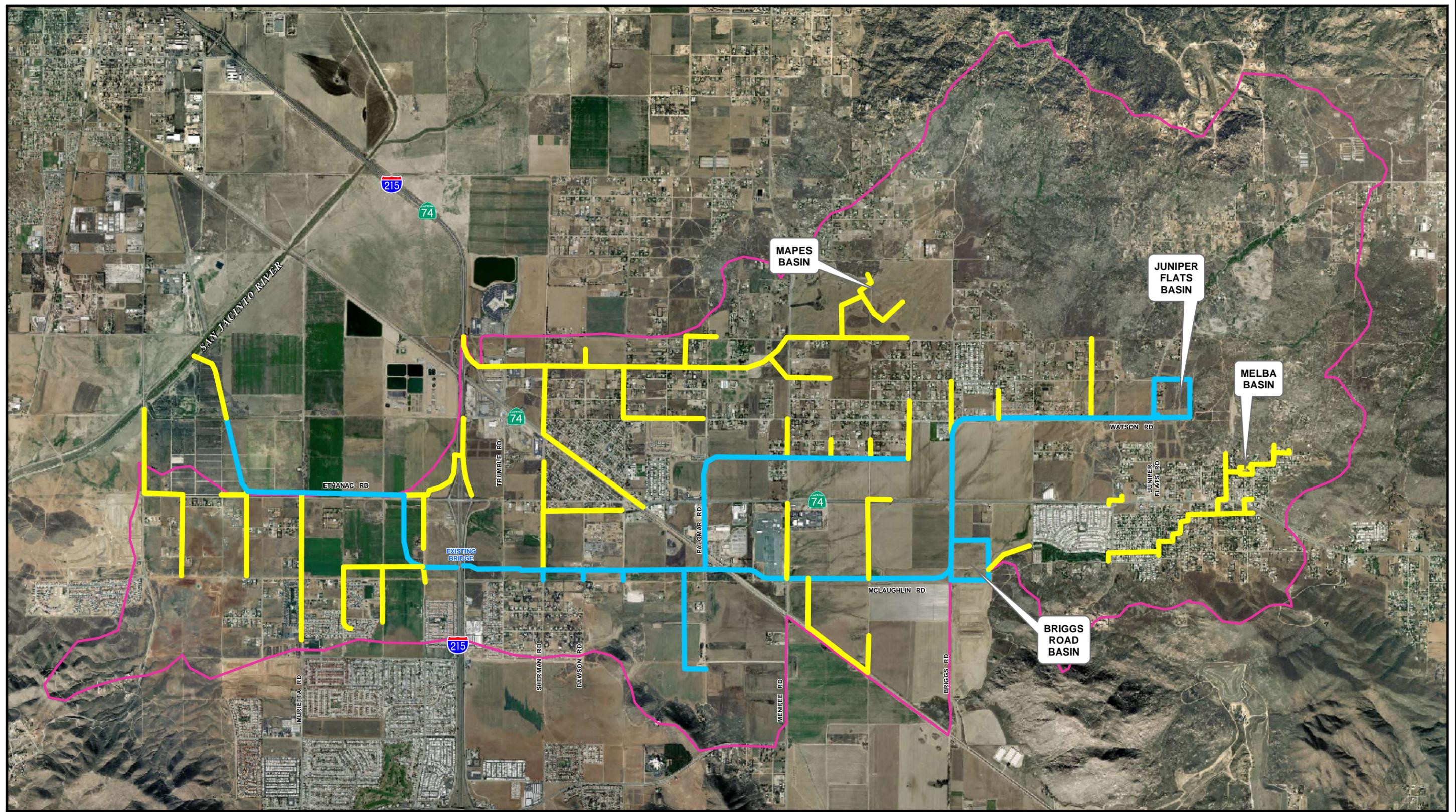
The CEQA Guidelines stipulate several general content requirements for EIRs. Those applicable to this project include cumulative impacts (Section 15130), unavoidable adverse impacts (Section 15126(b)), growth inducing impacts (Section 15126(d)), and alternatives (Section 15126.6). The following addresses each of these general requirements.

1. Significant Cumulative Environmental Effects

CEQA requires that an EIR examine the cumulative impacts associated with a project. The range of projects to be included in the cumulative analysis encompasses “past, present, and reasonably anticipated future projects producing related or cumulative impacts, including those outside of the control of the agency.” A cumulative effect is deemed significant if the project’s incremental contribution to a cumulative impact is “considerable.” A cumulative impact is not considered significant if the impact can be mitigated to below the level of significance through mitigation, including providing improvements and/or contributing funds through fee-payment programs. The EIR must examine “reasonable options for mitigating or avoiding any significant cumulative effects of a proposed project” (CEQA Guidelines Section 15130).

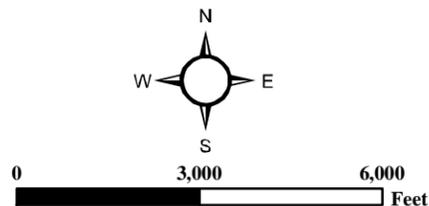
CEQA Guidelines Section 15130 requires identification of related projects, both public and private, that together with the proposed project could have cumulative impacts on the environment. Western Riverside County, within which the proposed project is located, is within one of the fastest growing areas in the United States. The proposed project consists of the Homeland and Romoland Master Drainage Plans (MDPs). The proposed project, Line A/ Line 1 System and future facilities, combined will consist of approximately 33 miles of linear drainage facilities, including open channels and underground storm drains, and approximately 89 acres for the proposed detention basins. Since the proposed project addresses the major flood control facilities within the watersheds, this DEIR already addresses the potential cumulative impacts of constructing the entire MDP system. Thus, additional cumulative impacts would be limited to those associated with offsite development.

The Cumulative Impact Study Area for this project consists generally of the project region of influence, or the watershed boundary (11,317 acres). The Homeland/Romoland watershed is 18.3 square miles in size and spans a portion of the city of Perris, the unincorporated community of Homeland, and into the unincorporated community of Romoland. The watershed boundary and region of influence utilized for this project’s cumulative impacts analysis are shown on Figure IV-1-A.



Source: AirPhoto USA
February 2004

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LEGEND

- PROPOSED PHASE I FACILITIES
- MASTER PLANNED FUTURE FACILITIES
- HOMELAND / ROMOLAND AREA WATERSHED BOUNDARY

Figure IV-1-A

Watershed Boundary - Region of Influence

Romoland / Homeland MDP/ADP

CEQA Guidelines Section 15130 (b) (1) requires that a discussion of cumulative impacts be based on either a list of past, present and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact.

As identified in the County of Riverside Land Management System (LMS) database at the time of this writing and within the project's region of influence, there are 3 specific plans (No. 260, No. 293, No. 301) and approximately 25 tentative tracts planned for development in the Homeland and Romoland areas. These tentative tracts and specific plans are located in, adjacent to, or within approximately 1/2 mile of the proposed project. These 25 tentative tracts encompass an area of approximately 1,300 acres and include the development of approximately 4,000 single-family residential lots. The three specific plans encompass a combined area of approximately 5,200 acres and include the development of residential units of various densities, commercial centers, as well as school and park sites. The total number of dwelling units proposed under these three specific plans combined is approximately 13,000 units.

Within the Perris city limits, proposed drainage facilities (Line A and Line A-15) are located in the Green Valley Specific Plan. The Green Valley Specific Plan includes 28 Tentative Tract Maps. The Green Valley Specific Plan includes 1,269 acres proposed for housing, 115 acres for commercial, and 109 acres for industrial uses. The proposed tentative tracts include 4,210 residential units, 750 of which are multi-family. Construction of the tentative tracts is planned to occur over four phases. (Personal communication, Gloria Ashley, Administrative Assistant, City of Perris, Department of Planning, May 11, 2004.)

These probable development projects, located in Riverside County, specifically within the unincorporated communities of Homeland and Romoland, and in the city of Perris, comprise approximately 21,210 new residential units. While the extent of environmental changes that would occur with construction and maintenance of the proposed drainage facilities may not be significant, the sum of these, related to future development projects and the proposed Homeland and Romoland MDPs, has the potential to create significant cumulative environmental impacts in the area. Environmental issues for which the project may contribute significantly to cumulative impacts are discussed below:

Agricultural Resources

As outlined in the California Environmental Quality Act (CEQA), agricultural land means Prime Farmland, Farmland of Statewide Importance, or Unique Farmland, as defined by the United States Department of Agriculture land inventory and monitoring criteria, as modified for California (Section 21060.1). Farmland of State Importance, Prime, and Unique Farmland, as well as Farmland of Local Importance located within the project area is shown on Figure III-1-A.

Portions of the proposed facilities are located on or adjacent to designated Farmland (see Figure III-1-A). Romoland MDP Line A will span an area designated as Farmland of Statewide Importance located west of Interstate 215 and south of Ethanac Road. Line A-3 (concrete lined open channel), Line A-3e (underground storm drain), and Line 1 (underground storm drain and concrete open channel) are located adjacent to and will span areas designated as Prime Farmland

located east of Interstate 215 and north of Highway 74. Lines A-8, A-9, and A-11, span or parallel the area designated as Farmland of Statewide Importance located west of Interstate 215 and south of Ethanac Road mentioned above. Other facilities, including Line B, B-2, and A-5, span or parallel the areas designated as Prime Farmland located east of Interstate 215 and north of Highway 74 mentioned above.

Proposed underground storm drains will not impact agricultural uses or convert the land within the facility footprint to a non-agricultural use. Construction of the proposed open channels will be primarily located within or adjacent to road right-of-ways. Construction of open channels will not significantly impact agricultural uses that exist adjacent to the open channel facilities. The limited property located within the footprint of the open channel facilities will be converted to a public use, a non-agricultural use. Based on the limited direct impacts related to construction and operation of the linear drainage facilities, potential impacts to all farmland (including designated Farmland) from the construction of the linear facilities are less than significant.

The proposed Melba Basin is not located on land used for agriculture and therefore construction of this basin will not result in the direct conversion of farmland to non-agricultural uses. However, the proposed Briggs Road, Juniper Flats and Mapes basins are located on land that has been or could be used for agriculture and that is designated as Farmland of Local Importance. Construction of these proposed basins would result in the direct conversion of farmland to a non-agricultural use by converting the property to flood control facilities. The Briggs Road basin will encompass an area of approximately 40 acres, the Juniper Flats Basin 28 acres, and the Mapes Basin 21 acres, for a combined total of 89 acres. The proposed project would result in the direct conversion of approximately 89 acres of agricultural land to a non-agricultural use, a potential significant impact.

The probable offsite development projects identified above, located within the unincorporated communities of Homeland and Romoland, and the city of Perris, comprise approximately 21,210 new residential units. The project area has already been designated for non-agricultural land uses in the adopted Riverside County General Plan. Within the city of Perris, the proposed facility sites are also located in areas that have been designated for uses other than agriculture (City of Perris Land Use Map – Draft). Conversion of existing farmland to non-agricultural uses will occur in the project area with the build out of the Riverside County and City of Perris General Plans.

Proposed Mitigation Measures

No mitigation measures were found to be feasible. See the Agricultural Resources Section of this DEIR.

Summary of Environmental Effects After Mitigation Measures are Implemented

The proposed project would cause a direct loss of farmlands and could indirectly contribute incrementally to a significant cumulative loss of farmland within western Riverside County by removing an obstacle to growth. Through the General Plan analysis process and in the certified EIR, the County of Riverside has determined that the loss of agricultural land in the County is unavoidable and unmitigable. The General Plan EIR found that the cumulative loss of Farmland cannot be avoided. The Board of Supervisors of Riverside County certified the CEQA Findings

of Fact and Statement of Overriding Considerations for the 2003 Riverside County General Plan. Although the potential loss of agricultural resources associated with the proposed project will not exceed the impacts considered in the General Plan EIR, the proposed project will provide infrastructure to support future urbanization, supporting the conversion of farmland, an indirect cumulative impact. There are no mitigation measures that would reduce direct or indirect project impacts to less than significant levels. Adoption of CEQA Findings and a statement of overriding considerations would be required prior to project approval.

Air Quality

The project site is located within a non-attainment region of the South Coast Air Basin (SCAB). Essentially, this means that any new contribution of emissions into the Basin would be considered significant and adverse. Ozone and particulates are the two most significant air quality concerns in the project area. It has also been well documented by the SCAQMD that the air quality impacts seen in Western Riverside County are most attributable to the large population center in Los Angeles and Orange Counties. The meteorological patterns of Southern California lend to the “blowing-in” effect of air pollution from the more populated and industrial counties to the west of the project site area.

Construction of the proposed project would temporarily increase air pollution emissions in the South Coast Air Basin (SCAB). However, as the facilities will be constructed over many phases, construction emissions would be reduced at any one time. The proposed project includes infrastructure that could support future development of the area. Proposed development, including those outlined in tentative tracts and specific plans, will be consistent with the land uses in the adopted Riverside County and City of Perris General Plans. Development proposed in the project area would potentially impact air quality through new vehicle trips and associated mobile source emission generated by new residents and site visitors in the project area.

The SCAQMD’s Air Quality Management Plan (AQMP) for the SCAB sets forth a comprehensive program that will lead the SCAB into compliance with all federal and state air quality standards. The AQMP control measures and related emission reduction estimates are based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments. Accordingly, conformance with the AQMP for development projects is determined by demonstrating compliance with local land use plans and/or population projections. The proposed project does not conflict with implementation of the AQMP, since it is consistent with the adopted Riverside County and City of Perris General Plans.

Proposed Mitigation Measures

Mitigation measures addressing temporary construction and maintenance activities have been incorporated into the project to reduce project-level impacts. Please refer to Section III-2 of this DEIR.

Summary of Environmental Effects After Mitigation Measures are Implemented

After analysis of the proposed project’s cumulative impacts to air quality, the proposed project was found to have less than significant impacts because construction and maintenance of the

proposed project will only occur on a temporary basis, and the proposed project is consistent with the adopted General Plans for Riverside County and the City of Perris.

Biological Resources

Several special-status plant species have been documented along or adjacent to the San Jacinto River channel and include the San Jacinto Valley crownscale, thread-leaved brodia, and smooth tarplant. Other sensitive plant species identified with Low-Moderate potential of occurrence based on marginal habitat located in the project area, include Parish's brittle scale, mud nama, and vernal barley. Based on the focused surveys and habitat assessments, the proposed facilities would avoid San Jacinto Valley crownscale, smooth tarplant, and paniculate tarplant individuals documented in the vicinity, or the proposed facilities are not located within suitable habitat thereby avoiding direct impacts to special status plant species. Since the proposed facilities will not impact sensitive plant species or their suitable habitat, the proposed project will not contribute toward a cumulative loss of natural habitat that could support these species.

Although the project site is located in a predominately agricultural and disturbed environment, special-status wildlife species, primarily birds, may occur in less than optimal and/or disturbed conditions, and may forage over agricultural and ruderal habitats present in the project area. The proposed project would temporarily impact disturbed habitats potentially suitable for several species of raptors (white-faced ibis, white-tailed kite, northern harrier, Swainson's hawk, ferruginous hawk, golden eagle, sharp-shinned hawk, prairie falcon, merlin) considered to have moderate to high potential to utilize the project site for foraging activities during winter or migration periods. The proposed drainage facilities as well as off site development in the area could result in the incremental reduction of seasonal foraging habitat and occasional use areas for raptor species. The proposed earthen basins and channels could still provide some foraging and occasional use areas for raptors.

Several special-status wildlife species common throughout the region and determined to have a moderate to high potential to occur in the project area include Cooper's hawk, burrowing owl, California horned lark, loggerhead shrike, black-tailed jackrabbit and Stephens' kangaroo rat. The proposed project, in conjunction with other development in the area, will result in cumulative losses of potential breeding and/or seasonal foraging habitat locally and may have a cumulatively significant impact to biological resources.

However, potential impacts to biological resources are also regulated under the adopted MSHCP. Please refer to Section III-3 and Appendix C of this DEIR for a detailed discussion regarding the project's compliance with the MSHCP and the project specific impacts to biological resources. As described, the proposed project complies with the MSHCP and potential impacts to biological resources are mitigated to a less than significant level. Future offsite development projects within unincorporated areas and within the city of Perris will also be required to comply with the MSHCP by complying with any species survey, mitigation, criteria cell and/or fee requirements. Thus, the proposed project will not contribute toward a significant cumulative loss of biological resources.

Some drainage features are located within the project area. These drainage features may qualify as "waters of the United States," under the jurisdiction of the U.S. Army Corps of Engineers (ACOE) pursuant to Section 404 of the Clean Water Act or streambeds and associated riparian

vegetation under the jurisdiction of the California Department of Fish and Game (CDFG), to be verified by these agencies. Potentially jurisdictional resources located in the western portion of the project area include the San Jacinto River and adjacent, tributary drainages to it. In the eastern portion of the project area there are drainage features in the vicinity of the proposed Juniper Flats, Briggs Road and Mapes basins. The proposed facilities would result in direct impacts through alterations of these local drainage features and all appropriate permits associated with the impacts will be obtained. Through the regulatory compliance of the permits and associated mitigation, the proposed project will not have significant cumulative impacts to these resources. Most of the watershed lacks substantial drainage features or wetlands. Thus, offsite development or the proposed project is not expected to cause a significant cumulative loss of jurisdictional drainage features.

Proposed Mitigation Measures

Mitigation measures addressing construction and maintenance will be incorporated into the project to reduce project-level biological impacts. The proposed project must also comply with the adopted Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). To address the potential impacts associated with the cumulative loss of habitat for special status wildlife the proposed project shall comply with all pertinent MSHCP requirements. Please refer to Section III-3 of this DEIR.

Summary of Environmental Effects After Mitigation Measures are Implemented

After incorporation of mitigation measures, potential adverse impacts associated with special-status species and the potential cumulative impacts associated with the loss of foraging habitat will be reduced to a less than significant level. Potential cumulative impacts will be further reduced since development in the area shall pay Riverside County MSHCP mitigation fees as set forth under Ordinance No. 810 and City of Perris MSHCP mitigation fees as set forth in Ordinance No. 1123. Payment of these fees and compliance with other MSHCP requirements will mitigate for cumulative loss of habitat associated with the species listed above and additional species identified in the MSHCP.

Cultural Resources

With the proposed mitigation measures, impacts to unknown yet potentially significant archeological and paleontological resources will be reduced to a less than significant level. Please refer to Section III-4 of this DEIR. As the proposed project will not have significant impacts to cultural resources, it will not contribute incrementally to a significant cumulative loss of these resources within western Riverside County. Offsite development will also be required to comply with the CEQA Guidelines and Riverside County and City of Perris cultural resource requirements.

Proposed Mitigation Measures

Mitigation measures will be incorporated into the project to reduce potential project-level impacts. Please refer to Section III-3 of this document. Additional mitigation measures addressing potential cumulative impacts are unnecessary.

Summary of Environmental Effects After Mitigation Measures are Implemented

After analysis of the proposed project's impacts to cultural resources, the proposed project was found to have less than significant impacts. Consequently, the proposed project will not contribute to a potential significant cumulative impact on cultural resources in the area.

Hazards and Hazardous Materials

Based on the information provided in the database report and after review of listed sites within a half mile of proposed facilities, impacts associated with the project site being listed on a known hazardous materials site list are less than significant. An environmental regulatory database search will be required prior to the construction of future facilities in order to ensure that there are not any new hazardous sites or a change in status of a known site that would pose a significant hazard to the public or environment.

Proposed Mitigation Measures

Mitigation measures have been incorporated into the project to reduce project-level impacts to a less than significant level. Please refer to Section III-5 of this document.

Summary of Environmental Effects After Mitigation Measures are Implemented

As the proposed project will not have significant impacts relating to hazards and hazardous materials, it will not significantly contribute to a cumulative hazard to the public or environment.

Hydrology and Water Quality

The proposed project's impacts to water resources were found to be less than significant. Please refer to Section III-6 of this document. On a cumulative basis, the proposed facilities, along with offsite development authorized by the Riverside County General Plan, could contribute to regional water quality impacts through introduction of urban runoff. However, due to each offsite project's responsibility to mitigate its individual water quality impact through compliance with NPDES regulations, the potential cumulative affects will be less than significant. Therefore, cumulative impacts to water quality and the existing drainage pattern of the area from the proposed project are less than significant.

Proposed Mitigation Measures

The proposed project includes features that will reduce potential impacts to water quality. The proposed detention basins will reduce velocities, erosion, siltation and flooding in the project area. The proposed project was found to have less than significant impacts without the need for mitigation measures. Compliance with the adopted mitigation measures contained in the Riverside County and City of Perris general plans and existing water resource regulations will reduce potential cumulative impacts associated with future offsite development. Additional mitigation measures addressing potential cumulative impacts are unnecessary.

Summary of Environmental Effects After Mitigation Measures are Implemented

The proposed project was found to have less than significant impacts to water quality and will not contribute incrementally to water quality problems in the project area.

Population and Housing

The proposed project does not include the construction of new homes or business and therefore will not directly induce substantial population growth in the area. The proposed project however may indirectly induce substantial population growth in the project area by providing flood control infrastructure, required to protect existing development as well as new development in the area.

Proposed Mitigation Measures

An Environmental Impact Report is required to describe feasible mitigation measures which could minimize significant adverse impacts (CEQA Guidelines, Section 15126.4). Potential mitigation measures are evaluated for their ability to eliminate the potential significant adverse impacts upon population and/or housing or to reduce impacts to below the level of significance. However, the District does not have the necessary land-use authority to impose mitigation measures upon offsite development projects. After analysis of the proposed project's impacts on substantial population growth, it was determined that no feasible mitigation exists to reduce or eliminate potential growth inducement impacts of the project.

Summary of Environmental Effects After Mitigation Measures are Implemented

The project, along with other development, could have significant cumulative impacts on population growth. The Riverside County and City of Perris General Plans outline the type of development and growth that will be allowed in the area. Thus, potential indirect impacts from development in the project area are not expected to exceed the potential impacts that have already been disclosed in the Riverside County General Plan EIR and the City of Perris General Plan 2030 Draft EIR. Yet, because implementation of the proposed project could indirectly induce substantial population growth in Homeland and Romoland, impacts are considered significant.

2. Unavoidable Adverse Impacts and Irreversible Environmental Changes

This topic is intended to address any impacts that cannot be mitigated to below a level of significance and are an unavoidable impact as a result of the project (CEQA Guidelines Section 15126.2(b)). As discussed in Section III-1 and the Cumulative Impacts Section of this document, the proposed project could not incorporate mitigation measures which would reduce potential direct and indirect impacts to agricultural resources to less than significant levels or reduce the project's potential growth inducement impacts.

Agricultural Resources

Impacts to agricultural resources are considered significant if the project will convert agricultural uses to non-agricultural uses. Because the proposed project could support and encourage planned

development in the project area, which is largely designated farmlands, the project would have significant indirect impacts to agricultural resources. Construction of the proposed basins and open channels would result in the direct conversion of farmland to a non-agricultural use by converting the property to flood control facilities. The Briggs Road basin, the Juniper Flats Basin, and the Mapes Basin combined encompass approximately 89 acres, and would result in the direct conversion of mapped farmland to a non-agricultural use. Potential direct and indirect impacts associated with the loss of designated farmlands remain unavoidable and are unmitigable.

Population and Housing

Impacts to population and housing are considered significant if the proposed project would indirectly induce substantial population growth. The proposed project could indirectly induce growth by removing one potential barrier to growth, by providing flood control infrastructure. The Riverside County and City of Perris General Plans outline the type of development and growth that will be allowed in the area. Thus, potential indirect impacts from development in the project area are not expected to exceed the potential impacts that have already been disclosed in the Riverside County and City of Perris General Plan EIRs. Yet, because implementation of the proposed project could indirectly induce substantial population growth in Homeland and Romoland, impacts are considered significant. No mitigation measures were identified as appropriate and impacts considered significant and unavoidable.

Irreversible Environmental Changes

Section 15126.2(c) of the CEQA Guidelines stipulates that a project must also be evaluated for its irreversible environmental changes which would occur as a result of project implementation. For example, commitment to nonrenewable resources, environmental accidents, or permanent improvements (i.e., highway interchanges) related to previously undisturbed areas, are considered irreversible changes. Besides the temporary use of non-renewable resources (e.g., fossil fuels) during construction, the proposed project will not result in the use of non-renewable resources. Once the MDP facilities are constructed, the land use within the drainage facility footprints would need to remain permanently committed to flood control uses, since adjacent developed areas and infrastructure would depend on the flood control infrastructure for flood protection. Thus, the proposed facilities and the previously described significant impacts to agricultural resources could be considered a significant irreversible change. Likewise, the potential indirect growth inducement impacts could be considered an irreversible change to the relatively rural and undeveloped project area. The next section will discuss potential growth inducement impacts in more detail.

3. Growth Inducing Impacts

According to CEQA Guidelines (Section 15126.2 [d]), a project may foster economic or population growth, or additional housing, either indirectly or directly, in a geographical area if it meets any one of the following criteria below:

- A project would remove obstacles to population growth.

- Increases in the population may tax existing community service facilities, causing significant environmental effects.
- A project would encourage and facilitate other activities that could significantly affect the environment.

A project could indirectly induce growth by removing barriers to growth, by creating a condition that attracts additional population or new economic activity, or by providing a catalyst for future unrelated growth in an area. While a project may have a potential to induce growth, it does not automatically result in growth. Growth can only happen through capital investment in new economic opportunities by the public or private sectors. The land use policies established by the County of Riverside will regulate growth in the County while land use policies established by the City of Perris will regulate growth within the city's limits. Growth induced by a project is considered a significant impact if it directly or indirectly affects the ability of agencies to provide needed public services, or if it can be demonstrated that the potential growth significantly affects the environment in some other way.

Implementation of the proposed project will remove one obstacle to development and subsequent population growth in the project area. However, as outlined in Section I, the proposed facilities are located in areas that are already planned for development in the Riverside County General Plan (Adopted October 7, 2003). Within unincorporated Riverside County, the proposed project is located within the Mead Valley, Sun City/Menifee Valley, and Harvest Valley/Winchester Area Plans of the General Plan. The proposed facilities parallel or span the following land use designations of these Area Plans: Low Density, Medium Density, and Medium High Density Residential, Commercial Retail, Light and High Industrial, Conservation and Open Space Recreation. (The General Plan Land Use designations of the project area are shown in Figure I-3-A.)

Within the city of Perris, drainage facilities of the proposed project span Planning Area 9 of the Land Use Element of the City's General Plan 2030. Within the planning area, the proposed facilities are located in the Green Valley Specific Plan, which provides land use and development standards for the planning area. The Green Valley Specific Plan includes 28 Tentative Tract Maps including 1,032 acres proposed for housing, 116 acres for commercial/business and professional, and 41 acres for industrial uses. The proposed tentative tracts include 4,210 residential units, 750 of which are multi-family. Construction of the tentative tracts is planned to occur over four phases.

The adopted Riverside County General Plan Final EIR (adopted October 2003) addressed potential environmental impacts, including growth inducement, from implementation of policies and land use designations set forth in the General Plan. As outlined in the Riverside County General Plan EIR, development following the General Plan would result in growth. Based on the definition of growth inducement, a General Plan is inherently growth inducing. The growth authorized by the General Plan leads to significant unavoidable adverse impacts, such as air quality, biological resources, water resources, and traffic. The General Plan is a land use master plan providing the framework by which public officials will be guided on making decisions relative to development within Riverside County. The implementation of the General Plan's land use policies will incrementally increase demands for the proposed drainage facilities, public

services, utilities, and infrastructure, and the need for medical, educational, and recreational facilities.

The City of Perris General Plan 2030 Draft EIR (SCH No. 2004031135) addressed potential environmental impacts, including growth inducement, from implementation of policies and land use designations as set forth in the General Plan 2030. As outlined in the Draft EIR, adoption and implementation of General Plan 2030 would indirectly induce substantial population growth through increased residential and non-residential development, resulting in a significant impact. No mitigation measures were identified as appropriate and impacts are considered significant and unavoidable.

The proposed project could indirectly induce growth by removing one potential barrier to growth, by providing flood control infrastructure. The Riverside County and City of Perris General Plans outline the type of development and growth that will be allowed in the area. Thus, potential indirect impacts from development in the project area are not expected to exceed the potential impacts that have already been disclosed in the Riverside County and City of Perris General Plan EIRs. Yet, because implementation of the proposed project could indirectly induce substantial population growth in Homeland and Romoland, impacts are considered significant.

V. ALTERNATIVES TO THE PROPOSED PROJECT

The CEQA Guidelines, Section 15126.6, identify the parameters within which consideration and discussion of alternatives to the proposed project should occur. Alternatives must focus on those that are reasonably feasible and which attain most of the basic objectives of the project. As stated in Section I of this DEIR, the project objectives include:

- In conjunction with ultimate street improvements for the Homeland and Romoland area, will contain the 100-year flood flows and alleviate the primary sources of flooding within the project area.
- Serve as a guide for the location and size of drainage facilities that need to be constructed to protect existing development and future development as the area develops per the adopted General Plan.
- Ensure that facility locations are reserved for the future construction of the master planned drainage facilities.
- Create a funding mechanism to help finance the project costs.

Description of Alternatives

Pursuant to CEQA (15126.6(a)), each alternative must be capable of avoiding or substantially lessening any significant effects of the proposed project. The proposed project was found to have potential significant environmental impacts related to loss of designated farmland as well as growth inducement. The proposed facilities will convert farmland to non-farmland uses. The proposed project could indirectly induce growth by removing one potential barrier to growth, by providing flood control infrastructure. Development in the Homeland and Romoland areas will result in population growth as well as additional conversion of farmland to non-farmland uses. The proposed project's potential growth inducement impacts would not exceed those already contemplated in the Riverside County General Plan EIR. With mitigation, impacts to air resources, cultural resources, biological resources, and hazardous materials sites remain less than significant.

The rationale for selecting the alternatives to be evaluated and a discussion of the "no project" alternative are also required, per section 15126.6.

Per CEQA Guidelines Section 15126.6 (e)(3), when the project is the revision of an existing land use or ongoing operation, the "no project" alternative will be the continuation of the existing plan, policy or operation into the future. The proposed project consists of revisions to the previously adopted Homeland MDP (1982) and the previously adopted Romoland MDP (1988) and the construction of these facilities. The "no project" alternative consists of the construction of the drainage facilities as planned in the previously adopted MDPs.

The District analyzed the Proposed Project and two other alternatives in detail. These alternatives are described and analyzed below.

Proposed Project – Revised MDPs/ADP

The major revisions to the previously adopted Homeland MDP include changes to the following facilities:

Juniper Flats and Briggs Basin

Two earthen detention basins are added by this proposed revision. The Juniper Flats Basin is proposed at Juniper Flats Road and Watson Road. The proposed basin has approximately 130 acre-feet of storage capacity and reduces the peak inflow of 1,816 cfs to an outflow of 493 cfs. The area required for this basin is approximately 40 acres. The Briggs Road Basin is proposed at Briggs Road approximately 1,300 feet south of Highway 74. The proposed basin would have approximately 400 acre-feet of storage capacity and reduces the inflow from 3,418 cfs to an outflow of 643 cfs. The area required for this basin is approximately 40 acres.

Line 1

This facility has been completely realigned and redesigned to account for the addition of the Juniper Flats basin immediately upstream of this facility, which has decreased the flow rate anticipated from that area. The alignment has changed to lie adjacent to Watson Road. This facility has been revised from a concrete-lined channel to a combination of underground storm drain and a smaller concrete lined channel, for equivalent portions. Exceptions will be made, for concrete lined channels, at road crossings where RCB culverts are proposed. Facilities draining to this mainline facility have been realigned accordingly to account for the realignment of this facility (e.g., Line 1A, 1B, and 1C). The previously adopted upstream portions of this facility have been eliminated to accommodate the addition of the Juniper Flats Basin.

Line 4

The previously adopted downstream portions of this facility have been replaced by the addition of the Briggs Road Basin, where this facility will drain.

The major revisions to the previously adopted Romoland MDP include changes to the following facilities:

Line A

This facility has been completely realigned and redesigned to account for the detention basin additions in the Homeland area that have decreased the flow rate anticipated from that area. Line A is still proposed as an earthen open channel west of the freeway, where the alignment closely resembles the District 1990 preliminary drawings titled “Romoland Channel Line A Stage 1” (project number: 4-0-310, drawing number: 4-552). The portion of Line A upstream of the I-215 freeway is now a combination of proposed concrete-lined open channel, reinforced concrete box (RCB), and reinforced concrete pipe (RCP). Exceptions will be made at road crossings where RCB culverts are proposed.

Line A-3

This facility is proposed as an underground RCB storm drain and a concrete-lined open channel. This alignment was altered to combine both Line A-3 and Line A-3e. This eliminates a portion of the north-south alignment of Line A-3 and will provide easier construction.

Line A-8 & A-12

The upstream portion of Line A-8, from Hull Street, has been deleted and the north-south portions of that deletion are to be incorporated with the revised Line A-12. This change has revised the facility sizing and flow rates that were anticipated/proposed in previous reports.

Line A-15

This facility was realigned to combine both Line A-15a and Line A-15 with one alignment that will travel south from the San Jacinto River along Goetz Road then east along Ethanac Road and finally south along the previously adopted alignment. This facility is completely revised as an underground storm drain. Line A-15a is an extension of the revised Line A-15, to the east, that will pickup flows that were tabled to go to the 1987 alignment of Line A. The revised Line A-15 alignment now outlets into the San Jacinto River instead of into Line A.

Line A-16, Line A-17, Line A-18

Lines A-16, A-17, and A-18 are added facilities that connect to the revised Line A alignment near the intersections of Sherman Road, Dawson Road, and Antelope Road, respectively. These lines are underground storm drains that extend south from Line A approximately 300 feet.

Deletions and revisions were made to the some of the previously adopted facilities (such as Line A-14b, Line A-2, Line A-4, etc.) to help coordinate with the previously mentioned revisions. Figure I-2-D depicts the facilities that have been previously adopted and the revisions made by the proposed project. Revisions may include alignment changes, facility types and sizes, and/or flow rate adjustments.

Alternative 1 – No Project – Existing MDPs/ADP Implementation

The No Project Alternative includes implementation of the Homeland MDP (1982) and Romoland MDP (1988), as previously adopted. The existing MDP facility alignments are generally depicted on Figure I-2-D and the previously adopted MDPs are available for review at the District's office. The majority of the open channels proposed in these existing plans consist of both lined and unlined facilities. In general, the lined channels are trapezoidal in shape with concrete paving on the side slopes and bottom. The sides slope upward from the bottom at a rate of one foot vertically for every 1.5 feet horizontally. A few of the proposed lined channels also consist of lined rectangular channel sections. The lined trapezoidal channels in these plans generally range in size from a bottom width of 2 feet to 40 feet and in depth from 3 feet to 10 feet. The proposed unlined channels are also trapezoidal in shape with generally flatter side slopes running 3 feet horizontally for every 1 foot of rise. The channel right-of-way required will accommodate the channel as well as one or two maintenance roads. The proposed underground storm drains consist of reinforced concrete pipe (RCP) ranging in size from 30 inches to 102 inches in diameter. Some sections of the proposed underground storm drains also consist of reinforced concrete box (RCB). Under the previously adopted Homeland MDP, Line 1 is proposed as concrete-lined open channel (running east-west) south of Watson Road in the open fields then (running north-south) from Watson Road along the east side of Briggs Road, until the upstream end of Romoland MDP Line A. Under the No Project Alternative, the proposed Juniper Flats and Briggs Road basins would not be added to the Homeland MDP and the proposed revisions to Line 1 would not occur. In regard to potential environmental impacts, the two additional basins, the elimination of portions of Line 1 and Line 4 to accommodate the new basins, and the realignment of Line 1 are the primary differences between Alternative 1 and the proposed project (see Figure I-2-D).

Under the previously adopted (1988) Romoland MDP, easterly of the I-215, Line A consists of proposed earthen and concrete lined open channel. The Line A alignment is located south of McLaughlin Road from Sherman Road to Case Road and the railroad tracks and north of McLaughlin Road from Case Road to Briggs Road. Line A is proposed as an earthen channel westerly of Sherman Road and follows Murrieta Road north from Ethanac Road to Watson Road and follows Watson Road west to the San Jacinto River. Line A-3 is an open concrete channel located east of Palomar Street that spanned open fields and developed parcels. The proposed Romoland MDP revisions described under the proposed project alternative would not occur under Alternative 1. In regard to potential environmental impacts, the primary differences between Alternative 1 and the proposed project are the proposed revisions to Line A and Line A-15 (see Figure I-2-D).

Alternative 2 – Revised MDPs/ADP – Earthen Channels

Alternative 2 would consist of revising the previously adopted Homeland/Romoland MDPs and ADP as described in the proposed project, however all the proposed open concrete channels would consist of open earthen facilities. Under this Alternative, no change to the underground storm drains would be made from the proposed project due to their location in road right-of-ways or developed parcels.

Wider rights-of-way are necessary for earthen channels than concrete-lined channels in order to accommodate flows at the same rate. Embankments on earthen channels must be designed to

descend more gradually than embankments on concrete-lined channels in order to avoid erosion. As a result, the width of earthen channels is substantially more than the width of concrete-lined channels.

Evaluation of Alternatives

The matrix approach to comparing the above described alternatives is used for ease of directly comparing the proposed project's potential significant adverse effects with those of the alternatives, per CEQA Guidelines Section 15126.6 (d). Table V-1-1 identifies the areas of potential significant environmental effects per CEQA and ranks each alternative as **better**, the **same** or **worse** than the proposed project with respect to each issue area.

**Table V-1-1,
Comparison of Alternatives Matrix**

Environmental Issue	Proposed Project (Revised Homeland/Romoland MDP/ADP)	Alternative 1 No Project -Existing Adopted MDPs/ADP	Alternative 2 Revised MDPs/ADP with Earthen Channels
Agriculture Resources	Significant Unavoidable Impacts: Limited conversion in channel footprints and direct loss of 90 acres of farmland for proposed basins.	Better than the Project – direct loss of 21 acres of farmland for one basin. Proposed Juniper Flats and Briggs Road basin sites could remain in agricultural use until used for other planned development.	Worse – The wider earthen channels would directly impact a greater acreage of Farmland.
Air Quality	Less than Significant Impacts with mitigation: Intermittent and temporary emissions contribute to an existing exceedance of air quality standards for ROC, NOx, CO, and PM-10 in the SCAB during construction and maintenance.	Better – Briggs Road and Juniper Flats basins would not be constructed and therefore less ground disturbance and construction equipment usage would occur.	Worse – Wider earthen channels would require a greater amount of grading. Maintenance of additional earthen channels would require increased grading and more frequent use of heavy construction equipment.
Biological Resources	Sensitive Plant Species: Less than Significant Impacts. Foraging habitat for Sensitive Bird Species (e.g., burrowing owl): Less than Significant Impacts with mitigation.	Sensitive Plant Species: Worse - Direct impacts as the previously adopted Line A alignment near Watson Road is located in an area documented (GLA 2000) to contain 650 occurrences of smooth tarplant. Foraging habitat for Sensitive Bird Species (e.g., burrowing owl): Worse– The previously adopted Homeland MDP did not include the proposed Briggs Road and Juniper Flats earthen	Sensitive Plant Species: Same - No change in the significance determination from the proposed project. Foraging habitat for Sensitive Bird Species (e.g., burrowing owl): Better – may provide additional foraging habitat for wildlife species.

Environmental Issue	Proposed Project (Revised Homeland/Romoland MDP/ADP)	Alternative 1 No Project -Existing Adopted MDPs/ADP	Alternative 2 Revised MDPs/ADP with Earthen Channels
	<p>Jurisdictional resources: Less than Significant Impacts with mitigation incorporated: Proposed facilities will result in alteration of existing drainages, including those at Juniper Flats, Briggs Road and Mapes Basin sites, Line 4, and drainage ditches adjacent to the SJ River (A and B).</p>	<p>basins. These two additional basins may provide more potential foraging habitat than the previously adopted concrete lined channels at these locations.</p> <p>Jurisdictional resources: – Worse: The previously adopted Homeland MDP did not include the proposed Briggs Road and Juniper Flats earthen basins. These two additional earthen basins would more closely replicate the existing drainage courses than the previously adopted concrete lined channels at these locations. The previously adopted alignment of Romoland MDP Line A near Watson Road would impact a greater length of the drainage ditches adjacent to the San Jacinto River.</p>	<p>Jurisdictional resources: Better – additional earthen channels would more closely replicate existing drainages in the project area.</p>
Cultural Resources	Less than Significant Impacts with mitigation measures incorporated.	Same - No change in the significance determination from the proposed project.	Same - No change in the significance determination from the proposed project.
Hazards & Hazardous Materials	Less than Significant impacts with mitigation measures incorporated.	Same - No change in the significance determination from the proposed project.	Same - No change in the significance determination from the proposed project.
Hydrology and Water Quality	<p>Erosion: Less than Significant impacts</p> <p>Siltation: Less than Significant impacts.</p>	<p>Erosion: Worse – Line A, as an earthen channel between I-215 and Sherman Road would erode due to excessive velocities. The proposed Briggs Road and Juniper Flats basins would not be available for peak flow detention.</p> <p>Siltation: Worse – previously adopted Homeland MDP lack Juniper Flats and Briggs Road basins to reduce peak flow rates and downstream</p>	<p>Erosion: Worse – high velocities upstream of the I215 will scour the additional earthen channels, resulting in greater impacts from increased erosion</p> <p>Siltation: Worse –erosion of additional earthen channels by high velocity flows upstream of the I-215 would increase amounts of sediments</p>

Environmental Issue	Proposed Project (Revised Homeland/Romoland MDP/ADP)	Alternative 1 No Project -Existing Adopted MDPs/ADP	Alternative 2 Revised MDPs/ADP with Earthen Channels
	Flooding: Less than Significant Impacts.	sediment transport Flooding: Worse – Line A, as an earthen channel between I-215 and Sherman Road would be more likely to erode and fail due to excessive velocities. The proposed Briggs Road and Juniper Flats basins would not be available for peak flow detention.	picked up and transferred downstream Flooding: Worse – Additional earthen channels upstream of the I-215 would not provide 100-year flood protection due to high velocities. Earthen channels would require a greater amount of maintenance and repair.
Population and Housing	Significant Unavoidable Impacts. Project would indirectly induce population growth in the area.	Same - No change in the significance determination from the proposed project.	Same - No change in the significance determination from the proposed project.
Meets Project Objectives?	Yes	Yes	No
Environmentally Superior to Proposed Project?	N/A	No	No

Air Quality

Alternatives 1 or 2, would not eliminate temporary air emissions during construction, since these alternatives would still require excavation, grading, and hauling of materials. However, the temporary air quality impacts from the construction of Alternative 1 would be less than from the proposed project as the area of ground disturbance and equipment operation is decreased without inclusion of the Juniper Flats and Briggs Road basins.

Agricultural Resources

Potential direct losses of agricultural land would be reduced with Alternative 1, since the previously adopted Homeland MDP did not include the proposed Juniper Flats and Briggs Road basins. Implementation of Alternative 1 would include conversion of 21 acres of farmland as compared to the 90 acres under the proposed project. The wider earthen channels of Alternative 2 would impact a greater acreage of farmland than the proposed project. All three alternatives would result in similar indirect losses of farmlands due to growth inducement. Thus, Alternatives 1-2 would not avoid or minimize potential unavoidable impacts to agricultural resources.

Water Quality

Potential water quality impacts would not be reduced by Alternatives 1 or 2, in fact they would likely be worse than the proposed project. The proposed Juniper Flats and Briggs Road basins reduce the peak flow rates and capture some sediment from the adjacent mountains. Alternative 1 does not include these additional basins and would likely transport more sediment downstream

The additional earthen channels described in Alternative 2 may potentially provide additional water quality benefits. However, due to the high velocities of flows in the easterly project area, earthen channels would be scoured and sediment transported downstream, thereby adversely affecting water quality downstream. Thus, Alternatives 1 and 2 would not significantly avoid or reduce potential impacts to water resources. In addition, potential water quality impacts have been determined to be insignificant.

Biological Resources

The additional earthen detention basins contained in the proposed project alternative would reduce potential impacts as compared to Alternative 1. Alternative 2, with additional reaches of earthen open channels instead of concrete lined open channels, would reduce impacts to biological resources and to potential jurisdictional drainages in the project area as compared to the proposed project. Earthen open channels more closely replicate the existing drainages. Some vegetation could establish in these channels if additional right of way is acquired for wider channels.

The proposed Juniper Flats and Briggs Road basins, are located on sites which have potentially jurisdictional drainage features. The concrete lined channels included in Alternative 1 would not reduce or avoid potential impacts to these features. Like the proposed project alternative, Alternative 2 includes proposed earthen basins at these locations. The basins are located at the base of the local mountains at the confluence of drainages in order to collect runoff from the mountains in storm events. Alternative sites for the Juniper Flats and Briggs Road basins may avoid or reduce impacts to these jurisdictional features. However, the ability of these basins to collect flows from the mountains would likely be compromised if not located near the base of the mountains due to the lack of defined downstream watercourses and sheet flow conditions. Existing development in the area further limits the options for alternative basin locations. Relocating the basins to another site to avoid drainage features would likely result in similar biological impacts. Therefore, alternative basin sites were not considered further.

Summary of the Alternatives

Section 15126.6(a) of the CEQA Guidelines states that an EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project.

Alternative 1: Alternative 1, or the no project alternative, would include concrete lined channels at the two newly proposed basin locations. Alternative 1 would also preclude the proposed realignment of Line A. Alternative 1 would result in less direct impacts to agricultural resources, and air quality as compared to the proposed project. However it would likely result in greater impacts to known sensitive plant species, potential jurisdictional resources and water quality. While Alternative 1 would feasibly attain most of the project objectives, it would not substantially avoid or lessen potential significant impacts.

Alternative 2: Alternative 2, the proposed project with all open earthen channels where open concrete channels are proposed, would result in less impacts to biological resources as the earthen channels would more closely replicate existing drainage features in the project area and may provide some additional foraging habitat for wildlife species, as compared to the proposed project. This Alternative may have beneficial impacts, by allowing for some additional groundwater recharge through the earthen channels. Thus, Alternative 2 would potentially reduce impacts to biological resources over the proposed project. However, the wider channel footprint associated with Alternative 2 would potentially increase the direct impacts to farmlands and air quality, and Alternative 2 would result in greater impacts to water quality from erosion and siltation. Therefore, Alternative 2 would not substantially avoid or lessen potential significant impacts.

Furthermore, Alternative 2 is not feasible to implement for the following reasons:

- The additional right-of-way required for earthen channels for the entire length of all proposed channels is cost prohibitive.
- High velocity flows would continually erode earthen channels easterly of the I-215 and substantially increase maintenance costs. The alternative may not meet the project objectives.
- It is hydraulically infeasible to transition large quantities of flow from wide earthen channels to underground storm drains and existing bridges.

VI. REFERENCES

1. Earlier Analysis

Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, one or more effects have been adequately analyzed in an earlier EIR or Negative Declaration (CEQA Guidelines Section 15063(c) (3) (D)). The Riverside County General Plan EIR (SCH No. 2002051143) adopted, October 2003 and all of the studies and technical appendices there to, are hereby incorporated by reference. The Western Riverside County Multiple Species Habitat Conservation Plan Final EIR/EIS (SCH No. 2001101108) is hereby incorporated herein by reference.

2. References

The following documents were referred to as general information sources during preparation of this document. They are available for public review at the locations abbreviated after each listing and spelled out at the end of this section. Some of these documents are also available at public libraries and at other public agency offices.

- Ag. Comm. Riverside County Agricultural Commissioner. 2002 Agricultural Production Report. *(Available at the Office of the Ag Comm)*
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Results of a Focused Survey for Special Status Plant Species for the Homeland/Romoland Master Drainage Plan Project, Riverside County, California. Prepared by Glenn Lukos Associates, Inc., August 2004.
- GP EIR Riverside County Integrated Project (RCIP), Riverside County General Plan Final Program Environmental Impact Report. Riverside, California. October 2003. Comprehensive General Plan Amendment No. 618 (GPA00618), Environmental Assessment No. 38614, Environmental Impact Report (EIR) No. 441, State Clearinghouse No. 2002051143. (*Available at Riv Co – Planning or www.rcip.org*)
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SKR HCP Riverside County Habitat Conservation Agency (RCHCA) Habitat Conservation Plan (HCP) for the Stephens' Kangaroo Rat (SKR) in Western Riverside County California. March 1996. (*Available at Riv Co – Planning*)

SWRCB State Water Resources Control Board – Division of Water Quality. National Pollutant Discharge Elimination System (NPDES) Permit. (*Available at www.swrcb.ca.gov/stormwtr/industrial.htm*)

Location:Address: _____*Farm Bureau*

Riverside County Farm Bureau, Inc. 21160 Box Springs Road, Suite #102, Moreno Valley, CA 92557

Office of the Ag Comm

Office of the Agricultural Commissioner, 4080 Lemon Street, Room 19, Riverside, CA 92502-1089

Perris – Planning

City of Perris, 101 North D Street, Perris, CA 92570-1998

RWQCB

Regional Water Quality Control Board (RWQCB), Santa Ana. 3737 Main Street, Suite 500, Riverside, CA 92501

RCFC & WCD

Riverside County Flood Control and Water Conservation District, 1995 Market Street, Riverside, CA 92501

Riv Co - Planning

County of Riverside, 4080 Lemon Street, 2nd Floor, Riverside, CA 92502

SCAQMD

South Coast Air Quality Management District, 21865 East Copley Drive, Diamond Bar, CA 91765-4182

USDA

U.S. Department of Agriculture, Natural Resource Conservation Service (formerly Soil Conservation Service), 1299 Columbia Avenue, Suite E-5, Riverside, CA 92507

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**HYDRAULIC STUDY
FOR
Juniper Flats Basin, Briggs Basin,
and Line 1**

OF THE

**HOMELAND/ROMOLAND
AREA DRAINAGE PLAN**

**COUNTY OF RIVERSIDE,
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**Joseph C. Caldwell, P.E.
Senior Engineer**

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SECTION 1 - SUMMARY

PROJECT DESCRIPTION

The purpose of this report is to provide the supportive hydraulic data for Line 1, Juniper Flats Basin and Briggs Basin of the Homeland/Romoland Area Drainage Plan. The above mentioned facilities are part of several master drainage facilities that are currently being designed in the Homeland and Romoland areas of Riverside County. Previous to the design of these facilities, Albert A. Webb Associates worked with Riverside County Flood Control and Water Conservation District in revising and updating the Homeland/Romoland Area Drainage Plan. When completed, the facilities in the Homeland/Romoland ADP will provide adjacent properties protection from regional 100-year storm events.

FACILITIES OVERVIEW

Juniper Flats Basin is located on a 30 acre “L” shaped lot at the northeast corner of Juniper Flats Road and Watson Road. Attenuated flows from Juniper Flats Basin are discharged into Line 1. From Juniper Flats Basin, Line 1 conveys flow westerly along Watson Road to Briggs Road. At Briggs Road the flow is conveyed southerly to Briggs Basin. Briggs Basin is located on the northeast corner of Briggs Road and McLaughlin Road. Briggs Basin is located on a 38 acre parcel. Flows from Briggs Basin are discharged into Line A of the Homeland/Romoland ADP.

HYDROLOGY

Unit hydrograph analysis for this report was taken from a March 2003 study by Albert A. Webb Associates titled, “Design Hydrology Review for the Homeland/Romoland Area Drainage Plan for Line 1 (Homeland)”. The hydrological calculations in the above mentioned report were extensively reviewed and approved by Riverside County Flood Control and Water Conservation District. For the purposes of this report, the approved unit hydrographs were routed through the detention basins and Line 1. The results of this routing study are contained in Appendix A of this report. Table 1-1 shows how the newly routed flows compare to the ADP flows. The reaches called out in Table 1-1 are shown on Exhibit 1-1. The newly routed flows are very close – within 3.8% or less – to the design flows. Since the newly routed flows were slightly higher than the ADP flows, the higher flows were used in all hydraulic calculations for Line 1.

Table 1-1 - Line 1 Routing Results

Reach	100 Yr 3 Hr flow (cfs)	100 Yr 6 Hr flow (cfs)	100 Yr 24 Hr flow (cfs)	ADP flow (cfs)	% Change
0-1	485	504	459	493	2.2%
1-2	485	505	464	494	2.2%
2-3	779	849	556	828	2.5%
3-4	835	907	572	882	2.8%
4-5	1010	1091	618	1061	2.8%
5-6	1102	1186	643	1153	2.9%
6-7	1302	1386	697	1335	3.8%
7-8	1480	1570	751	1513	3.8%

HYDRAULICS

The Los Angeles County WSPG computer program was used to determine the water surface profile for all lines in this report. In addition, it was used to develop outlet rating curves for Juniper Flats Detention Basin and Briggs Detention Basin.

LOCATION MAP

SECTION 2 - JUNIPER FLATS BASIN HYDRAULICS

OVERVIEW

Juniper Flats Basin is a critical part of the Homeland/Romoland drainage system. Juniper Flats basin has a surface area of approximately 17 acres. The bottom elevation of the basin is 1686. The spillway elevation of the basin is 1708.4. The total storage capacity of the basin is 144 ac-ft. The storage volume is much greater than is needed to route 100-year flows through the basin. Per preliminary basin studies, the excess storage capacity of the basin is used to remove debris from storm runoff.

LINE 1

WSPG was used to determine the water surface elevation for various flows through Line 1. Results of these calculations, along with the resulting outlet curve, are contained in this section. They are used as part of the routing study contained in Appendix A of this report.

STORAGE VOLUME

Storage volumes at various elevations above the basin bottom were computed using the proposed grading contours for the basin. Volumes were obtained by using the Digital Terrain Module (DTM) available in TerraModel CAD software. Printouts of the volumetric calculations are included in this section.

SPILLWAY REQUIREMENTS

A 100-year emergency spillway is included as part of the basin design. The peak flow of 1816 cfs comes from the 100-year 3-hour storm event. The spillway is a broad crested weir with a 175 ft. base. The base of the weir is at elevation 1708.4. The basin can pond up to 1710.4 without overtopping. Backup spillway calculations are contained in this section.

SECTION 3 - BRIGGS BASIN HYDRAULICS

OVERVIEW

Briggs Detention Basin is also a critical part of the Homeland/Romoland Area Drainage Plan. Briggs Basin has a surface area of approximately 31.5 acres. The bottom elevation of the basin is 1497.5. The top for the basin varies in height from 1519 at the southwest corner to 1533 in the northeast corner. The total basin storage capacity of the basin is 450 ac-ft. The storage volume is much greater than is needed to route 100-year flows through the basin. Per preliminary basin studies, the excess storage capacity of the basin is used to remove debris from storm runoff.

LINE A

WSPG was used to determine the water surface elevation for various flows through Line A. Results of these calculations, along with the resulting outlet curve, are contained in this section. They are used as part of the routing study contained in Appendix A of this report.

STORAGE VOLUME

Storage volumes at various elevations above the bottom of the basin were computed using the proposed grading contours for the detention basin. Volumes were obtained by using the Digital Terrain Module (DTM) available in TerraModel CAD software. Printouts of the volumetric calculations are included in this section.

SPILLWAY REQUIREMENTS

In discussions that took place between Mr. Stuart McKibbin of Riverside County Flood Control and Water Conservation District and Albert A. Webb Associates, it was agreed that a spillway was not necessary for Briggs Basin. Briggs Detention Basin is an incised basin, and as such there are no embankments that could wash out. In the *extremely rare* event that the basin outlet were to plug up and the basin were to fill completely up, excess flow would just “bubble out” of the top of the basin. A 4’ cut-off wall is included along the southwest corner of Briggs Basin. This cut-off wall will provide protection should the basin ever overtop.

SECTION 4 - LINE 1 HYDRAULIC CALCULATIONS

OVERVIEW

The calculations in this report assume that tributary areas to Line 1 are fully developed in accordance with the master plan report. Not all master plan connects are included as part of this design. It is intended that when future development in the area is undertaken that an encroachment permit will be obtained and a connection will be made to Line 1 where it is needed.

The Los Angeles County WSPG computer program was used to determine the water surface profile for Line 1. An initial water surface elevation was taken to be 1514.67 – the maximum 100 year water surface elevation of Briggs Basin. The WSPG results are contained in this section of the report.

ADDITIONAL CONNECTION

A connection to Line 1 that was not included as part of the Homeland Master Drainage Plan is included with the design of Line 1. In discussions that Albert A. Webb Associates had with Mr. Stuart McKibbin, Mr. Kent Allen, and Mr. Art Diaz of Riverside County Flood Control and Water Conservation District, it was agreed that an area weighted method should be used to adjust master plan flows. Specific to Line 1 a new connection is made approximately 1,000 feet south of the intersection of Briggs Road and Watson Road. This connection has a tributary area of 69 acres. Per the master plan, this area is supposed to be added to Line 1—as part of a total tributary area of 160 acres — at the intersection of Briggs Road and Highway 74.

In Table 1-1 of this report, the Line 1 flow at the intersection of Briggs and Highway 74 increases from 1,386 cfs to 1,570 cfs – an increase of 184 cfs. The tributary area at the new Line 1 connection is 44% of the total MDP tributary area at Briggs Road and Highway 74. At this point 82 cfs (44% of 184 cfs) is added to the system flow. The remaining 102 cfs is added to the system at the intersection of Briggs Road and Highway 74.

SECTION 5 - INTERIM CONDITIONS

OVERVIEW

An interim cutoff channel along the easterly side of Briggs Road between Watson Road and Highway 74 is included as part of the design of Line 1. This channel is intended to capture flows that would otherwise flow across Briggs Road and add them to Line 1 in accordance with the Homeland Master Drainage Plan. Existing condition hydrology calculations were made to ensure that the interim cutoff channel would be sized large enough to convey 100 year flows. Ultimate condition hydrology calculations were done to ensure that the connections made to Line 1 are large enough to accommodate fully developed 100-year flows. Existing condition hydrology calculations, ultimate condition hydrology calculations, interim cutoff channel normal depth calculations, and inlet capacity calculations are all included in this section as backup for the interim cutoff channel.

SECTION 6 - STRUCTURAL CALCULATIONS

OVERVIEW

Line 1 has four channel transitions (RCFC&WCD STD CH329). The design of Line 1 transition structures is based upon the worst case soils condition along the reach. A copy of the preliminary geotechnical report for the Homeland/Romoland system is included as Appendix B of this report. The Orange County Rectangular Channel Design (OCRCD) program was used to calculate the steel for the transition structures. Calculations and steel distribution for all Line 1 transitions are contained in this section as backup.

APPENDIX A – ROUTING STUDIES

(Not included to reduce file size)

APPENDIX B – PRELIMINARY GEOTECHNICAL REPORT

(Not included to reduce file size)

APPENDIX C – DEBRIS REMOVAL ANALYSIS

Briggs Road & Juniper Flats Detention Basins

Debris Capacity Calculation Estimates

The capacity for the Briggs Road and Juniper Flats detention basins were oversized between 20% to 30% to account for the ability to collect potential average annual debris flows from the foothills without clogging the main outlet system. This additional capacity could also be used for long term debris storage if maintenance on the basins were delayed.

The total debris storage capacity is based on the increased volume within the two basins and using an average of 110 lbs/ft³ for the unit weight of the debris flow. Based on the design for the basins, there is approximately 210 acre-feet of additional storage available for long debris storage. Therefore, the maximum amount of debris storage capacity is as follows:

$$(210 \text{ acre-feet}) \times (43560 \text{ ft}^2/\text{acre-foot}) \times (110 \text{ lbs/ft}^3) \times (1\text{ton}/2000 \text{ lbs}) = 503,000 \text{ tons}$$

The average annual debris production is based on data collected by the Riverside County Flood Control & Water Conservation District as presented in the District's Hydrology Manual. Based on this manual, the expected debris production for this watershed is 6,450 cubic yards of debris per square mile per year. Using an average of 110 lbs/ft³ for the unit weight of the debris flow, the average annual debris removal from the storm flows is as follows:

$$(6,450 \text{ CY/Sq.Mi.}) \times (6.5 \text{ Sq.Mi.}) \times (27\text{ft}^3/\text{CY}) \times (110 \text{ lbs/ft}^3) \times (1\text{ton}/2000\text{lbs}) = 62,260 \text{ tons}$$

DEBRIS

General - Consideration of debris loads carried by streams below mountain and foothill areas is essential in the planning and design of flood control works. Unfortunately, this is one of the least understood, and most often neglected areas of flood control engineering. Failure to provide either debris storage facilities, or additional hydraulic capacity for debris bulked flows, could seriously affect the performance of flood control structures downstream of mountain and foothill watersheds.

Criteria for debris basin design is usually based on providing storage capacity for debris generated by a single major flood event at the minimum. Additional (or in some cases less) capacity may be provided depending on the physical constraints of the site.

Some of the many factors which influence the debris production characteristics of a particular drainage area are: the size and shape of the area; steepness of the stream channels and tributary surfaces; a wide range of geological factors; type and quality of vegetative cover; the likelihood of fires over the watershed as may be indicated by the burn history; and frequency of intense flood producing storms.

Little observational data is available in western Riverside County on debris production potential. The District operates a network of 12 dams and debris basins, however, most of these structures are relatively new, and the older structures are flood control dams located in relatively low debris production areas. Considerable information has been gathered by the Los Angeles County Flood Control District (LACFCD) on their large network of dams and debris basins. Maximum single storm debris production rates as high as 120,000-cubic yards from a one square mile watershed, and single season rates as high as 150-percent of the maximum single storm rate, have been recorded on these basins. Debris production rates have been found to be inversely proportional to drainage area size, with watersheds smaller than one-square mile having the highest rates, and larger watersheds typically having lower rates. Debris volumes carried by

flowing streams which equal the clear water volume of the stream (100-percent bulking) have also been recorded.

In the following paragraphs methods are discussed for estimating single major storm debris production rates, peak rate bulking factors, and average annual accumulation rates. It should be emphasized that this material is not recommended as a basis for design, but is presented to make the engineer aware of some of the information that is available, and some of the methods that have been commonly used in evaluating debris related problems in the Southern California area. Until additional data is available for Riverside County selection of design debris storage volumes, or peak bulking rates, should be made with extreme caution after a thorough evaluation of all available information.

Single Storm Debris Production - Single storm debris production estimates can be made using methods developed by LACFCD or the Los Angeles District Army Corps of Engineers (USCE). The methods of both agencies are based on records of debris flows in Los Angeles County, primarily on the coastal front of the San Gabriel Mountains. An enveloping curve based on these records, showing debris production potential in cubic yards per square mile per storm, is shown on Plate F-1. The enveloping curve can be used to make a quick "order of magnitude" estimate of debris potential of a watershed based on maximum recorded debris flows during major floods in Southern California. The LACFCD and USCE methods which provide more refined empirical estimates of debris production based on physical watershed characteristics are discussed in the following paragraphs.

The LACFCD method is presented in a report titled "Debris Reduction Studies for Mountain Watersheds of Los Angeles County", dated 1959. An equation is presented to estimate debris production based on peak flow rate, condition of the vegetative cover, and "relief ratio", a measure of the relative steepness of a watershed.

The USCE method is presented in a report by Fred E. Tatum titled "A New Method of Estimating Debris-Storage Requirements for Debris Basins", dated 1963. The USCE method is also often referred to as the Tatum method. In the USCE method a base maximum possible debris potential value for a one-square mile watershed is used. This base value is then reduced according to factors developed for: watershed slope; "drainage density", the total number of stream miles divided by the area; "hypsometric index", the relative height at which the drainage area is divided into two equal parts; and the 3-hour design rainfall intensity. The resulting debris production rate is the yield for one square mile in the watershed assuming a recent 100-percent burn. It is then further adjusted to the actual size watershed being considered, and to account for the assumed number of years recovery from a total burn.

Burn history is an important factor in debris studies, as all other factors being equal, debris discharges from totally burned watersheds may be many times the rate for an unburned watershed. Average annual burn rates may vary considerably for watersheds in the District according to such factors as accessibility to the public, climate, topography, etc. Valuable information on historical fires can often be obtained from the U. S. Forest Service or California Division of Forestry for use in making debris studies. Recovery from a total watershed burn has been found to take from 10 to 12 years. Typical designs assume 3 to 5 years recovery from a total burn for making estimates of design storm debris production since the probability of a design storm following a 100-percent burn of the entire watershed is extremely remote. Debris production potential in percent of the rate for a totally burned watershed, is given in the following tabulation for one through ten-year recovery periods.

Recovery time in years after total watershed burn.	1	2	3	4	5	6	7	8	9	10
Debris production rate in percent of the rate for a totally burned watershed (Per USCE Tatum Report)	100	35	22	15	11	7	5	4	3.5	3

Application of the LACFCD and USCE methods directly to basins in the District is questionable in light of significant differences in geology between certain areas of western Riverside County, and the coastal slopes of the San Gabriel Mountains. An example is in the San Jacinto Mountains where debris flows on some watersheds are anticipated to be much smaller than those in the San Gabriel Mountains, primarily due to the massive nature of the rock in the San Jacintos compared to the fractured nature of the San Gabriel formations. In such cases an evaluation of the geological conditions in the area under study, compared to conditions in areas where records are available, may lead to a reasonable estimate of debris potential. Such investigations should only be attempted by experienced professional engineers or geologists.

In some cases a detailed geological investigation of debris cone deposits below a mountain watershed may yield important information on the size of historical debris flows.

Peak Bulking Rates- - Debris volumes equal to the clear water volume have been recorded during major floods in Los Angeles County. This is equivalent to 100-percent bulking, or a bulking factor of 2. Since transport capacity increases with flow velocity, it is conceivable that peak bulking rates may have been even higher during these events. LACFCD has proposed relating the peak bulking rate to debris production volume by assigning the maximum observed bulking factor of 2 to the maximum observed single storm debris production rate of 120,000-cubic yards for a one-square mile area. The peak rate bulking factor would then be expressed by:

$$F_b = 1 + \left[\frac{D}{120,000} \right]$$

where:

D = Design storm debris production rate for the study watershed in cubic yards per square mile

To account for uncertainty LACFCD adds a factor of safety to this relationship for design purposes.

The peak bulking rate is applied to the peak flow rate where the entire drainage area contributes debris. Where portions of the watershed are either nonproductive, or debris control structures reduce the quantities available for transport, the bulking factor is applied on a proportionate basis.

As discussed in the previous section application of this information should only be attempted after a thorough geologic analysis of the study area.

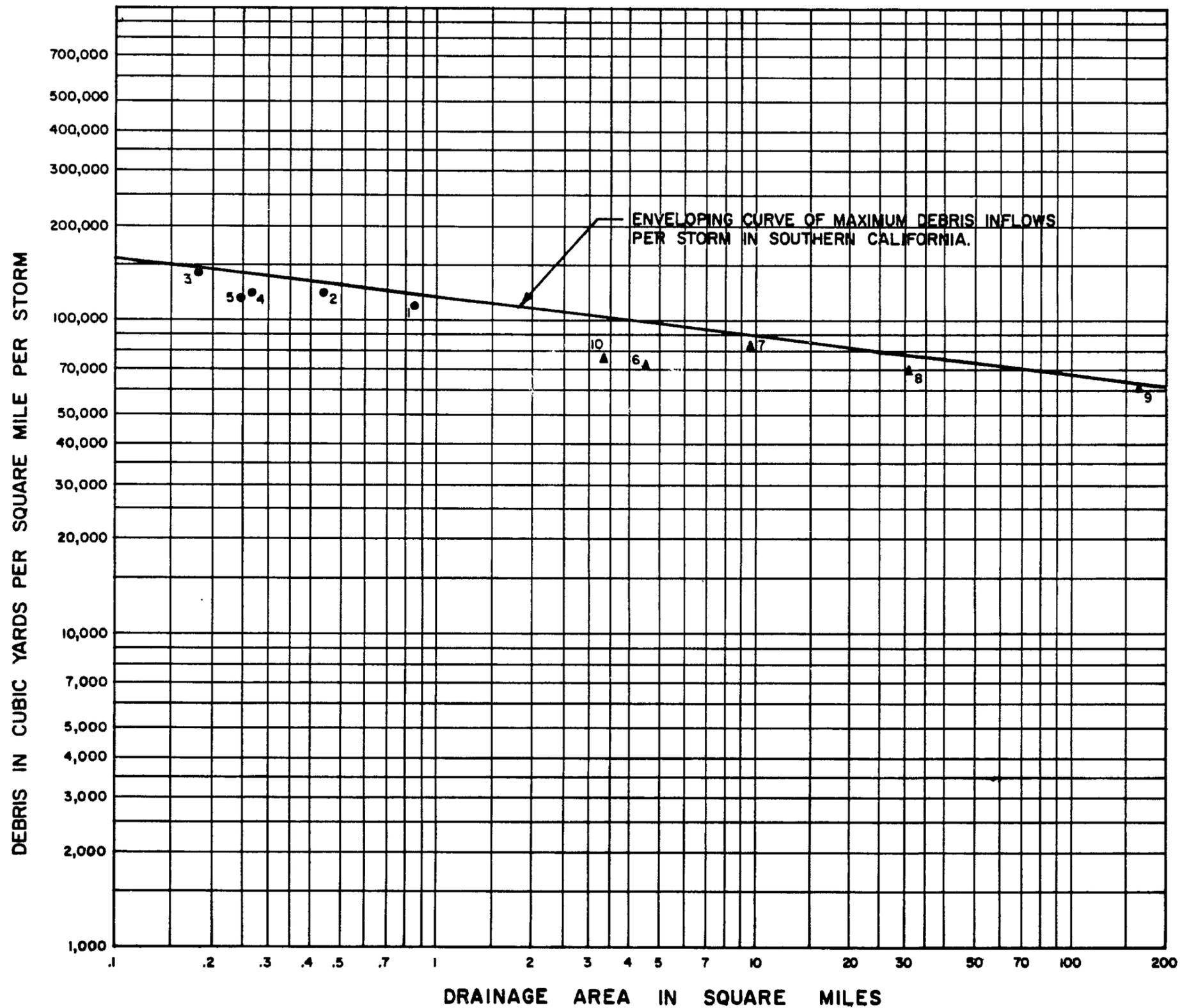
Average Annual Debris Production - Estimates of average annual debris production rates are useful in evaluating the potential life expectancy of a basin before clean out is required. In many cases it may be most cost effective to provide additional storage above the single storm volume criteria, and extend the expected clean out interval required for maintenance of basin capacity.

A report titled "Factors Affecting Sediment Yield and Measures for the Reduction of Erosion and Sediment Yield" may be useful in estimating average annual debris production rates in the District, or in adjusting data from adjacent areas to conditions in Riverside County. This report dated October 1968, was developed for areas in the Pacific Southwest by the Water Management Subcommittee of the Pacific Southwest Inter-Agency Committee.

Based on long term records (30-years or more) from Los Angeles County, average annual debris production rates range from 700-cubic yards to 12,000-cubic yards per square mile for one-square mile watersheds in the San Gabriel Mountains. The average annual rate in these watersheds is approximately 6,450-cubic yards per square mile (about 4 acre-feet) for a one square mile watershed.

Average annual debris production rates in Riverside County are generally believed to be lower than those experienced in the western San Gabriel Mountains. It may be possible to

estimate average annual debris production rates for watersheds in Riverside County by using data developed in the Los Angeles area, and accounting for geologic and hydrologic differences. As previously discussed such evaluations should be made only by competent engineers and geologists.



RECORDED OR ESTIMATED DEBRIS INFLOWS

• - DEBRIS BASINS

- | | |
|-----------------|--------------|
| 1. HALL-BECKLEY | MARCH 1938 |
| 2. HARROW | JANUARY 1969 |
| 3. HOOK EAST | JANUARY 1969 |
| 4. SHIELDS | MARCH 1938 |
| 5. WEST RAVINE | MARCH 1938 |

▲ - RESERVOIRS

- | | |
|-----------------|--------------|
| 6. BIG DALTON | JANUARY 1969 |
| 7. EATON WASH | MARCH 1938 |
| 8. DEVIL'S GATE | MARCH 1938 |
| 9. SAN GABRIEL | MARCH 1938 |
| 10. SAWPIT | JANUARY 1969 |

NOTES:

1. Recorded or estimated debris flows per Bibliography Item No. 13. Values are for debris basins and dams in Los Angeles County.

RCFC & WCD
HYDROLOGY MANUAL

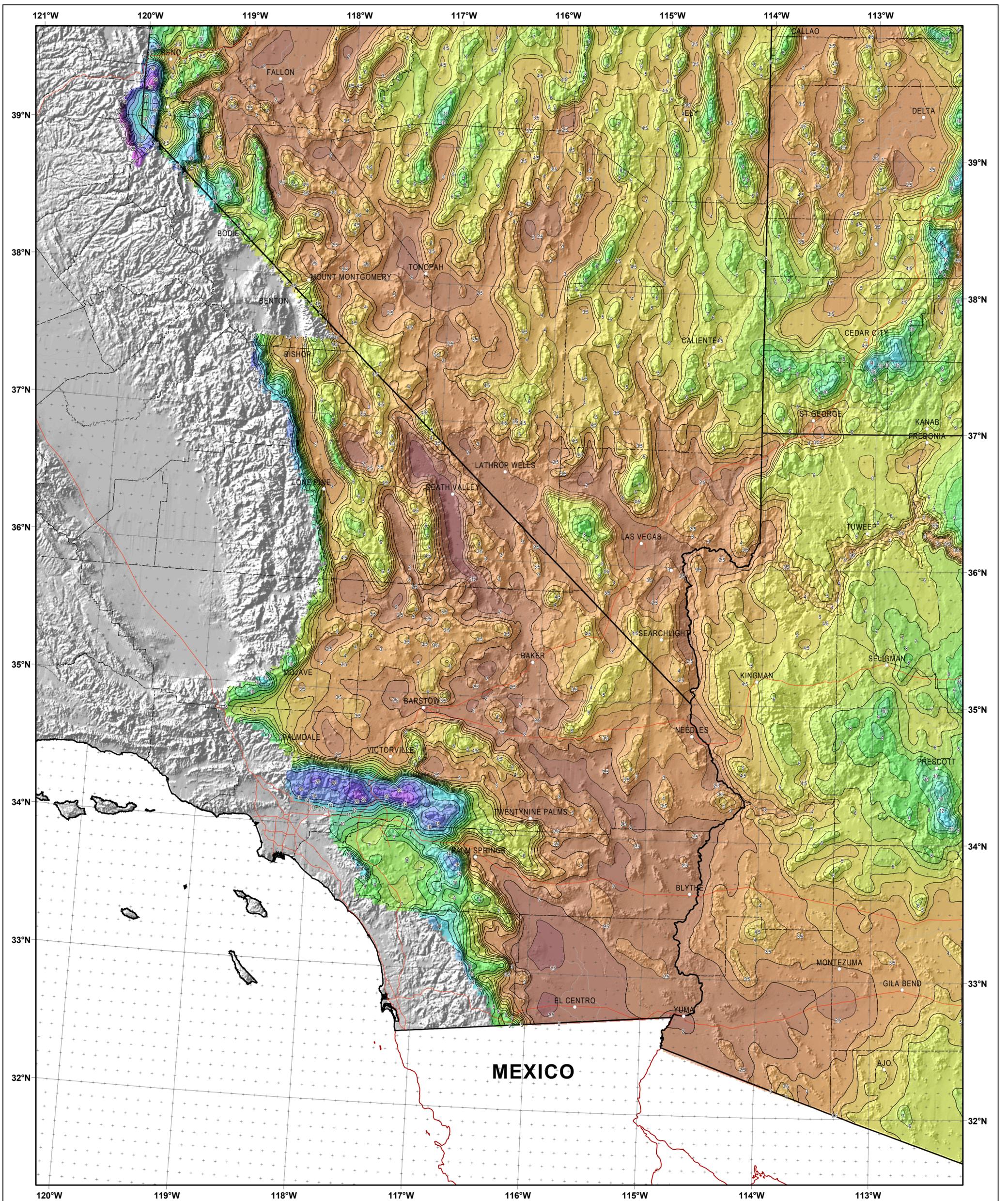
PLATE F-1

RIVERSIDE COUNTY FLOOD CONTROL
AND
WATER CONSERVATION DISTRICT
**ENVELOPING CURVES
OF DEBRIS INFLOW IN
SOUTHERN CALIFORNIA** 165

APPENDIX D – RUNOFF CAPTURE ANALYSIS

The Phase1 Homeland/Romoland MDP facilities will capture runoff and provide increased infiltration capacity. Based upon discussions with Steve Clark, Senior Engineer at Riverside County Flood Control and Water Conservation District in charge of rainfall data collection, the average rainfall for the Homeland/Romoland area is 12 inches per year. Based upon a review of the NOAA 14 Rainfall Atlas for this area on an annual basis approximately 1/3 of the annual amount will fall within a 30 day period and half will fall within a 60 day period. A review of 1-Year Synthetic Unit Hydrographs of this watershed shows that there is an average rainfall loss rate of 55.5% this leaves an effective runoff rate of 44.5%. A detailed continuous hydrological simulation would provide more detailed results, but for estimation purposes it reasonable to use the average loss rate on the average annual rainfall.

$$4,007 \text{ acres} \times 12 \text{ inches} \times \frac{1 \text{ ft}}{12 \text{ inches}} \times 0.445 \text{ effective runoff} = 1,783 \text{ acre} - \text{feet} \approx 1,785 \text{ acre} - \text{feet}$$



SOUTHEASTERN CALIFORNIA

NOAA Atlas 14, Volume 1, Version 4
Semiarid Southwestern United States

Prepared by U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL WEATHER SERVICE
 OFFICE OF HYDROLOGIC DEVELOPMENT
 HYDROMETEOROLOGICAL DESIGN STUDIES CENTER
 June 2006

SCALE 1:2,000,000
 (when printed/viewed at ANSI C size)

0 10 20 30 40 50 Miles

0 5 10 20 30 40 50 60 70 Kilometers

Isopluvials of 60 day precipitation (inches)
with Average Recurrence Interval of 2 years

See NOAA Atlas 14 documentation for factors to
 convert to Annual Exceedance Probabilities for
 all estimates below 25 years



Inches

1.15 - 1.50	4.01 - 4.50	9.01 - 10.00	18.01 - 20.00	30.01 - 32.00
1.51 - 2.00	4.51 - 5.00	10.01 - 11.00	20.01 - 22.00	32.01 - 34.00
2.01 - 2.50	5.01 - 6.00	11.01 - 12.00	22.01 - 24.00	34.01 - 36.00
2.51 - 3.00	6.01 - 7.00	12.01 - 14.00	24.01 - 26.00	
3.01 - 3.50	7.01 - 8.00	14.01 - 16.00	26.01 - 28.00	
3.51 - 4.00	8.01 - 9.00	16.01 - 18.00	28.01 - 30.00	

Projection: Lambert Conformal Conic, Datum NAD83, Standard Parallels: 38° and 45°, Central Meridian 112°



POINT PRECIPITATION FREQUENCY ESTIMATES FROM NOAA ATLAS 14



California 33.758 N 117.102 W 2152 feet

from "Precipitation-Frequency Atlas of the United States" NOAA Atlas 14, Volume 1, Version 4
G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley
NOAA, National Weather Service, Silver Spring, Maryland, 2006

Extracted: Tue Sep 7 2010

- | | | | | | | |
|-------------------|-------------|--------------|----------|------|------|---------------------|
| Confidence Limits | Seasonality | Related Info | GIS data | Maps | Docs | Return to State Map |
|-------------------|-------------|--------------|----------|------|------|---------------------|

Precipitation Frequency Estimates (inches)																		
ARI* (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	0.14	0.22	0.27	0.36	0.45	0.62	0.74	1.07	1.43	1.74	1.93	2.33	2.77	3.08	3.72	4.43	5.13	5.87
2	0.18	0.28	0.34	0.46	0.57	0.78	0.93	1.35	1.83	2.24	2.50	3.04	3.63	4.05	4.91	5.84	6.81	7.78
5	0.24	0.37	0.46	0.61	0.76	1.00	1.20	1.73	2.39	3.00	3.39	4.21	5.07	5.65	6.88	8.18	9.68	11.03
10	0.29	0.44	0.55	0.74	0.92	1.20	1.42	2.04	2.82	3.58	4.11	5.16	6.23	6.93	8.44	10.01	11.95	13.58
25	0.37	0.56	0.69	0.93	1.15	1.48	1.74	2.48	3.41	4.39	5.15	6.51	7.87	8.76	10.65	12.57	15.17	17.19
50	0.43	0.66	0.81	1.09	1.35	1.72	2.00	2.82	3.88	5.04	6.00	7.63	9.22	10.24	12.45	14.63	17.79	20.11
100	0.50	0.76	0.94	1.27	1.57	1.97	2.28	3.19	4.36	5.71	6.92	8.85	10.67	11.86	14.38	16.82	20.61	23.25
200	0.58	0.88	1.09	1.47	1.82	2.25	2.59	3.57	4.86	6.42	7.90	10.17	12.23	13.58	16.44	19.14	23.63	26.58
500	0.69	1.06	1.31	1.76	2.18	2.65	3.02	4.10	5.54	7.40	9.31	12.08	14.47	16.06	19.37	22.41	27.94	31.33
1000	0.79	1.21	1.49	2.01	2.49	2.98	3.37	4.52	6.07	8.18	10.47	13.67	16.31	18.10	21.77	25.04	31.47	35.20

* These precipitation frequency estimates are based on a partial duration series. ARI is the Average Recurrence Interval. Please refer to [NOAA Atlas 14 Document](#) for more information. NOTE: Formatting forces estimates near zero to appear as zero.

* Upper bound of the 90% confidence interval Precipitation Frequency Estimates (inches)																		
ARI** (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	0.17	0.25	0.31	0.42	0.52	0.69	0.82	1.19	1.60	1.94	2.21	2.62	3.12	3.46	4.21	4.99	5.83	6.70
2	0.21	0.32	0.40	0.53	0.66	0.87	1.04	1.50	2.04	2.50	2.86	3.42	4.10	4.54	5.55	6.59	7.74	8.89
5	0.28	0.42	0.52	0.70	0.87	1.12	1.33	1.93	2.67	3.33	3.88	4.74	5.71	6.33	7.76	9.22	10.99	12.56
10	0.34	0.51	0.63	0.85	1.05	1.34	1.57	2.27	3.14	3.98	4.68	5.80	7.01	7.76	9.50	11.26	13.53	15.44
25	0.42	0.64	0.79	1.06	1.32	1.65	1.92	2.75	3.80	4.88	5.85	7.32	8.85	9.78	11.97	14.13	17.14	19.48
50	0.49	0.75	0.93	1.25	1.54	1.91	2.21	3.14	4.32	5.59	6.82	8.58	10.34	11.43	13.97	16.44	20.07	22.78
100	0.57	0.87	1.08	1.45	1.79	2.19	2.52	3.54	4.85	6.34	7.86	9.95	11.99	13.24	16.15	18.89	23.24	26.31
200	0.66	1.00	1.24	1.67	2.06	2.49	2.85	3.96	5.41	7.11	8.98	11.44	13.76	15.18	18.48	21.52	26.66	30.11
500	0.79	1.20	1.48	2.00	2.47	2.93	3.33	4.55	6.17	8.20	10.59	13.63	16.32	18.00	21.83	25.28	31.57	35.53
1000	0.89	1.36	1.69	2.27	2.81	3.30	3.71	5.01	6.75	9.08	11.94	15.47	18.43	20.34	24.61	28.33	35.62	40.02

* The upper bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are greater than.

** These precipitation frequency estimates are based on a partial duration series. ARI is the Average Recurrence Interval.

Please refer to [NOAA Atlas 14 Document](#) for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

* Lower bound of the 90% confidence interval Precipitation Frequency Estimates (inches)																		
ARI** (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	0.13	0.19	0.24	0.32	0.40	0.55	0.67	0.96	1.28	1.56	1.69	2.09	2.46	2.75	3.32	3.92	4.51	5.18
2	0.16	0.24	0.30	0.41	0.50	0.70	0.84	1.21	1.63	2.02	2.19	2.73	3.23	3.61	4.37	5.18	5.99	6.87
5	0.21	0.32	0.40	0.54	0.67	0.90	1.08	1.56	2.13	2.69	2.98	3.77	4.51	5.04	6.11	7.24	8.49	9.71
10	0.26	0.39	0.48	0.65	0.80	1.07	1.28	1.83	2.51	3.21	3.59	4.59	5.52	6.16	7.47	8.83	10.44	11.92
25	0.32	0.48	0.60	0.81	1.00	1.32	1.56	2.21	3.03	3.92	4.48	5.76	6.93	7.74	9.37	11.04	13.18	14.98

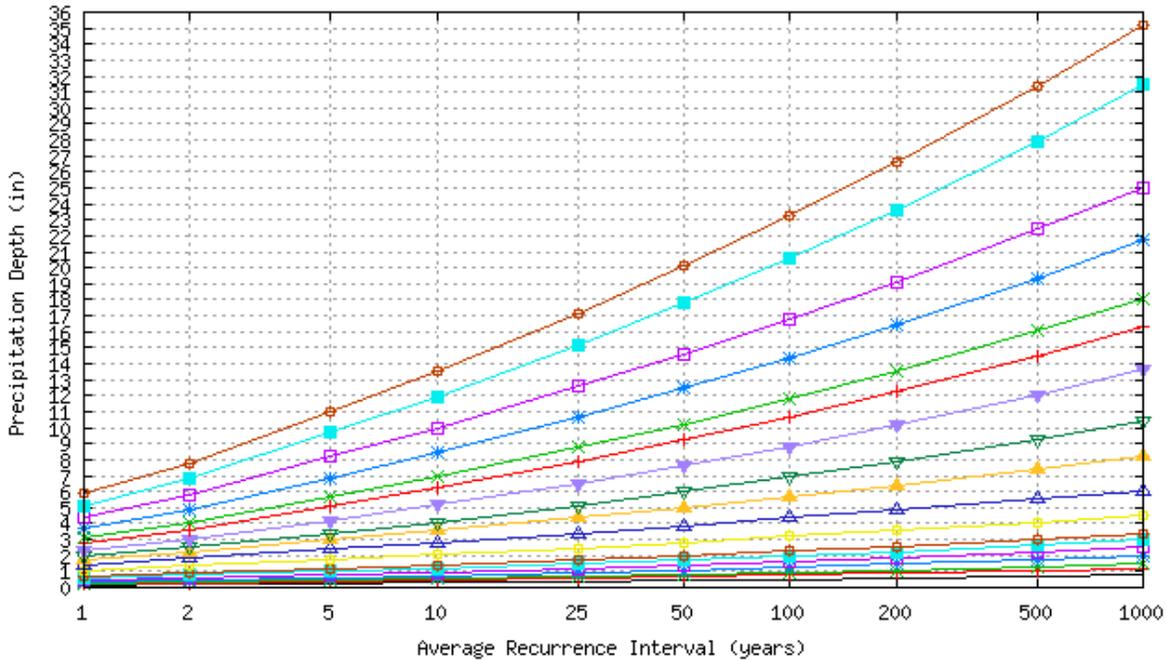
50	0.37	0.56	0.70	0.94	1.17	1.52	1.78	2.50	3.43	4.47	5.19	6.71	8.07	9.01	10.87	12.79	15.36	17.44
100	0.43	0.65	0.81	1.09	1.35	1.73	2.03	2.82	3.85	5.05	5.94	7.71	9.27	10.35	12.46	14.62	17.68	20.02
200	0.49	0.75	0.93	1.25	1.54	1.96	2.28	3.14	4.27	5.64	6.74	8.78	10.54	11.75	14.11	16.50	20.09	22.72
500	0.58	0.89	1.10	1.48	1.83	2.29	2.64	3.58	4.84	6.45	7.85	10.28	12.33	13.72	16.43	19.11	23.45	26.47
1000	0.66	1.00	1.24	1.67	2.06	2.55	2.92	3.93	5.28	7.07	8.73	11.49	13.77	15.31	18.29	21.15	26.14	29.43

* The lower bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are less than.
 ** These precipitation frequency estimates are based on a partial duration maxima series. ARI is the Average Recurrence Interval.

Please refer to [NOAA Atlas 14 Document](#) for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

Text version of tables

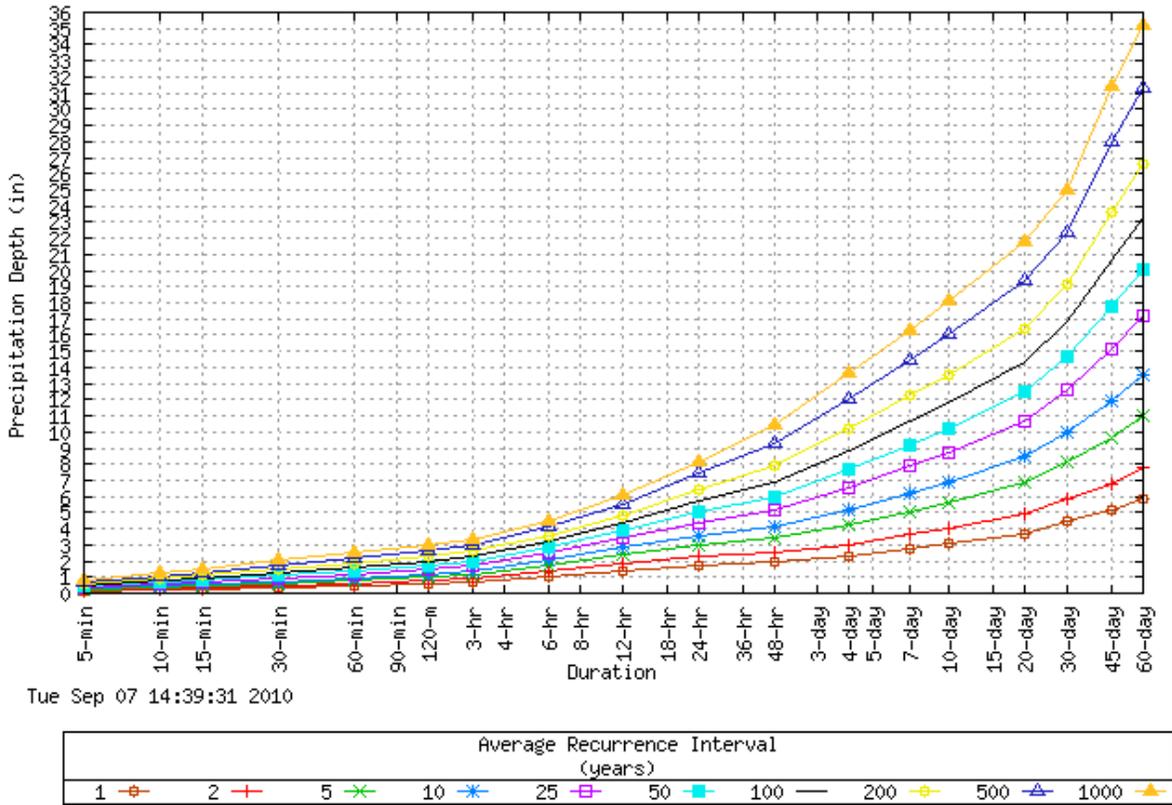
Partial duration based Point Precipitation Frequency Estimates - Version: 4
 33.758 N 117.102 W 2152 ft



Tue Sep 07 14:39:31 2010

Duration					
5-min —	30-min *	3-hr o	24-hr ^	7-day +	30-day □
10-min +	60-min □	6-hr o	48-hr v	10-day x	45-day ■
15-min x	120-m ■	12-hr ▲	4-day ▼	20-day *	60-day o

Partial duration based Point Precipitation Frequency Estimates - Version: 4
33.758 N 117.102 W 2152 ft



Related Information

Maps & Aerials

[Click here](#) to see topographic maps and aerial photographs available for this location from [Microsoft Research Maps](#)

Watershed/Streamflow Information

[Click here](#) to see watershed and streamflow information available for this location from the U.S. Environmental Protection Agency's site

Climate Data Sources

National Climatic Data Center (NCDC) database

Locate NCDC climate stations within:

or of this location. Digital ASCII data can be obtained directly from [NCDC](#).

Note: Precipitation frequency results are based on analysis of precipitation data from a variety of sources, but largely NCDC. The following links provide general information about observing sites in the area, regardless of if their data was used in this study. For detailed information about the stations used in this study, please refer to the matching documentation available at the [PF Document](#) page

Natural Resources Conservation Service's (NRCS) SNOTEL dataset

At present, there are more than 700 [SNOTEL sites](#) typically located in the mountainous regions of the [Western U.S.](#) that report daily and/or hourly precipitation, air temperature, snow water equivalent and snow depth data.

**DESIGN HYDROLOGY REVIEW
FOR THE HOMELAND/ROMOLAND
AREA DRAINAGE PLAN**

FOR

LINE 1 (HOMELAND)

**COUNTY OF RIVERSIDE,
CALIFORNIA**

**NOVEMBER 2000
REVISED APRIL 2002
REVISED JANUARY 2003
REVISED MARCH 2003**

**DESIGN HYDROLOGY REVIEW
FOR THE HOMELAND/ROMOLAND
AREA DRAINAGE PLAN**

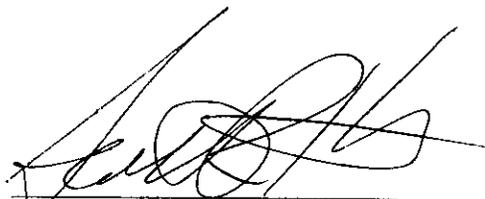
FOR

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**NOVEMBER 2000
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REVISED MARCH 2003**

**APPROVED BY:
ALBERT A. WEBB ASSOCIATES**



**Scott R. Hildebrandt, P.E.
Vice President**



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APPENDICES

Hydrology Studies	Appendix A
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Unit Hydrograph Studies for Subarea A	A
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Unit Hydrograph Studies for Subarea B	B
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Unit Hydrograph Studies for Subarea C	C
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Unit Hydrograph Studies for Subarea C-1	C
---	---

Unit Hydrograph Studies for Subarea D	D
---------------------------------------	---

Unit Hydrograph Studies for Subarea E	E
---------------------------------------	---

Unit Hydrograph Studies for Subarea F	F
---------------------------------------	---

Unit Hydrograph Studies for Subarea G	G
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Unit Hydrograph Studies for Subarea H	H
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I. INTRODUCTION

The purpose of this report is to establish the design hydrology to be used for the Area Drainage Plan (ADP) revision for the Homeland/Romoland area. The Riverside County Flood Control and Water Conservation District prepared the initial design hydrology in the early 1980's. This report intends to utilize the majority of that information. This report establishes the design hydrology for the Homeland Area. An accompanying report, titled Design Hydrology Review For the Homeland/Romoland Area Drainage Plan For Line A, Lateral A-2, and Lateral A-3, has been written to establish the design hydrology for the Romoland area.

II. HYDROLOGY

Homeland Area

The primary revision to the Homeland/Romoland Area Drainage Plan is the inclusion of two retention basins in the Homeland area. The first retention basin is located in the Juniper Flats area, at the northeast corner of Juniper Flats Road and Watson Road. This basin is at the upstream end of Line 1 of the Homeland Area Drainage Plan. Based upon the design hydrology prepared by the Riverside County Flood Control and Water Conservation District, the peak 1-hour, 100-year runoff rate is 1970 cubic feet per second. Based upon the Synthetic Unit Hydrograph Study attached in Appendix A, the peak 1-hour, 100-year runoff rate developed for the retention basin routing is 2402 cubic feet per second. This value correlates within 22%. The second retention basin is proposed on Briggs Road, at the confluence of Line 1 and Line 4 of the Homeland Area Drainage Plan. The outlet of this retention is the upstream end of Line A of the Romoland Area Drainage Plan. The inflow components of the second retention basin are Line 1 and Line 4 of the Homeland Area Drainage Plan. Based upon the design hydrology prepared by the Riverside County Flood Control and Water Conservation District, the peak 1-hour, 100-year runoff rate for Line 4 is 2225 cubic feet per second. The Synthetic Unit Hydrograph Study, attached in Appendix A, calculated the peak 1-hour, 100-year runoff rate as 1915 cubic feet per second. The value correlates within 14% of the adopted runoff rate. This unit hydrograph was used for design purposes.

The second component of the inflow to the second retention basin is the inflow from Line 1. In addition to the outflow from the first retention basin, Line 1 has several watersheds

that are tributary. The unit hydrograph study attached in Appendix A provides the detailed analysis for each watershed. Table 1 provides the basic analysis parameters for each subarea tributary to Line 1, as well as the subarea tributary to Line 4. In order to determine the inflow component from Line 1 to the second retention basin, the 3-hour, 100-year peak runoff rate was determined for each subarea. The results of that analysis, Appendix A, are summarized in Table 2. The unit hydrographs were combined with the first retention basin outflow to determine the inflow into the second retention basin.

The hydrology analysis presented in this report differs from the 1982 Homeland MDP study prepared by the RFC&WCD. Specifically, the boundaries of the watersheds that are tributary to Line 1 and located east of the proposed Homeland MDP Line 1B and west of Homeland MDP Line 1A have been modified to reflect existing development in that area. This analysis also assumes that a new facility, Line 1D in Sultanas Road north of Watson Road, will be constructed prior to adoption of the proposed Homeland/Romoland MDP revision. Table 2 provides a summary of the runoff from each subarea, and the watershed boundaries and concentration point locations are shown on the Hydrology Map, Plate ____.

TABLE 1
DRAINAGE SUBAREA DATA

		SUBAREA "A"	SUBAREA "B"
AREA	=	153 Ac.	73 Ac.
LENGTH	=	4,750 Ft.	2,800 Ft.
LCA	=	2,400 Ft.	1,400 Ft.
Δh	=	560 Ft.	123 Ft.
n	=	0.028	0.028
		SUBAREA "C"	SUBAREA "C-1"
AREA	=	45 Ac.	132 Ac.
LENGTH	=	3,100 Ft.	4,150 Ft.
LCA	=	1,830 Ft.	2,300 Ft.
Δh	=	138 Ft.	550 Ft.
n	=	0.028	0.028
		SUBAREA "D"	SUBAREA "E"
AREA	=	276 Ac.	21 Ac.
LENGTH	=	7,100 Ft.	1,450 Ft.
LCA	=	3,200 Ft.	650 Ft.
Δh	=	736 Ft.	64 Ft.
n	=	0.028	0.028
		SUBAREA "F"	SUBAREA "G"
AREA	=	1,618 Ac.	1,689 Ac.
LENGTH	=	14,200 Ft.	16,400 Ft.
LCA	=	7,100 Ft.	6,600 Ft.
Δh	=	920 Ft.	670 Ft.
n	=	0.028	0.023

		SUBAREA "H"	RAINFALL:
AREA	=	160 Ac.	$I_3 = 2.04$ in
LENGTH	=	3,700 Ft.	$I_6 = 3.01$ in
LCA	=	1,875 Ft.	$I_{24} = 5.25$ in
Δh	=	89 Ft.	
n	=	0.023	

TABLE 2
SUMMARY OF HYDROLOGY STUDIES FOR
LINE 1 AND LATERAL 1A, 1B, 1C & 1D

SUBAREA	WEBB Q ₁₀₀ ⁽¹⁾
A	218 cfs ⁽²⁾
B	108 cfs ⁽³⁾
C	66 cfs ⁽⁴⁾
C-1	191 cfs ⁽⁵⁾
D	364 cfs ⁽⁶⁾
E	32 cfs ⁽⁷⁾
F	1816 cfs ⁽⁸⁾
G	1599 cfs ⁽⁹⁾
H	222 cfs ⁽¹⁰⁾

⁽¹⁾Runoff at Watson Road

⁽²⁾Runoff at Line 1C

⁽³⁾Runoff at Line 1B

⁽⁴⁾Runoff to Line 1

⁽⁵⁾Runoff at Line 1D

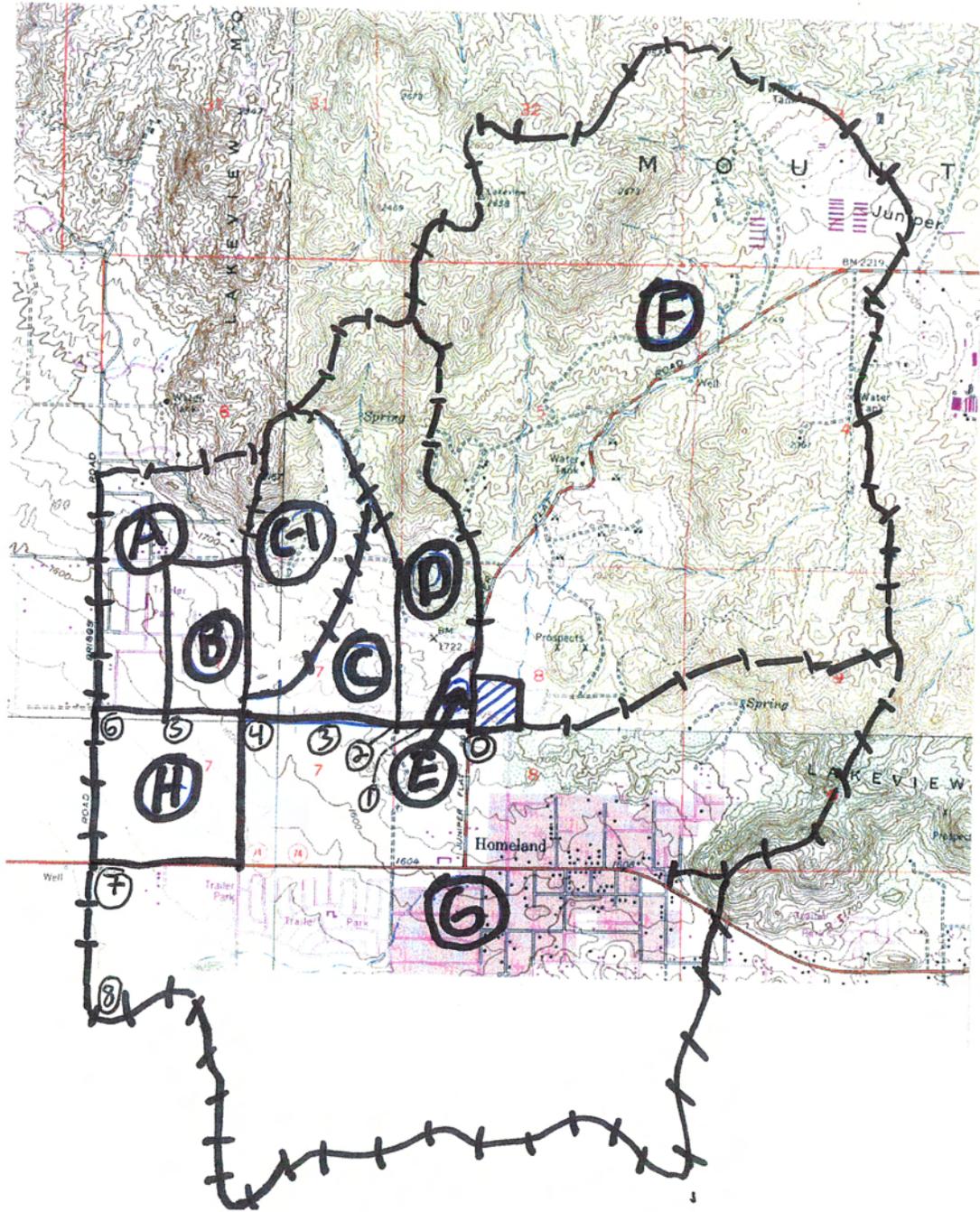
⁽⁶⁾Runoff at Line 1A

⁽⁷⁾Runoff to Line 1

⁽⁸⁾Runoff upstream of proposed basin

⁽⁹⁾Runoff at Line 4

⁽¹⁰⁾Runoff to Line 1



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RIVERSIDE COUNTY FLOOD CONTROL &
 WATER CONSERVATION DISTRICT

HOMELAND/ROMOLAND DRAINAGE BOUNDARY MAP

SOURCE: RCFC & WCD

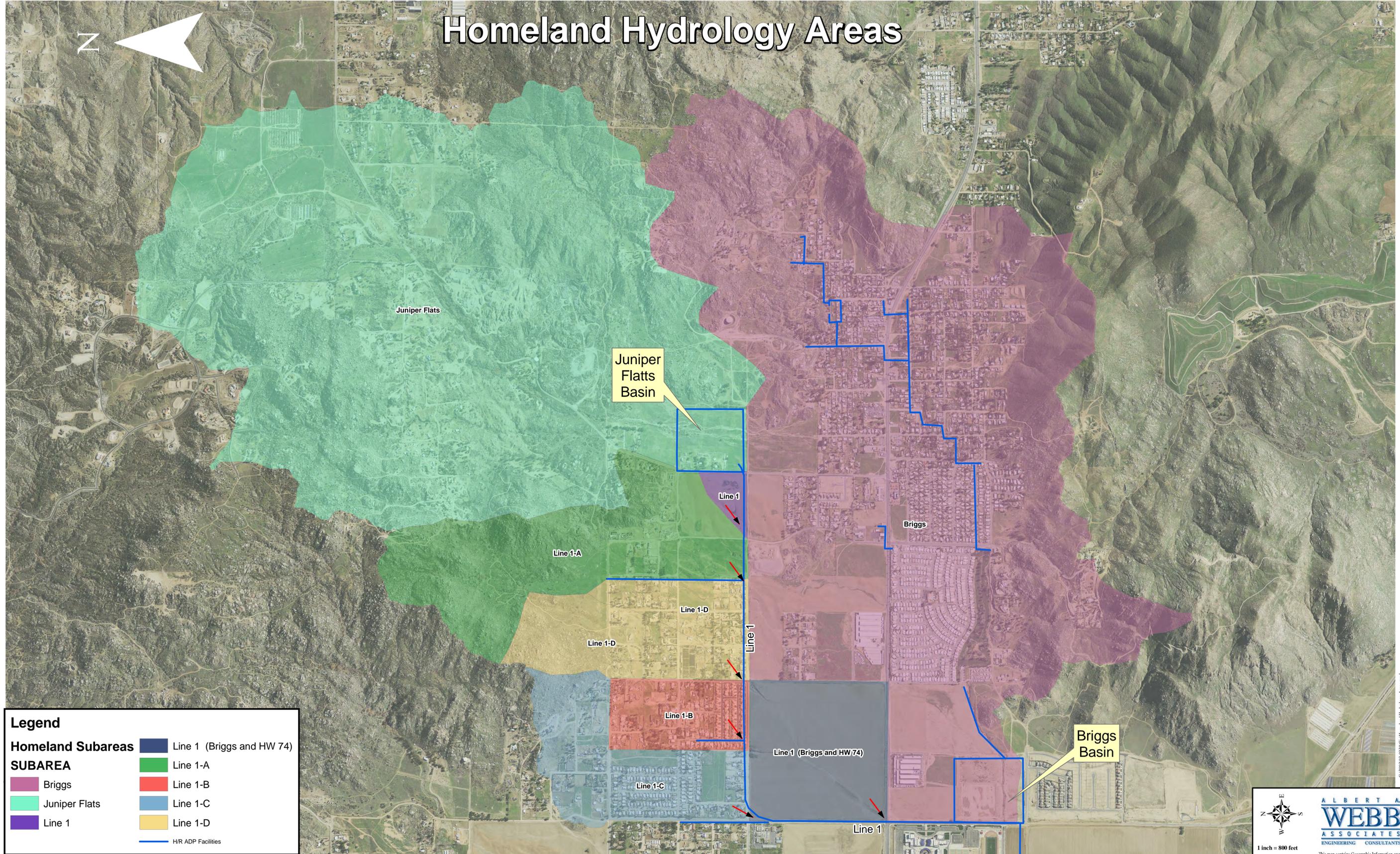
SHEET 1 OF 1

SCALE: 1" = 3000'

DRWN BY _____ DATE _____
 CHKD BY _____ DATE _____

SUBJECT: HOMELAND /ROMOLAND MDP

Homeland Hydrology Areas



Legend

Homeland Subareas

	Line 1 (Briggs and HW 74)
	Line 1-A
	Briggs
	Juniper Flats
	Line 1-B
	Line 1-C
	Line 1-D
	H/R ADP Facilities

1 inch = 800 feet




ALBERTA WEBB ASSOCIATES
ENGINEERING CONSULTANTS

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PERRIS



TRUMBULL RD

SHERMAN RD

DAWSON RD

ANTELOPE RD

MCLAUGHLIN RD

MAPES RD

JEFFERSON AVE
MONROE AVE
JACKSON AVE
HARRISON AVE

WATSON RD

PALOMAR RD

JUNIPERO RD

MENIFEE RD

CUMMING AVE

74

AT & SF RR

MATTHEWS RD

AVERAGE OF CONSTRUCTION BIDS

BID DATE: Tuesday, June 10, 2008 - 3:00 PM

PROJECT'S ESTIMATE

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE \$	TOTAL AMOUNT \$
LINE 1 - STAGE 1, BRIGGS BASIN & JUNIPER-FLATS BASIN					
1	Mobilization	1	LS	\$300,000.00	\$300,000.00
2	Clearing and Miscellaneous Work	1	LS	\$175,000.00	\$175,000.00
3	Water Control	1	LS	\$45,000.00	\$45,000.00
4	Traffic Control	1	LS	\$100,000.00	\$100,000.00
5	Trench Safety System & Falsework	1	LS	\$275,000.00	\$275,000.00
6	Dust Abatement	1	LS	\$75,000.00	\$75,000.00
7	Stormwater & Non-Stormwater Pollution Control	1	LS	\$100,000.00	\$100,000.00
LINE 1 - STAGE 1, BRIGGS BASIN & JUNIPER FLATS BASIN					
8	Trapezoidal Channel Excavation	7,200	CY	\$3.00	\$21,600.00
9	Place Aggregate Base, Class 2	3,300	CY	\$28.00	\$92,400.00
10	Construct Reinforced Concrete Box Culvert	6,550	CY	\$450.00	\$2,947,500.00
11	Basin Excavation	1,600,000	EA	\$3.00	\$4,800,000.00
12	Embankment	24,000	CY	\$1.00	\$24,000.00
13	Construct Class "A" Structural Concrete	1,370	CY	\$450.00	\$616,500.00
14	Construct Concrete Trapezoidal Channel	1,070	CY	\$350.00	\$374,500.00
15	Construct Concrete Cutoff Wall	3,730	LF	\$11.00	\$41,030.00
16	Construct Class "B" Concrete - 4' Cutoff Wall	900	LF	\$18.00	\$16,200.00
17	Construct Class "B" Concrete - 5' Cutoff Wall	140	LF	\$22.00	\$3,080.00
18	Construct Class "B" Concrete - 6' Cutoff Wall	155	LF	\$27.00	\$4,185.00
19	Construct 6" Thick Concrete Pad	18	CY	\$200.00	\$3,600.00
20	Install 6' Chainlink Fence	15,200	LF	\$10.00	\$152,000.00
21	Construct 14' Double Drive Gate	10	EA	\$1,500.00	\$15,000.00
22	Construct Channel Sub-Drain	1,855	LF	\$13.00	\$24,115.00
23	Construct Manhole No. 3	12	EA	\$1,700.00	\$20,400.00
24	Construct Manhole No. 2	8	EA	\$1,000.00	\$8,000.00
25	Install 24" RCP (Class IV)	8	LF	\$125.00	\$1,000.00
26	Install 54" RCP (D-1400)	25	LF	\$500.00	\$12,500.00
27	Install 60" RCP (D-1400)	30	LF	\$550.00	\$16,500.00
28	Install 72" RCP (D-1600)	1,895	LF	\$275.00	\$521,125.00
29	Install 96" RCP (D-1400)	2,126	LF	\$375.00	\$797,250.00
30	Install Concrete Bulkhead	2	EA	\$1,000.00	\$2,000.00
31	Construct Junction Structure No. 1	2	EA	\$1,300.00	\$2,600.00
32	Construct Transition Structure No. 1	1	EA	\$25,000.00	\$25,000.00
33	Construct Transition Structure No. 3	1	EA	\$2,000.00	\$2,000.00
34	Construct Rock Slope Protection (2 Ton-Rip Rap)	1,560	CY	\$45.00	\$70,200.00
35	Construct Rock Slope Protection (1 Ton-Rip Rap)	2,260	CY	\$45.00	\$101,700.00
36	Construct Rock Slope Protection (1/4 Ton-Rip Rap)	390	CY	\$45.00	\$17,550.00
37	Construct Grouted Rock Slope Protection (1/4 Ton Grouted Rip Rap)	5,150	CY	\$45.00	\$231,750.00
38	Install Metal Beam Guard Rail	45	LF	\$80.00	\$3,600.00
39	Construct Juniper Flats Basin Debris Inlet Structure	1	EA	\$65,000.00	\$65,000.00
40	Construct Briggs Basin Debris Inlet Structure	1	EA	\$75,000.00	\$75,000.00
41	Construct Inlet Structure - Lat 1A	1	EA	\$9,800.00	\$9,800.00
42	Construct Inlet Structure - Lat 1B	1	EA	\$5,500.00	\$5,500.00
43	Construct Inlet Structure - CB110	1	EA	\$2,500.00	\$2,500.00
44	Construct Class "B" Concrete Access Ramp	600	CY	\$200.00	\$120,000.00
45	Construct Miscellaneous Class "B" Concrete - 3' V-Ditch	1,367	LF	\$13.00	\$17,771.00

AVERAGE OF CONSTRUCTION BIDS

PROJECT'S
ESTIMATE

BID DATE: Tuesday, June 10, 2008 - 3:00 PM

AVERAGE OF CONSTRUCTION BIDS				PROJECT'S ESTIMATE	
46	Construct Class "B" Concrete 18" V-Ditch	1,100	LF	\$18.00	\$19,800.00
47	Asphalt Concrete - Type "A"	170.0	TON	\$90.00	\$15,300.00
48	Asphalt Concrete - Type "B"	620	TON	\$80.00	\$49,600.00
49	Construct Class "B" Concrete - 10' Wide V-Ditch	55	LF	\$90.00	\$4,950.00
50	Install 3' Cable Railing	435	LF	\$8.50	\$3,697.50
51	Remove Existing Improvements and Join 5'H x 8'W RCB	1	LS	\$7,500.00	\$7,500.00
52	Remove Existing Improvements and Join 60" RCP	1	LS	\$7,500.00	\$7,500.00
53	Hydroseed Basin Slopes	815,000	SF	\$0.03	\$24,450.00
54	Paint Traffic Stripe (2 Coats)	13,000	LF	\$0.25	\$3,250.00
55	Install 8" Thermoplastic Traffic Stripe	650	LF	\$0.50	\$325.00
56	Install Thermoplastic Cross Walk and Pavement Marking	600	SF	\$1.00	\$600.00
57	Install Pavement Marker, Reflective	180	EA	\$4.00	\$720.00
58	Construct Curb Ramp	2	EA	\$1,500.00	\$3,000.00
59	Install AC Dike (6")	350	LF	\$8.00	\$2,800.00
60	Traffic Signal Modification	1	LS	\$100,000.00	\$100,000.00
61	Install 8" Sewer Connection (Psaros)	2	LS	\$12,000.00	\$24,000.00
62	Install Cable Fence per RCFC&WCD Std. Dwg. M826	932	LF	\$8.50	\$7,922.00
BID TOTAL					\$12,609,870.50

2010 Adjusted Costs

PROJECT'S
ESTIMATE

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE \$	TOTAL AMOUNT \$
LINE 1 - STAGE 1, BRIGGS BASIN & JUNIPER-FLATS BASIN					
1	Mobilization	1	LS	\$300,000.00	\$300,000.00
2	Clearing and Miscellaneous Work	1	LS	\$175,000.00	\$175,000.00
3	Water Control	1	LS	\$45,000.00	\$45,000.00
4	Traffic Control	1	LS	\$100,000.00	\$100,000.00
5	Trench Safety System & Falsework	1	LS	\$275,000.00	\$275,000.00
6	Dust Abatement	1	LS	\$75,000.00	\$75,000.00
7	Stormwater & Non-Stormwater Pollution Control	1	LS	\$100,000.00	\$100,000.00
LINE 1 - STAGE 1, BRIGGS BASIN & JUNIPER FLATS BASIN					
8	Trapezoidal Channel Excavation	7,200	CY	\$3.00	\$21,600.00
9	Place Aggregate Base, Class 2	0	CY	\$28.00	\$0.00
10	Construct Reinforced Concrete Box Culvert	6,450	CY	\$450.00	\$2,902,500.00
11	Basin Excavation	1,600,000	EA	\$3.00	\$4,800,000.00
12	Embankment	24,000	CY	\$1.00	\$24,000.00
13	Construct Class "A" Structural Concrete	456	CY	\$450.00	\$205,200.00
14	Construct Concrete Trapezoidal Channel	1,518	CY	\$350.00	\$531,300.00
15	Construct Concrete Cutoff Wall	3,730	LF	\$11.00	\$41,030.00
16	Construct Class "B" Concrete - 4' Cutoff Wall	900	LF	\$18.00	\$16,200.00
17	Construct Class "B" Concrete - 5' Cutoff Wall	140	LF	\$22.00	\$3,080.00
18	Construct Class "B" Concrete - 6' Cutoff Wall	155	LF	\$27.00	\$4,185.00
19	Construct 6" Thick Concrete Pad	18	CY	\$200.00	\$3,600.00
20	Install 6' Chainlink Fence	0	LF	\$10.00	\$0.00
21	Construct 14' Double Drive Gate	0	EA	\$1,500.00	\$0.00
22	Construct Channel Sub-Drain	1,855	LF	\$13.00	\$24,115.00
23	Construct Manhole No. 3	12	EA	\$1,700.00	\$20,400.00
24	Construct Manhole No. 2	8	EA	\$1,000.00	\$8,000.00
25	Install 24" RCP (Class IV)	8	LF	\$125.00	\$1,000.00
26	Install 54" RCP (D-1400)	25	LF	\$500.00	\$12,500.00
27	Install 60" RCP (D-1400)	30	LF	\$550.00	\$16,500.00
28	Install 72" RCP (D-1600)	1,895	LF	\$275.00	\$521,125.00
29	Install 96" RCP (D-1400)	2,126	LF	\$375.00	\$797,250.00
30	Install Concrete Bulkhead	2	EA	\$1,000.00	\$2,000.00
31	Construct Junction Structure No. 1	2	EA	\$1,300.00	\$2,600.00
32	Construct Transition Structure No. 1	1	EA	\$25,000.00	\$25,000.00
33	Construct Transition Structure No. 3	1	EA	\$2,000.00	\$2,000.00
34	Construct Rock Slope Protection (2 Ton-Rip Rap)	1,560	CY	\$45.00	\$70,200.00
35	Construct Rock Slope Protection (1 Ton-Rip Rap)	2,260	CY	\$45.00	\$101,700.00
36	Construct Rock Slope Protection (1/4 Ton-Rip Rap)	390	CY	\$45.00	\$17,550.00

2010 Adjusted Costs

PROJECT'S
ESTIMATE

37	Construct Non-Grouted Rock Slope Protection (1/4 Ton Grouted Rip Rap)	5,150	CY	\$45.00	\$231,750.00
38	Install Metal Beam Guard Rail	0	LF	\$80.00	\$0.00
39	Construct Juniper Flats Basin Debris Inlet Structure	0	EA	\$65,000.00	\$0.00
40	Construct Briggs Basin Debris Inlet Structure	0	EA	\$75,000.00	\$0.00
41	Construct Inlet Structure - Lat 1A	1	EA	\$9,800.00	\$9,800.00
42	Construct Inlet Structure - Lat 1B	1	EA	\$5,500.00	\$5,500.00
43	Construct Inlet Structure - CB110	1	EA	\$2,500.00	\$2,500.00
44	Construct Class "B" Concrete Access Ramp	0	CY	\$200.00	\$0.00
45	Construct Miscellaneous Class "B" Concrete - 3' V-Ditch	0	LF	\$13.00	\$0.00
46	Construct Class "B" Concrete 18" V-Ditch	0	LF	\$18.00	\$0.00
47	Asphalt Concrete - Type "A"	0.0	TON	\$90.00	\$0.00
48	Asphalt Concrete - Type "B"	0	TON	\$80.00	\$0.00
49	Construct Class "B" Concrete - 10' Wide V-Ditch	55	LF	\$90.00	\$4,950.00
50	Install 3' Cable Railing	435	LF	\$8.50	\$3,697.50
51	Remove Existing Improvements and Join 5'H x 8'W RCB	1	LS	\$7,500.00	\$7,500.00
52	Remove Existing Improvements and Join 60" RCP	1	LS	\$7,500.00	\$7,500.00
53	Hydroseed Basin Slopes	0	SF	\$0.03	\$0.00
54	Paint Traffic Stripe (2 Coats)	0	LF	\$0.25	\$0.00
55	Install 8" Thermoplastic Traffic Stripe	0	LF	\$0.50	\$0.00
56	Install Thermoplastic Cross Walk and Pavement Marking	0	SF	\$1.00	\$0.00
57	Install Pavement Marker, Reflective	0	EA	\$4.00	\$0.00
58	Construct Curb Ramp	0	EA	\$1,500.00	\$0.00
59	Install AC Dike (6")	0	LF	\$8.00	\$0.00
60	Traffic Signal Modification	0	LS	\$100,000.00	\$0.00
61	Install 8" Sewer Connection (Psaros)	0	LS	\$12,000.00	\$0.00
62	Install Cable Fence per RCFC&WCD Std. Dwg. M826	0	LF	\$8.50	\$0.00
BID TOTAL					\$11,517,832.50

Reduce Excavation for Juniper Flats Basin Based on Contract to Remove Material	\$1,898,000.00
Reduce Excavation for Briggs Road Basin Based on Negotiations to Remove 350,000 CY	\$1,050,000.00
Reduction in Construction Costs between 2008 and 2010 Due to Economic Recession	\$2,570,949.75
Revised Construction Estimate Based Phase 1 Project Implementation	\$5,998,882.75